VOLUME 1

Draft
Supplemental Environmental Impact Statement

Arrow Canyon Solar Project

On Behalf of:
THE MOAPA BAND OF PAIUTE INDIANS

BUREAU OF INDIAN AFFAIRS
Bureau of Land Management
Environmental Protection Agency
US Fish and Wildlife Service

Estimated Lead Agency
Total Costs Associated with
Developing and Producing This EIS
$ 1,272,000

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Volume 1

DRAFT
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (DSEIS)

ARROW CANYON SOLAR SOLAR PROJECT

On Behalf of:

THE MOAPA BAND OF PAIUTE INDIANS

BUREAU OF INDIAN AFFAIRS
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL PROTECTION AGENCY
US FISH AND WILDLIFE SERVICE

August 2020

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EXECUTIVE SUMMARY

The following sections summarize the Draft Supplemental Environmental Impact Statement (DSEIS) for the Arrow Canyon Solar Project (ACSP or Project), a proposed 200-megawatt (MW) photovoltaic (PV) solar energy facility with battery storage located on the Moapa River Indian Reservation (Reservation) about 30 miles north of Las Vegas in Clark County, Nevada.

EDF Renewables Development, Inc. (EDFR) has entered into an option agreement with the Moapa Band of Paiute Indians (Moapa Band or Band) to lease an additional 1,350 acres that would effectively expand the solar field lease area for the previously approved but not yet constructed Moapa Solar Energy Center (MSEC) Project located solely on Reservation lands. **Figure 1-1** in **Appendix A** shows the location of the Project. The MSEC Project included a photovoltaic (PV) solar project on an 850-acre lease area and an access road, gen-tie line, and temporary water pipeline (**Figure 1-2**).

Impacts from the original MSEC Project were analyzed in a Final Environmental Impact Statement (FEIS) published in February 2014 by the Bureau of Indian Affairs (BIA) as the lead federal agency. Because the proposed ACSP would expand the solar site, it could result in the potential for additional environmental effects outside of the range of effects analyzed in the MSEC FEIS (BIA 2014). Therefore, this DSEIS is being developed to evaluate the expanded ACSP site and to supplement the original analysis.

ES.1 Purpose of the Project

The primary purpose and need for the proposed ACSP is to: 1) create an economic development opportunity for the Band by providing a long-term, economically viable revenue source (lease income) and creating new jobs and employment opportunities for Tribal members; 2) meet the terms of an existing Power Purchase Agreement (PPA); 3) satisfy requirements of the existing large generator interconnection agreement (LGIA) to connect the Project to the Harry Allen Substation and 4) develop clean renewable electricity generation from the Band's solar resources to support the State of Nevada's 50 percent renewable portfolio standard (RPS) requirement by 2030 and a goal of 100 percent carbon-free resources by 2050 (State Bill 358). The Project would also help meet the goals of the Federal Government to eliminate or reduce greenhouse gas (GHG) emissions and promote the deployment of renewable energy technologies.

The Band identified the original MSEC Project and the expansion proposed by the ACSP as a viable opportunities to meet its economic development goals because the lease would provide much needed revenue to the Band while occupying a small portion of the Reservation. Likewise, the Band identified the lands proposed for expanding the original lease as suitable for the proposed use as they are contiguous to the originally approved 850-acre site. Also, the use of the Band's water proposed by the Project would help the Band affirm and sustain its rights to the water.

ES.2 Agency Purpose and Need

The need for the BIA action is established by the BIA's responsibility (as defined in 42 U.S.C. §§ 4321 *et seq*) to respond to a request for approval of a lease that would expand the previously approved solar field on lands held in trust for Indian tribes. The BIA purpose, pursuant to 25 United States Code (U.S.C.) §415, is to deny, grant, or grant with modifications the proposed lease.

The linear ancillary facilities that will be part of the ACSP (gen-tie line, access road, and water pipeline) were previously approved by the Bureau of Land Management (BLM) for the MSEC Project. They were analyzed in the MSEC FEIS and approved by the BLM Record of Decision. In addition, the BLM has issued a right-of-way (ROW) for these facilities. Because these project components would be constructed, operated, maintained, and decommissioned as described in the previously approved analysis, decision, and ROW, the BLM does not need to take a federal action or make a decision for the proposed solar field expansion on tribal lands proposed by the ACSP.

Because the BIA has a jurisdictional trust responsibility over Indian lands, the Project is a major Federal action and must comply with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. §§ 4321 *et seq.*). Because the expansion of the Project would be located on tribal trust lands, the BIA is the lead federal agency. The Band, BLM, Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS) are cooperating agencies on the SEIS for the Project. The BIA will use this SEIS to make their decision for approval of the solar ground lease expansion on the Reservation. The cooperating parties will use this information to support their analyses and decisions, as needed.

ES.3 Public Involvement

The BIA published a Notice of Intent (NOI) to prepare an SEIS for the Project in the *Federal Register* on January 30, 2020. In addition, notices were placed in local newspapers and two public scoping meetings were held for the Project - one on the Reservation on February 25, 2020 and the other in Las Vegas on February 26, 2020.

The key issues were identified by interested stakeholders and members of the public during scoping for the ACSP and include:

- Potential impacts to desert tortoise, birds, and other sensitive species
- Potential impacts to vegetation and need to control weeds
- Socioeconomic impacts to Band members and the regional economy
- Impacts to other existing and proposed land uses in the area
- Potential impacts to cultural resources
- Impacts to water resources including water use and effects on ephemeral drainages
- Visibility of the project on the landscape from I-15 and the Old Spanish National Historic Trail
- Emissions of fugitive dust and potential worker exposure to Coccidioides spores, if present
- Impacts from cumulative projects in the vicinity of the proposed Project

ES.4 Alternatives

This document analyzes the proposed Project and the No Action Alternative. This document also discusses alternatives that were considered but eliminated from further consideration. The proposed Project is the Proposed Action. The alternatives are described in detail in Chapter 2 and are summarized below.

Proposed Action

The proposed Project would consist of a PV solar power generation facility (SPGF or solar field), a previously approved electrical line that would interconnect the Project to the regional electrical transmission grid (gen-tie line), a previously approved temporary water pipeline, and a previously approved access road between the SPGF and a frontage road (North Las Vegas Boulevard) along the west side of Interstate 15 (I-15). In addition to the 850-acre SPGF and ancillary facilities that were previously approved by the BIA and the BLM, the ACSP proposes to expand the SPGF by 1,350 acres for a total of 2,200 acres within in a lease study area of 2,683 acres. This expansion would be located entirely on the Reservation. There would be no changes to the ancillary facilities of the Project on federal public lands that the BLM approved in the ROW issued in 2015.

Below is a summary of the proposed changes to solar field components that would result from implementation of the ASCP:

- Expansion of solar field from 850 acres to up to 2,200 acres
- Addition of battery energy storage system (BESS)
- Increase in maximum height of solar panels from 12 feet to 18 feet
- Increase in water consumption during construction from 50 AFY to 100-300 AFY
- Modification to site preparation techniques to mow vegetation to a height of 18 inches and drive and crush the remaining vegetation with equipment as needed during construction
- Modification to site perimeter fencing around groups of arrays instead of the entire project perimeter and to leave a gap of 6-8 inches at the bottom of the fence to allow movement of animals, including desert tortoises, onto and through the solar site after construction
- Utilize a septic system for wastewater management during operations instead of evaporation ponds
- Use of trucks to bring in water during operations

No Action Alternative

Under NEPA, the BIA and cooperating agencies must consider an alternative that assesses the impacts that would occur if the expansion of the solar ground lease was not approved. The No Action Alternative assumes that the expansion of the lease area would be denied and the Project would only use the originally approved 850-acre lease area. Under the No Action Alternative, the purpose and need of the Project would not be fully met - the Applicant would not be able to deliver the full amount of power per their PPA and the Band would not benefit economically from the expansion of the lease.

ES.5 Environmental Consequences and Mitigation

The proposed ACSP would expand the solar field of the previously approved MSEC project. While the solar site expansion associated with the proposed ACSP would occupy an expanded footprint from the previously evaluated and approved MSEC solar project, the type of facilities, location, and many of the activities evaluated would be similar to the analysis in the MSEC FEIS (BIA 2014). The changes between the proposed ACSP and the originally approved MSEC Project are the focus of this SEIS analysis.

In addition, the ACSP would be one of four utility-scale PV solar projects on the Reservation to be recently evaluated in an EIS. In addition to the MSEC project, the three other evaluated solar projects on the Reservation include:

- K-Road Moapa Solar Facility (K-Road) – 350 MW PV solar project, Final EIS published in 2012, east-southeast of the proposed Project, constructed and operating (BIA 2012)
- Aiya Solar Project (Aiya) - 100 MW PV solar project, Final EIS published in 2016, north of proposed Project, approved but not constructed (BIA 2016)
- Eagle Shadow Mountain Solar Project (ESMSP) - 300 MW PV solar project, Final EIS published in 2019, north of proposed Project, approved but not constructed (BIA 2019)

This SEIS tiers to the previous MSEC FEIS and incorporates by reference the analyses performed for the other solar projects on the Reservation, where applicable.

Table ES-1 provides a comparative summary of the environmental impacts resulting from constructing, operating, maintaining, and decommissioning the ACSP alternatives as well as the planned mitigation. These expected impacts are discussed in detail in Chapter 3.

Table ES 1
Comparison of Alternatives

Resource	Proposed Project	No Action Alternative	Mitigation
Climate	Same as original MSEC Project, short-term minor GHG emissions and would not adversely hinder Federal or State goals to reduce GHG emission levels	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	No recommendations
Topography, Geology, and Geologic Hazards	Less acreage of grading than original MSEC Project, no significant impacts to topography and geology	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	No recommendations
Soils	Increased acreage of overall soil disturbance (2,200 vs 850 acres) but less acreage of grading than original MSEC Project (187 vs 850 acres), short-term adverse soil impacts, potential long-term impacts in areas with biocrust and desert pavement	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Minimize grading and implement of Erosion Control and Fugitive Dust Control Plans
Water Resources (surface)	More acreage and drainages affected than the original MSEC Project, less grading (187 vs 850 acres) expected to result in less sediment production, like the MSEC Project, construction within major washes would be minimized,	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Spill Prevention, Control, and Countermeasure Plan (SPCC), Surface Water Protection Plan (SWPP), maintaining existing drainage patterns, erosion control measures
Water Resources (ground)	Greater (300 vs 100 acre-feet per year (AFY)) short-term use of groundwater from Tribal wells during the up to 20-month construction period than the original MSEC Project and the same long-term use of 30 AFY during operations, would not impact other water users	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	No recommendations
Air Quality	Similar to the original MSEC Project but fewer acres graded expected to lessen fugitive dust, negligible short-term, direct and indirect adverse air quality impacts from construction, emissions during operations would minor	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Fugitive Dust Control Plan
Noise	Same as original MSEC Project, short-term increase in noise at the site boundary from construction but not perceptible at nearest receptors because of distance, long-term noise effects from O&M would be very minor	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	No recommendations
Vegetation	Short-term direct and indirect effects on more acres of vegetation than the original MSEC Project (up to 1,937 vs 850 acres) of vegetation from construction; and long-term impact to 187 acres, potential more rapid site restoration and lower potential spread of invasive or noxious species because of mowing vs grading on most of the site	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Site Restoration Plan, Weed Management Plan

Table ES 1
Comparison of Alternatives

Resource	Proposed Project	No Action Alternative	Mitigation
Wildlife	Short-term direct and indirect effects on more acres of habitat that the original MSEC Project (up to 1,937 vs 850 acres) from construction and long-term impact to 187 acres of habitat, short- and long-term nuisance from noise and human presence during construction and operations	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Worker Environmental Awareness Program (WEAP), biological monitors onsite during construction, design of avian safe transmission towers
Special Status Species	Short-term direct and indirect effects on more acres of tortoise habitat that the original MSEC Project (up to (1,937 vs 850 acres) from construction and long-term impact to 187 acres of tortoise habitat and foraging area, potential more rapid restoration of tortoise habitat because of mowing vs grading on most of the site, long-term impacts to tortoise following construction would be less than the original MSEC Project because perimeter fencing would be raised at the bottom allowing tortoises to reoccupy and move through the site	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Worker Environmental Awareness Program (WEAP), reduced vehicle speed limits, biological monitors onsite during construction, Weed Management Plan, Raven Control Plan
Cultural Resources	Same as original MSEC Project, no effect on eligible historic properties because none are located within the Area of Potential Effect (APE), no potential visual effects on eligible resources and the Old Spanish National Historic Trail	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	Memorandum of Agreement (MOA) between the Band, BIA, and State Historic Preservation Office (SHPO) will define measures to mitigate impacts to adversely affected properties
Socioeconomics	Similar to original MSEC Project, lower projected operations workforce (12 vs 20-40), beneficial short- and long-term direct and indirect impacts from increases in employment, population and local spending, economic stimulus to the Band, higher projected construction workforce (500 vs 300) and slightly shorter construction period (20 vs 24 months),	Short and long-term adverse impacts from no economic stimulus to the Band and local area beyond those previously described for the MSEC Project	No recommendations
Land / Resource Use	Short-term direct and indirect impacts to traffic due to construction workforce and commercial truck traffic during construction. Negligible long-term impacts from operational traffic	No direct, indirect or cumulative impacts beyond those previously described for the MSEC Project	Implementation of Traffic Management Plan during construction
Special Management Areas	Same as original MSEC Project, no impacts to special management areas	No direct, indirect, or cumulative impacts beyond those previously described for the MSEC Project	No recommendations
Visual Resources	Same as original MSEC Project, the ACSP would be visible from some locations on I-15 but many potential views from I-15 would be blocked by intervening topography, would not be visible from portions of Old Spanish National Historic Trail	No direct, indirect or cumulative impacts beyond those previously described for the MSEC Project	No recommendations

CHAPTER 1
Purpose and Need

1.1 Introduction

EDF Renewables Development, Inc. (EDFR) has entered into an option agreement with the Moapa Band of Paiute Indians (Moapa Band or Band) to lease an additional 1,350 acres that would effectively expand the solar field lease area for the previously approved but not yet constructed Moapa Solar Energy Center (MSEC) Project located on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada. The existing solar field ground lease is for a term of 50 years (plus additional time as needed for construction and decommissioning) and would be expanded under new lease terms from the previously approved 850 acres to up to 2,200 acres for constructing, operating and maintaining, and decommissioning a 200-megawatt (MW) solar energy generating facility using photovoltaic (PV) technology with battery storage. The expanded solar project and associated facilities are now referred to as the Arrow Canyon Solar Project (ACSP or Project). **Figure 1-1** (located in **Appendix A** of this document along with all figures) shows the proposed general location for the Project.

The Bureau of Indian Affairs (BIA), as lead agency, in cooperation with the Moapa Band, the Bureau of Land Management (BLM), Environmental Protection Agency (EPA), and the US Fish and Wildlife Service (USFWS) intend to prepare a Supplemental Environmental Impact Statement (SEIS) that will evaluate the expansion of the MSEC solar field.

1.2 Project Background, Overview, and Location

The proposed ACSP solar generating facility would be constructed entirely within the Reservation on up to 2,200 acres located within a lease study area of approximately 2,683 acres of tribal trust land. These lands are all located within the Reservation in an area set aside by the Band exclusively for the ACSP.

Impacts from the original MSEC Project were analyzed in accordance with the National Environmental Policy Act (NEPA) in a Final Environmental Impact Statement (FEIS) published in February 2014 by the BIA as the lead federal agency. The BLM, the Moapa Band, and others served as cooperating agencies. The BIA signed a Record of Decision (ROD) in May 2014 and approved the solar ground lease one month later in June 2014. The BLM also signed the ROD in May of 2014 and issued the necessary ROW for the project's linear features in August 2015 (ROW N-88870). The issued ROW consisted of the following: 1) the Project's main access road from North Las Vegas Boulevard crossing approximately 2.5 miles of federal lands to the Project boundary on the Reservation; 2) a 230-kV generation-tie (gen-tie) line crossing approximately 7.1 miles of federal land from the Project site to the NV Energy-owned Harry Allen Substation; and 3) a water pipeline between an existing water well located on the Reservation and the Project Site but within a designated utility corridor managed by the BLM. **Figure 1-2** shows the original MSEC Project facilities that were approved. Currently, the approved MSEC Project and associated facilities have not yet been constructed.

In March 2017, EDFR purchased the MSEC Project and renamed it the ACSP. EDFR subsequently transferred the project to Arrow Canyon Solar, LLC (Applicant) - a fully owned subsidiary of EDFR. In May

2018, the Applicant reached agreement with the Moapa Band to expand the ACSP site on the Reservation from the previously-approved 850 acres to up to 2,200 acres to accommodate the currently planned project that includes the PV solar field and a battery energy storage system (BESS). **Figure 1-3** shows the area on the Reservation where this proposed expansion would occur.

The previously approved linear ancillary facilities, (i.e. main access road, 230kV gen-tie line, and water pipeline) would remain a part of the ACSP project description. They would be unchanged and would be developed as analyzed in the previous EIS and as described in the ROD and ROW issued by the BLM.

The expansion of the solar facility from 850 to 2,200 acres would result in "substantial changes to the proposed action that are relevant to environmental concerns" under 40 CFR 1502.9(c)(1)(i). Because the proposed expansion of the solar site could result in the potential for additional environmental effects outside of the range of effects analyzed in the MSEC FEIS, a SEIS is being developed to evaluate the expanded ACSP site.

The proposed ACSP would be one of four utility-scale PV solar projects on the Reservation. The ACSP would expand one of the previously approved projects (the MSEC Project) that has not yet been constructed. The 350MW K Road Moapa Solar Facility (K Road) has been constructed and is located about 3 miles northeast of the proposed ACSP. Another, the 300MW Eagle Shadow Mountain Solar Project (ESMSP), has been approved through the NEPA process but leases are not yet issued and not yet constructed and is located immediately north of the ACSP. The 100MW Aiya Solar Project (Aiya) is also approved but unconstructed and is located in the northern portion of the Reservation, approximately 12 miles from the ACSP. **Figure 1-4** shows the relative locations of these projects.

1.3 Purpose and Need of the Proposed Project

The Moapa Band is federally recognized and has a Constitution approved by the Secretary of the Interior on April 17, 1942. The current total land base of the Moapa River Indian Reservation is 71,757 acres that is held in trust by the U.S. Government for the sole benefit of the Band. The Reservation lands originally set aside in 1874 consisted of two million acres, but in 1876, the Reservation was reduced to 1,000 acres. In December 1980, Congress added approximately 70,000 acres to the Tribal land base. The stated purpose of the restoration of these Tribal lands was to provide economic development opportunities. A solar project on the Reservation provides a viable economic development opportunity for the Band.

The primary purpose and need for the proposed ACSP is to: 1) create an economic development opportunity for the Band by providing a long-term, economically viable revenue source (lease income) and creating new jobs and employment opportunities for Tribal members; 2) meet the terms of an existing Power Purchase Agreement (PPA); 3) satisfy requirements of the existing large generator interconnection agreement (LGIA) to connect the Project to the Harry Allen Substation and 4) develop clean renewable electricity generation from the Band's solar resources to support the State of Nevada's 50 percent renewable portfolio standard (RPS) requirement by 2030 and a goal of 100 percent carbon-free resources by 2050 (State Bill 358). The Project would also help meet the goals of the Federal Government to eliminate or reduce greenhouse gas (GHG) emissions and promote the deployment of renewable energy technologies.

The Band has identified the original MSEC Project and the expansion proposed by the ACSP as a viable opportunity to meet its economic development goals because the lease would provide much needed revenue to the Band while occupying a small portion of the Reservation. Likewise, the Band identified the lands proposed for expanding the original lease as suitable for the proposed use as they are contiguous to the originally approved 850-acre site.

The construction, operations and maintenance (O&M), and decommissioning of the Project would afford employment opportunity for Band members. The Band has determined that the Project would also be consistent with the Band's tradition of respect for the land and would fulfill the purposes for which the 70,000 acres were restored to the Band by the Federal Government in 1980 (Moapa Paiutes, n.d.). The use of the Band's water proposed by the Project would help the Band affirm and sustain its rights to the water.

Because the Project meets the Band's objectives, they have forwarded a resolution documenting their intent to enter into a lease that would expand the previously approved solar field to the BIA to initiate the environmental review process for the proposed ACSP.

1.4 Agency Purpose and Need

1.4.1 BIA Purpose and Need

The need for the BIA action is established by the BIA's responsibility to respond to a request for a lease that would expand the previously approved solar field on lands held in trust for Indian tribes. The BIA must meet its responsibility to review and approve actions on tribal lands held in trust for the benefit of the Band (as defined in 42 U.S.C. §§ 4321 *et seq*). For this Project, the BIA must review and respond to the proposed lease that expands the existing solar energy facility which was previously approved in a solar ground lease between the Band and the Applicant. The BIA purpose, pursuant to 25 United States Code (U.S.C.) §415, is to deny, grant, or grant with modifications the proposed lease that would expand the approved solar energy facility.

1.4.2 BLM Purpose and Need

The linear ancillary facilities that will be part of the ACSP (gen-tie line, access road, and water pipeline) were previously approved by the BLM for the MSEC Project. They were analyzed in the MSEC FEIS and approved by the BLM ROD. In addition, the BLM issued a ROW for these facilities. Because these project components would be constructed, operated, maintained, and decommissioned as described in the previously approved analysis, decision, and ROW, the BLM does not need to take a federal action or make a decision for the proposed solar field expansion on tribal lands proposed by the ACSP.

1.4.3 Decision to be Made

Table 1-1 summarizes the agency decisions to be made for the proposed Project. The BIA decision, if approved, would assist in addressing the management objectives in the Energy Policy Act of 2005 (Title II, Section 211) and Secretarial Order 3285A1 (March 11, 2009) that established the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

TABLE 1 1 SUMMARY OF AGENCY DECISIONS TO BE MADE	
Agency	**Action**
BIA	Approval of lease that would expand the solar energy facility
Moapa Band	Approval of lease that would expand the solar energy facility on the Reservation

Because the BIA has a jurisdictional trust responsibility over Indian lands, the Project is a major Federal action and must comply with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. §§ 4321 *et seq.*). Because the expansion of the Project would be located on tribal trust lands, the BIA is the lead federal agency. The Band, BLM, EPA, and USFWS are cooperating agencies on the SEIS for the Project. The BIA will use this SEIS to make their decision for approval of the solar ground lease expansion on the Reservation. The cooperating parties will use this information to support their analyses and decisions, as needed.

1.5 Summary of Public Scoping and Issue Identification

1.5.1 Public Scoping Process

The BIA published a Notice of Intent (NOI) to prepare an SEIS for the Project in the *Federal Register* on January 30, 2020. In addition, notices were placed in local newspapers and two public scoping meetings were held for the Project - one on the Reservation on February 25, 2020 and the other in Las Vegas on February 26, 2020. The scoping report, found in **Appendix B**, summarizes the comments received and provides a preliminary list of issues and/or concerns identified.

The identified issues help determine the appropriate scope of environmental analysis to be addressed in this SEIS that are within the scope of the decisions to be made by the BIA and other cooperating agencies.

Table 1-2 below provides a summary of the key issues identified by interested agencies, stakeholders, and members of the public during scoping for the Project. These issues are the focus of the SEIS analysis.

TABLE 1 2 KEY ISSUES IDENTIFIED DURING SCOPING	
ISSUE TOPIC	**ISSUE/COMMENT**
Water Resources	Need to comply with relevant floodplain and stormwater requirements to minimize erosion and sediment production
	Avoid development within major washes
	Describe the amount and source of the water to be used during construction and operation
Soils	Should include measures to minimize soil disturbance and associated erosion to the extent possible
Vegetation	Should include measures to minimize vegetation clearing to the extent possible

TABLE 1 2 KEY ISSUES IDENTIFIED DURING SCOPING	
ISSUE TOPIC	**ISSUE/COMMENT**
	Should include measures to control weeds to the extent possible
Cultural Resources	Determine whether the lease expansion could have potentials effects to significant cultural sites in the lease study area that would need to be mitigated or avoided.
	Determine whether the project could impact the Old Spanish National Historic Trail
Socioeconomics	Describe the economic development opportunity for the Band
	Describe the jobs for tribal members and others in the region that would be created
	Confirm whether water pipeline is temporary vs permanent. If permanent, Band would prefer it located on tribal land instead of within federal corridor.
	Discuss maintenance on roads used for project access
Wildlife	Describe the potential impacts to threatened and endangered species (including the desert tortoise) and other sensitive wildlife species
	Consider measures that minimize impacts to desert tortoise habitat and connectivity
	Describe the potential impacts to avian species from construction and operation of the project
Visual Resources	Evaluate the impact the expanded solar field could have on views from the Old Spanish National Historic Trail
Air Quality/Public Health	Measures should be implemented to control and minimize fugitive dust and to prevent worker exposure to Coccidioides spores, if present
Cumulative Impacts	Identify impacts from other solar projects and other developments in the area
	Discuss trends of and cumulative impacts to key resources including desert tortoise

1.6 Policies and Programs

1.6.1 Relationship to Federal Policies, Plans, and Programs

The ACSP will conform to the Federal, Tribal, state, and local laws, regulations or policies that may apply to the Project. Because the proposed solar field expansion lies wholly within the Reservation, it would be regulated in accordance with NEPA, under the Band's Environmental Policy Ordinance, and in compliance with other Federal regulations that apply on Tribal lands. State, County, and local laws and policies are not applicable to Tribal lands.

1.7 Permits and Approvals Required for the Proposed Project

Table 1-3 lists the potential Federal permits or approvals that could be required for the proposed Project in addition to the BIA decision and NEPA process discussed earlier.

TABLE 1 3
POTENTIAL APPROVALS FOR THE PROPOSED PROJECT

Land Jurisdiction	Solar Field
Moapa River Indian Reservation / BIA	Approval of lease to expand the solar energy facility (BIA)
	Section 7 Consultation (USFWS)
	Section 106 Consultation (State Historic Preservation Office - SHPO)
	Compliance with Tribal Environmental Policy Ordinance
	Section 404 Jurisdictional Determination (US Army Corps of Engineers - USACE)
	Spill Prevention, Control, and Countermeasure (SPCC) Plan (EPA)
	Construction Stormwater Permit (EPA)

CHAPTER 2
Proposed Action and Alternatives

The ACSP would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1-1**), west of I-15 and east of U.S. Highway 93. The ACSP solar field and associated facilities would be located on up to 2,200 leased acres within a lease study area of approximately 2,683 acres on the Reservation in Township 16 South, Range 64 East, Sections 28, 29, 30, 31, 32, and 33; and part of section 7 in Township 17 South, Range 64 East, Mount Diablo Base Meridian.

Figure 2-1 shows the location and the acreage of the proposed expansion of the previously approved Project solar field. Project components would include permanent and temporary facilities needed to construct and operate the Project.

2.1 Proposed Action and Alternatives

This section describes the proposed expansion of the solar facility on the Reservation that is the focus of the SEIS and identifies potential alternatives that were initially identified by the BIA, cooperating agencies, and the Applicant. Potential alternatives were evaluated for feasibility and categorized as those that are carried forward for detailed analysis and those that were considered but dropped from detailed analysis.

2.1.1 Proposed Action Alternative

The following provides a detailed description of the proposed ACSP. It describes the various components of the Project and includes discussions of the proposed construction process, O&M procedures, and decommissioning.

The proposed Project would consist of a PV solar power generation facility (SPGF or solar field), a previously approved electrical line that would interconnect the Project to the regional electrical transmission grid (gen-tie line), a previously approved water pipeline, and a previously approved access road between the SPGF and a frontage road (North Las Vegas Boulevard) along the west side of Interstate 15 (I-15).

In addition to the 850-acre SPGF and ancillary facilities that were previously approved by the BIA and the BLM, the ACSP proposes to expand the SPGF by 1,350 acres to total 2,200 acres sited within in a lease study area of 2,683 acres. This expansion would be located entirely on the Reservation. There would be no changes to the ancillary facilities of the Project on federal public lands that the BLM approved in the ROWs issued in 2015.

Within the expanded SPGF, there are proposed additions and changes to the previously approved MSEC project description. These additions and changes consist of the following:

- Revised layout and configuration of the SPGF and components based on technological, topographical, and environmental resource data identified through pre-construction studies;
- Addition of bi-facial PV panels to the previously analyzed crystalline silicon and thin-film PV panels;
- Addition of a BESS component to the SPGF; and
- Minor modifications to proposed specifications and construction techniques.

There would be no change in location and description of the associated ROWs previously approved by BLM as part of the MSEC Project. The gen-tie line and access road would continue to be located on Federal lands managed by the BLM south of the SPGF site within Township 17 South, Range 63 East and Township 17 South, Range 64 East. The temporary water pipeline associated with the Project would be located on the Reservation but within the BLM-managed utility corridor north and east of the SPGF in Township 16 South, Range 64 East. **Figure 1-2** shows the location of these previously approved linear components of the Proposed Project.

Table 2-1 summarizes where the proposed Project changes associated with the ACSP will differ from the MSEC approvals issued in 2014 and 2015.

2.1.1.1Proposed Project Components

The expanded SPGF would be located wholly on lands within the Reservation. It would be developed using PV solar technology to generate up to 200 MWs of solar energy and would include BESS facilities. The SPGF would disturb up to 2,200 acres within a larger 2,683-acre lease study area.

Development of the ACSP would include implementation of best management practices (BMPs) designed to guide project planning, construction activities, and operation of facilities to minimize environmental impacts. The BMPs and other design features incorporated into the ACSP are summarized in **Appendix C** of this SEIS.

Solar Field

The proposed PV solar field would utilize crystalline silicon, bi-facial, or thin-film PV panels that would be mounted on single-axis trackers. Using single-axis trackers, the panels would be oriented in north-south rows with the panels moving to track the sun as it moves across the sky during the day.

PV technology converts sunlight directly into direct current (DC) electricity. The process starts with PV cells that make up the solar modules. There are several types of PV solar cells. The two major types of cells are wafer-based silicon cells and thin-film cells. A number of solar cells electrically connected to each other and mounted in a single support structure or frame is called a module. Several modules can be wired together to form an array and arrays can be connected in both series and parallel electrical arrangements to produce any required voltage and current combination.

The DC from the array is collected at inverters where the DC is converted to alternating current (AC). The voltage of the electricity is increased by a transformer at each inverter. Medium voltage electric lines (underground and/or overhead) are used to collect the electricity from each transformer and transmit it to the facility substation, where the voltage is further increased by a high voltage transformer to be transmitted to the electric grid. Multiple transformers would be connected in parallel via low voltage (12.5-kV or 34.5-kV) collector lines to the Project substation, where the power is stepped up for delivery to the grid via the gen-tie line described below. **Figure 2-2** shows the proposed site plan for the full Project layout.

The PV modules, inverters, and transformers would be grouped into array blocks of up to 4.4 MWs each occupying approximately 23 acres. Inverter and transformer sizes would be selected based on cost and market availability prior to construction. A typical layout depicting the arrangement of a block of solar arrays for a single-axis tracker configuration is shown on **Figure 2-3**.

The highest point on the single axis-trackers would be up to 18 feet, occurring during the morning and evening hours when the panels are tilted to face the rising or setting sun. The degree of tilt would change over the course of each day for the single-axis trackers. **Figure 2-4** shows a cross-sectional view of a typical single-axis tracker. The PV units would be mounted on driven or pre-drilled H-pile foundations to support the panel mounting system. Site specific soil tests validate the preliminary engineering and if additional tests or installations conclude that further foundations are required, the vertical steel beams would be attached to concrete ballasts. The electrical equipment (inverters and transformers) would be in enclosures or covered by shade structures approximately 8 to 10 feet high.

The Project would also include one or more small meteorological monitoring stations to track solar insulation, temperature, wind direction, and speed. These stations would have a height of approximately 10 feet and would be located within the disturbed site.

Battery Energy Storage System

The most likely BESS technology would be either lithium-ion (Li-ion) or redox flow battery. The BESS could be integrated into the Project in two primary configurations - the BESS facilities would be distributed throughout the solar field at each array or the BESS facilities would be centrally located near the project substation or O&M facilities. Most of the BESS would be installed during construction. The remainder would be added to the project site later during the project life as needed to increase the BESS capacity as the system capacity degrades over time. This would be done as part of regular O&M activities.

Each BESS container would have its own fire detection system. In the case of BESS located in buildings, the building would comply with the local fire code and contain equipment at multiple sections of the building for fire detection, suppression, and necessary alarms to alert the local fire authorities. The BESS containers or building would also be located such that it is readily accessible by the fire department.

Table 2 1 Summary of Changes between Previously Approved MSEC and Proposed ACSP			
Component	**Approved MSEC Project**	**Proposed ACSP**	**Note**
Solar Field	850 acres	2,200 acres, including original 850 acres	Analysis required
PV Technology	Crystalline silicon, thin-film PV	Addition of bi-facial PV panel technology	No analysis needed
Single Axis Trackers	Height of 6 to 12 feet	Change to up to 18 feet	Analysis required
Battery Energy Storage System (BESS)	Not analyzed by MSEC FEIS	Change to incorporate BESS within the SPGF in either a distributed or centrally located configuration	Analysis required
O&M Building	Height of 18 feet	Change in height for up to 25 feet, 6,000 square feet	No analysis needed
Water Use	50 AFY for construction, up to 30 AFY for operation	100-300 AFY for construction, up to 30 AFY for operation	Analysis required
	Water transported to site by approved water pipeline	Possible use of trucks to bring in water during operations	Analysis required
Wastewater Management	Site evaporation ponds	Revision to septic disposal system	Analysis required
Site Substation	Onsite substation	No change	No analysis needed
Perimeter Fencing	8foot tall chain link fence with barbed wire on top around entire solar site	Perimeter fencing around groups of solar arrays, addition of 6 to 8-inch opening at bottom of fence	Analysis required
Site Preparation	Vegetation would be removed where needed during clearing and grading activities	In areas not graded, vegetation would be mowed to a height of approximately 18 inches and driven over and crushed with equipment as needed	Analysis required
Previously Approved and Issued ROWs – No Changes[1]			
Generation Tie Line	Up to 5.7 miles on federal land managed by BLM	Previously Approved (ROW issued), No Change	No analysis needed
Access Road	Up to 2.4 miles on federal land managed by BLM	Previously Approved (ROW issued), No Change	No analysis needed
Water Pipeline (temporary)	4.6 miles within corridor managed by BLM	Previously Approved (ROW issued), No change	No analysis needed

[1] *More discussion regarding these approved ROWs is in Section 2.1.1.2*

Distributed BESS

In this configuration, Li-ion batteries would be in BESS containers that would be distributed throughout the Project site with each solar array block having up to two BESS containers placed adjacent to the solar inverters and the converters. Containers would be up to 13 feet tall, 70 feet long, and 12 feet wide. The total area on the solar site attributed to the BESS facilities would be up to approximately 8.5 acres (0.085 acres per solar block).

The BESS containers could be made of steel or concrete. In addition to the battery modules, the containers would also contain a fire detection system; alarms and monitoring system; heating, ventilation and air conditioning (HVAC) system; data collection and control system; and other electrical wiring and auxiliary systems.

Centrally Located BESS

In this configuration, all the BESS facilities would be located on the site at the Project substation or the O&M area, and the system would use either Li-ion or redox flow technology. If Li-ion batteries are used, they would be in BESS containers (up to 13 feet tall, 70 feet long, and 12 feet wide) at this location or in a warehouse-type building. The total land disturbance on the solar site attributed to the BESS facilities under this scenario would be 10 acres at this one location.

If redox flow technology is used, all battery equipment would be placed in one warehouse-type building or the batteries would be placed in multiple containers at this location. Redox flow battery modules are batteries that contain a reversible cell in which electrochemical components are dissolved in electrolyte fluids separated by a membrane. In addition to the battery modules, the building or containers would also have storage tanks for redox flow battery electrolytes, spill containment, plumbing, fire detection system, alarms and monitoring system, HVAC units, data collection and control system, and other electrical wiring and auxiliary systems. The building would be similar to the O&M building described below and the BESS inverter pads or transformers would be located outside and adjacent to the building. The electrolyte storage tanks could also be located outside the building rather than being inside depending on the system design. The total disturbance for this BESS configuration would be 20.5 acres.

Operations and Maintenance Area

An O&M building would be developed on the site that would contain administrative offices, parts storage, a maintenance shop, plant security systems, and plant monitoring equipment with adjacent worker parking. The O&M building would likely consist of one single story building of approximately 6,000 square feet with a maximum height of approximately 25 feet. The building would have exterior lighting on motion sensors, fire and security alarms, and would comply with all applicable laws and regulations (including applicable Operational Safety and Health Act [OSHA] requirements).

Water Use

During construction, the Project would use between 100 and 300 AFY, primarily for dust control. Operations of the Project would require up to 30 AFY of water needed for panel washing, potable and sanitary uses, and other operational uses, such as dust control.

Water would be provided to the Project by the Band from an existing groundwater well located about 5.4 miles northeast of the SPGF site (**Figure 2-5**). It would be delivered to the SPGF site via the previously approved temporary water pipeline during construction or trucked to the site. Water would be stored in covered above-ground water tanks located on site. During construction potable water would be provided via bottled water.

During operations, water would be trucked to the site when needed. The estimated non-potable water supply requirement for the O&M facility would be 3.4 gallons per minute for an annual requirement of 3.6 million gallons or 11 AF. This is based on an estimate of 12 full-time employees at the facility. Bottled drinking water supplied to the Project site from commercial vendors would be provided for potable water demand.

Wastewater Management

The Project could generate wastewater during operations from bathroom and shower facilities located within the O&M building. This wastewater would be treated and disposed at the site using a septic disposal system consisting of septic tanks and a leach field.

Project Support Systems

The following project support systems would be developed for the Project.

Site Substation

A substation with medium voltage (34.5-kV) to high voltage (230-kV) step-up transformer(s) with mineral oil, breakers, buswork, protective relaying, supervisory control and data acquisition (SCADA), and associated substation equipment would be located on the site. The relative location of the site substation is shown on the site layout plan for the Project. **Figure 2-6** shows a conceptual layout of the substation/switchyard. The substation would be fenced for safety in accordance with applicable codes and one or more structures may be outside the fence for meters and control equipment. The communication system for the substation may include above-ground fiber optic cable and/or a microwave tower. If a fiber optic line is used, it would be mounted on the gen-tie line structures as one of the shield-wires. The project would be interconnected to the regional transmission system from this on-site substation/switchyard via the previously approved gen-tie interconnection described in subsection 0 below detailing the previously approved ROWs.

Fencing

The perimeter of each solar field area would be secured with a minimum 6-foot tall, chain link metal-fabric security fencing with 2-foot barbed wire or razor wire on top. Controlled access gates would be located at the site entrance to each area. Temporary desert tortoise exclusion fencing would be installed and kept in place during construction. The permanent perimeter fence would be installed to leave a 6 to 8-inch opening at the bottom of the fence to allow for the movement of desert tortoises and other wildlife across and through the site once the construction of the facility is complete. The substation fence discussed above would not allow for wildlife movement.

Fire Protection System

The Project's fire protection water system would be supplied from up to three above-ground raw water storage tanks located on the plant site holding up to 12,000 gallons each. Fire protection pump flowrates would be in accordance with applicable standards. All fire protection system pumps must be shut off manually.

The piping network would be configured in a loop so that a piping failure can be isolated with shutoff valves without interrupting the supply of water to a majority of the loop. Portable fire extinguishers of appropriate sizes and types would be located throughout the plant site.

In addition, each BESS container would have its own fire detection system. Whether the BESS is located in containers or buildings, the structures would comply with the local and federal fire code and contain equipment at multiple sections of the building for fire detection and necessary alarms to alert the local fire authorities. The BESS containers or building would also be located such that it is readily accessible by the fire department.

A Fire Prevention Plan would be prepared prior to construction that would cover the construction, operation, and decommissioning of the facility. The plan would include measures to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. Fire protection measures would include prevention methods using fire-safe construction, reduction of ignition sources, control of fuel sources, availability of water, and proper maintenance of fire-fighting systems. The plan would be coordinated with the BIA, Band, BLM, and Clark County.

Security

As mentioned above, the SPGF site would be fenced with a chain-link security fence open at the bottom to facilitate desert tortoise and other wildlife movement. Lights, triggered by motion sensors and powered by station power with backup battery power, would also be installed at each entry gate.

Perimeter signage at the substation, in both English and Spanish, would also be provided and installed at intervals along the perimeter fence stating the following: "Danger, Keep Out!", and "Hazardous Voltage Inside".

Lighting

The Project's lighting system would provide operation and maintenance personnel with illumination for both normal and emergency conditions near the main entrance and the Project substation and at the BESS facilities. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be downward facing and shielded to focus illumination on the desired areas only. There would be no lighting in the solar field except for emergency lighting at the BESS facilities. Therefore, light trespass on surrounding properties would be minimal. If lighting at individual solar panels or other equipment is needed for night maintenance, portable lighting would be used.

Erosion Control and Stormwater Drainage

There are three main drainage paths that convey stormwater runoff through the Project site from the north to the Dry Lake playa located to the south. These primary drainages are located on the western, central, and eastern portions of the site and would be avoided by the solar field. Stormwater flows from upstream of the site would flow through the site via these ephemeral drainages with the overall drainage patterns maintained. Most of these drainages would be left in their natural condition but improvements including armored channelization and/or berms would be incorporated as needed to direct and maintain flow within the primary drainage paths and away from the solar arrays. It is expected that pre-construction stormwater flows and velocities traversing the site would be generally unchanged. Detention basins or other design features could also be incorporated into the final solar field design to manage flows.

Most of the site would continue to be drained by sheet flow to on- and off-site drainages. Areas of the facility that have the potential for release of contaminants due to vehicles and human activities, such as the O&M building, substation, BESS facilities, delivery areas, and paved roads would be addressed through source control best management practices (BMPs) and designed to accommodate runoff from the 100-year storm event at a minimum.

On-site erosion would be controlled through the implementation of BMPs detailed in erosion and sediment control plans developed by the contractor for the construction and operational phases of the Project.

Spill Prevention / Containment

Local area containments would be provided around certain locations, such as oil-filled transformers and chemical storage areas and BESS facilities, in order to prevent water that could come in contact with oil or chemicals from leaving the site. A spill prevention control and countermeasure plan (SPCC) would be prepared to meet the requirements of the regulations administered by the EPA.

2.1.1.2 Previously Approved ROWs

As discussed previously, the off-site ancillary facilities (gen-tie line, access road, and temporary water pipeline) needed to support the ACSP were previously approved by BLM as part of the original MSEC Project. In addition to the ROD approving them, BLM also issued a ROW for these facilities (ROW N-88870). The locations of these approved linear ROWs are shown on **Figure 2-5.** These facilities remain a part of the current ACSP and no changes will be made to them relative to the approved ROWs.

A description of each of these facilities as approved in the BLM ROW follows. More detail regarding them can be found in the original MSEC FEIS and BLM ROD.

Gen-Tie Transmission Line

The previously approved transmission line would deliver the power generated by the currently proposed Project to the electrical grid. The original MSEC FEIS addressed and the BLM ROD approved gen-tie routes to both the Harry Allen and Crystal Substations as the delivery point was unclear at that time. Ultimately, the BLM ROW grant was issued for the 230-kV gen-tie transmission line that would originate at the Project substation located on the SPGF site and interconnect to the Harry Allen Substation. This gen-tie transmission line for the ACSP will be constructed and operated per the ROW issued by BLM.

The gen-tie line would be approximately 5.7 miles of single-circuit 230-kV overhead transmission line with a ROW width of 150 feet between the SPGF to the Harry Allen 230-kV Substation. The line would extend south from the SPGF site on BLM-managed land until meeting an existing 500-kV transmission line which it would then follow on the north side, to a point where it would be routed around the Harry Allen 230-kV Substation. The maintenance road associated with the existing 500 kV line would be used to the extent possible for construction and maintenance of the proposed 230 kV transmission line.

The design, construction, operation, and maintenance of the transmission line would meet requirements of the National Electrical Safety Code (NESC); U.S. Department of Labor, Occupational Safety and Health Standards; and the Resource Management Plan's requirements for safety and protection of landowners and their property. Transmission line design would also be consistent with recommendations for reducing negative impacts of power lines on birds found in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* by Edison Electric Institute and the Avian Power Line Interaction Committee (APLIC 2006) and *Reducing Avian Collisions with Power Lines* by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012).

The Project is planning to use steel monopole transmission structures for the 230-kV line to the Harry Allen Substation. The monopole structures for the 230-kV line would range in height from 60 feet to 120 feet. In addition to the structures that would be located within the approved BLM ROW, one or more structures could be located on the solar site on Reservation lands.

Access Road

The Project will require vehicular access for construction, operation, maintenance, and decommissioning. The Project would develop and use the approved access road in accordance with the previously issued BLM ROW with no changes. This would be an approximately 2.4-mile gravel access road located on BLM-administered lands connecting the SPGF to the existing paved frontage road (North Las Vegas Boulevard) adjacent to I-15. The site access road would follow an existing dirt road until it

reaches the proposed 230 kV gen-tie transmission line ROW which it would follow north to the SPGF site (**Figure 2-5**).

The access road would be designed to accommodate equipment deliveries, the construction workforce, and ultimately, the operational needs of the Project. The roadway section would have two travel lanes, would be 24-foot wide with 5-foot shoulders, and have drainage swales on either side. A 48-foot-wide ROW was granted by BLM for the road so the existing road can be straightened if needed in some places. Final design for the access road would be consistent with BLM and Clark County road standards. The road would be maintained by the Project.

Water Pipeline

Water would be delivered to the SPGF site via the previously approved temporary water pipeline or by water trucks and would be stored in covered above-ground water tanks. Most of the pipeline would be within a designated utility corridor administered by the BLM on the Reservation. The pipeline would originate at the Band's well and would follow existing roads and ROWs from the well to the SPGF site. **Figure 2-5** shows the proposed location of the water pipeline.

This pipeline was evaluated as a permanent underground line in the original MSEC EIS. The BLM ROD approved the pipeline without specifying whether it would be permanent or temporary. The ROW for the water pipeline issued by BLM in May 2015 describes it as a temporary pipeline. It would be developed and utilized as part of the ACSP as described in the ROW issued by BLM. The water pipeline would be 8 to 12 inches in diameter and would be placed on the ground surface. At periodic intervals, it could be elevated on blocks to allow the passage of desert tortoise and other small animals.

2.1.1.3Proposed Project Construction

SPGF Construction

Grading / Site Preparation

Prior to the initiation of Project construction, the SPGF site would be surveyed and staked. Preconstruction survey work would consist of locating the site and ROW boundaries, the locations of proposed facilities, and the centerlines of linear features. Clearance surveys will be conducted by authorized desert tortoise biologists prior to construction to translocate any desert tortoise on site. These surveys would be initiated following installation of the temporary tortoise exclusion fencing. Prior to the initiation of any preconstruction surveys, the necessary permits for rights-of-entry would be obtained.

Vegetation would be permanently cleared from roadways, access ways, and at inverter equipment, substations, BESS locations, and O&M facilities. Within the solar field, native vegetation would be left in place to the extent possible with some mowing and selective trimming as needed to create a safe work environment and avoid interference with the movement of the solar panels. Prior to construction, vegetation within the solar arrays would be mowed to a height of 18 inches leaving the roots intact to facilitate regrowth during operations. Construction equipment would drive over and crush the vegetation during installation of the arrays.

The cuts and fills associated with all earthwork required on the site are planned to be balanced on-site to the extent practicable. Within the solar field, some grading would be required for the project substation, O&M area, battery storage area (s), perimeter roads around the solar arrays, electrical equipment pads and where the panel support foundations are driven or drilled. A small graded pad could be required within each solar array to accommodate the inverter and transformer or they could be installed on driven piers.

Excavation would be required for trenches for electrically connecting some of the equipment on site. Following construction, all underground trenches would be filled with native soils and/or imported fill and compacted.

Construction Workforce

The projected construction work force includes all personnel required to complete construction of the Project including overall Project and site management, laborers, skilled craft, and startup personnel. Skilled craft and laborers would be drawn from the local area with construction management and startup functions provided by relocated personnel from the engineering, procurement, and construction (EPC) contracting firm and Applicant.

The ACSP Project is expected to create a peak of up to 500 and an average of 400 temporary construction jobs for the construction period.

Construction Sequencing

Construction of the SPGF would be expected to take 20 months. This schedule is designed to meet the December 2022 commercial operations date (COD) for delivery of 200 MWs of energy required by the Project's approved PPA.

Construction would generally occur between 5 a.m. and 5 p.m., Monday through Friday but could occur seven days a week. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier (as early as 3:00 am) to avoid work during high ambient temperatures. Also, construction requirements would require some nighttime activity for installation, service or electrical connection, or inspection and testing activities. Nighttime activities would be performed with temporary lighting.

The construction phases of the Project are expected to be as follows:

- **Access Road**—The access road would be constructed as outlined in the previously approved BLM ROD and ROW.
- **Fencing**–Temporary desert tortoise exclusion fencing would be installed and kept in place during construction. Permanent fencing could be installed simultaneously with the temporary desert tortoise fence or later as a part of overall site development.
- **Clearing**—Vegetation removal for installation of the SPGF facilities would be completed only as necessary to advance ahead of equipment installation but conducted to minimize the amount of disturbed ground surface at any one time.
- **Parking and Laydown**—Parking areas for construction workers and laydown areas for

construction materials would be prepared inside the Project area. Detailed information regarding the location of the laydown and parking areas within the Project would be developed after a contractor is hired to construct the facility.

- **Site Roads**—The internal site roads would be constructed and maintained.
- **Site Grading**—Because of the relatively flat topography at the site, relatively minimal volumes of soil would be moved as a result of grading.
- **Foundation Construction** – Foundations for the substation, inverters and/or BESS containers (if necessary) would be constructed and may require some earthen fill.
- **Array Installation**–The solar arrays are installed first by driving piles (including pre-drilling if required by site soil conditions). The tracker is then attached to the piles and then the PV modules (panels) are attached to the tracker. Generally, at the same time the substation equipment, inverters, and BESS are installed. This also includes running cables between all equipment. Cables between the PV panels and inverter are commonly routed through hangers or trays. Cables from the inverters to the substation would be underground (installed by trenching, laying the cable, and backfilling).
- **Balance of Plant (BOP)**–With the major equipment in place, the remaining fieldwork would be electrical and smaller component installations.
- **Testing and Commissioning**–Testing of subsystems would be conducted as they are completed. Modules would be tested once all supporting subsystems are installed and tested.
- **Site Stabilization**—Disturbed areas would be stabilized during construction to minimize wind and water erosion and fugitive dust by watering and/or use of dust palliatives approved by the USFWS. Cleared and graded surfaces that would not be subject to future disturbance would be restored. Revegetation would be conducted as soon as practicable, based on seasonal weather conditions, to maximize revegetation success.
- **Demobilization**—Any temporary fabrication and construction facilities would be removed from the site once construction is complete.

The project construction contractor would mobilize and develop temporary construction facilities and laydown areas within the project site. Once a final design has been established, the contractor would prepare site maps showing the construction project in detail. Temporary construction facilities would include:

- Full-length trailer offices or equivalent
- Generators
- Portable toilets
- Parking for construction vehicles
- Tool sheds/containers
- Parking construction equipment
- Construction material laydown area
- Solar field equipment laydown area
- Batch plant (if needed, may be located within one of the temporary laydown areas)

Construction materials such as concrete, pipe, wire and cable, fuels, reinforcing steel, and small tools and consumables would be delivered to the site by truck. Initial grading work would include the use of excavators, graders, dump trucks, and end loaders, in addition to support pickups, water trucks, and cranes.

Site Access and Traffic

All equipment, permanent materials, and commodities for the Project would be transported to the site via rail and/or local highways. Any shipments by railroad would go to the nearest active railroad spur for offloading and transported by truck to the Project site. All equipment and material deliveries would utilize the previously approved site access route.

Truck deliveries of equipment and materials would occur from the initial construction notice to proceed through the entire duration of the Project. Initial truck deliveries would include haul trucks for importing construction equipment, as required, followed by concrete trucks for installation of major foundations. Array materials for the PV array (piles, cables and tracker assembly) would be delivered to Project site early in the construction period corresponding to approximately the time frame for foundation array installation. Deliveries of larger equipment such as inverters, BESS equipment, and substation components would commence at about midpoint of the construction period. The batteries for the BESS facilities would be delivered last as they require back feed power prior to installation.

On-site roads would be left surfaced with the native soil and treated with water and/or a dust palliative approved by USFWS as needed.

There is currently little traffic on any of the roads bordering or in the immediate vicinity of the Project. The use on these roads is associated with the energy infrastructure in the area.

Construction of the Project is expected to take up to 20 months. Daily trips during construction of the project would be generated by delivery of equipment and supplies and the commuting of the construction workforce. The number of workers expected on the site during construction of the Project would vary over the construction period and is expected to average up to approximately 400 with a peak of 500 workers each day, generating an average of about 800 up to a peak of 1,000 daily trips. Also, up to 100 trips per day (50 trips to the site and 50 trips leaving the site) would occur as a result of delivery of construction equipment, materials, and if water is trucked to the site. Combined, these would result in an average increase of 900 vehicle trips (or 450 roundtrips) per day during construction. All project related parking would be onsite during construction.

Gen-Tie Construction

Construction of the gen-tie is also described in the MSEC FEIS. Mobile construction equipment access would be required at each transmission structure. The Project would use a combination of existing and new access roads and spur roads on designated routes to place construction equipment at each structure.

To access the ROW, construction vehicles would use the existing access road off the existing paved frontage road adjacent to I-15 (North Las Vegas Boulevard) going to the Harry Allen Substation. This primary access road is maintained by NV Energy and minimal to no improvements would be necessary to facilitate gen-tie construction.

Existing secondary access roads would be used to access the ROW where possible. Once within the ROW, spur roads may be used to access structure locations. The secondary access and spur roads are not routinely maintained and at some locations may require improvements. Typical improvements would consist of minor grading and possibly limited addition of road base or rock in areas to allow safe vehicle travel. If used, spur roads would be staked and flagged. To the extent possible, drainages would be crossed at grade. Standard road design techniques such as installing water bars and dips to control erosion may be used in sloped areas as necessary.

Geotechnical Testing

Geotechnical investigations are needed to determine the site soil conditions and to provide geotechnical engineering data for the foundation design of the proposed gen-tie lines. These investigations have already been completed for the project.

Prior to final design, additional analysis of soil borings may be conducted. If needed the following parameters would be utilized. The testing process begins with field survey staking of each test location. This would be done from a standard light-duty pickup truck and a one or two-person survey crew. Test locations would be marked with wooden stakes and flagged. Once marked, a drilling crew would collect samples via a truck-mounted drill rig at various depths along the boring. Samples collected from the borings would be analyzed to determine soil classification, moisture content, density, depth to groundwater and other characteristics. Each boring would be approximately 6 inches in diameter and 50 feet deep.

Work areas surrounding each geotechnical boring location that would be needed for construction equipment, vehicles, and personnel during geotechnical activities would be confined to a 30 by 40-foot area. After each test boring is completed, the spoils would be hand- backfilled into the boring hole and lightly compacted. After backfill, the test location would be smoothed and hand-graded as necessary to return the area to the pre-test grade.

Access Road Construction

The proposed access road would include both upgrades to existing roads and development of new sections of road. Construction of the access road would be conducted using the proposed techniques identified below and discussed in the following subsections. Any major modifications to the proposed construction techniques described in this section that arise during construction on BLM lands would be approved by the BLM prior to implementation to determine potential impacts and appropriate mitigation measures. The primary construction activities and areas of potential impact would be confined to the proposed road ROW.

Coordination with existing ROW grant holders for the existing access roads would be conducted and affected agencies would be consulted before construction begins.

The existing roads would be widened and sections of new road would be constructed using a bulldozer or grader. Front-end loaders would be used to move the soil locally. The road surface would be widened or developed to 24 feet and a 5-foot shoulder would be constructed on each side to facilitate drainage and to blend into the adjacent topography.

Following grading, the top 12 inches of the subgrade of the road would be scarified and moisture-conditioned and a roller would compact and smooth the ground surface. Approximately 14 inches of Class 2 road base would be placed above the compacted subgrade, and it also would be moisture-conditioned and compacted.

After project construction, this upgraded permanent access road would be used to provide access to the Project and also continue to be used by the existing road users who have ROWs from the BLM. The construction contractor selected to build this Project would be required to submit a specific Access Road Use Plan to the BLM and BIA. The plan would address continued use of the existing roads by the current ROW grant holders. The installation of culverts and other road improvement amenities would be reviewed and addressed on a site-by- site basis.

Disturbed areas where vegetation was removed during construction activities and that are no longer needed for future operation and maintenance would be restored in a manner consistent with BLM and Tribal requirements to encourage natural revegetation.

2.1.1.4Proposed Operation and Maintenance

Operation and maintenance activities associated with the Project are minimal. The ACSP is expected to require up to 12 personnel during operations. Daily operation of the plant begins when there is sufficient sunlight to begin operation of the solar trackers. The panels would be facing east in the morning and rotate on the single axis to follow the sun throughout the day. In the evening, the trackers would be rotated back to the east using power from the electrical grid so that the panels are once again in position to receive the morning sun.

Maintenance and administrative staff typically work 8-hour days, Monday through Friday. Periods when non-routine maintenance or major repairs are in progress, the maintenance force may work longer hours and contract labor may be utilized as necessary.

Long-term maintenance schedules would be developed to include periodic maintenance and equipment replacement in accordance with manufacturer recommendations. Solar panels are designed for a 35-year life. Solar panels and BESS components would be replaced as needed. Moving parts, such as motors and tracking module drive equipment would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary.

No heavy equipment would be used during normal plant operation. Operation and maintenance vehicles would include trucks (pickups, flatbeds, dump trucks), forklifts, and loaders for routine and unscheduled maintenance, and occasionally water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the site infrequently for equipment repair or replacement.

Operation of the site would be expected to generate only up to 10 to 15 round trips per day from maintenance and security personnel. Trips for water trucks to deliver water to the site to clean the panels could also occur but would be relatively infrequent as the panels could be cleaned only periodically. If panel washing were to occur, each event would generate up to 33 water truck trips. There could also be other deliveries of supplies or equipment that could occur to support operations and maintenance. This would result in a maximum of up to 34 daily round trips (during washing events) and more commonly less than one daily round trip during the operational phase of the Project. Potable water would be stored in a 15,000-gallon storage tank.

2.1.1.5Proposed Project Decommissioning

The Project would operate at a minimum for the life of its power purchase agreement (PPA) or other energy contracts and its lease with the Band. It is possible, because much of the needed electrical infrastructure would have been developed, the ACSP would continue to be upgraded and used to generate solar energy even beyond the term of the initial energy purchase agreements and/or lease. Therefore, it is possible that the ACSP site would remain in solar energy production for the foreseeable future.

If the Project were to be decommissioned, the solar field, support structures, and electrical equipment would be removed from the SPGF site, and it would be revegetated with native species to a condition similar to the original condition of the Site. A draft Decommissioning Plan has been developed and is included in **Appendix D**.

A restoration plan would include the following information:

- Goals and objectives of the plan
- Methods to be used to achieve site restoration
- Criteria to be used to determine the success or failure of the restoration
- Monitoring and maintenance of the site during and periodically after restoration
- What facilities and access routes would be removed, reclaimed and/or restored
- How facilities and access routes would be removed, and the disturbed areas restored
- The time of year the facilities and access routes would be removed and restored
- Noxious weed control during rehabilitation
- Stabilization and reclamation techniques to be used during restoration
- Annual reporting procedures
- Restoration implementation and monitoring schedule

A draft Restoration and Revegetation Plan has been developed and is included in **Appendix E**.

2.1.2 Alternative 1 - No Action Alternative

Under NEPA, the BIA and cooperating agencies must consider an alternative that assesses the impacts that would occur if the expansion of the solar ground lease was not approved. The No Action Alternative assumes that the expansion of the lease area would be denied and the Project would use the originally approved 850-acre lease area. Under the No Action Alternative, the purpose and need of the Project would not be fully met. The Applicant would not be able to deliver the full amount of power per their PPA. The Band would not benefit economically from the expansion of the lease.

2.2 Alternatives Considered but Eliminated from Detailed Analysis in the SEIS

The alternatives below were not carried forward for detailed analysis because they did not meet the purpose and need, were determined to not be practical or feasible for technical and/or economic reasons, or would cause greater environmental effects than the alternatives analyzed in detail. The justifications for eliminating these alternatives are described briefly below.

2.2.1 Alternative Reservation Locations

The Applicant and Band considered other areas on the Reservation for expansion of the previously approved 850-acre solar site. The proposed lease expansion study area for the ACSP was identified as the best location for the Project for a number of reasons: these lands were identified by the Band as viable for solar development; these lands are contiguous to the originally approved 850-acre solar site; and this location allows the ACSP to utilize the access road, gen-tie, and temporary water pipeline ROWs approved for the original project without modification. Given these factors, the Band and Applicant were not able to identify alternative locations on the Reservation to expand the solar field where impacts would have been significantly less substantial compared to the proposed expansion area.

2.2.2 Alternative Off-Reservation Locations

The Applicant considered lands off the Reservation for expansion of the solar Project. Adjacent federal lands managed by the BLM were evaluated for their potential use to expand the solar field. Use of these federal lands would not meet the purpose of providing revenues and employment opportunities to the Band. This purpose by definition limited the expansion to locations on the Reservation and held in trust by the BIA for the Band. Accordingly, BIA did not consider off-reservation alternatives to be viable.

2.2.3 Alternative Interconnection Options

While approved as options in the issued BLM ROD and ROW, alternatives that would interconnect the Project into the nearby Crystal Substation or other delivery points were not considered for the ACSP. The existing power purchase agreement (PPA) and the large generator interconnection agreement (LGIA) with NV Energy specify delivery of the power generated by the Project to the Harry Allen Substation. There is no flexibility for a different point of interconnection.

2.2.4 Alternative Solar Technologies

While considered for the original MSEC Project, solar technologies other than PV were not considered for ACSP. The original MSEC EIS and ROD selected PV as the preferred technology. The current lease also specifies PV technology. In addition, PV technology is specified in the existing PPA and LGIA for the Project. Therefore, alternative technologies were not carried forward for detailed analysis.

CHAPTER 3
Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the physical, biological, social and economic characteristics of the area that would be affected (Affected Environment) and the environmental impacts that would result (Environmental Consequences) from implementation of the proposed ACSP and alternatives.

The terms "effect" and "impact" are used synonymously in this document. Potential impacts are described in terms of duration, intensity, type, and context. Definitions of impact terms are provided below. In the SEIS, impacts fall into three categories:

- ***Direct:*** caused by the action, same time and place.
- ***Indirect:*** caused by the action, but later in time or further in distance, but are still reasonably foreseeable.
- ***Cumulative:*** caused by the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions.

For the purposes of this analysis, duration of the impact is defined as follows:

***Short-term*:** impacts that would be less than 5 years in duration.
***Long-term*:** impacts that would be 5 years or greater in duration.

For the purposes of this analysis, intensity or severity of the impact is defined as follows:

***Negligible*:** changes would not be detectable and/or measurable. The resource would be essentially unchanged or unaltered.
***Minor*:** changes would be detectable, localized, and/or measurable. The resource would be slightly changed or altered.
***Moderate*:** changes would be clearly detectable, measurable, and/or have an appreciable effect on the resource. The resource would be notably changed or altered.
***Major*:** changes would be readily detectable, and/or have a severe effect on the resource. The resource would be substantially changed or altered.

For the purposes of the type of impact is defined as follows:

Adverse: impacts that would have a detrimental effect to a resource.
Beneficial: impacts that would have a positive effect to a resource.

Context is the setting within which an impact is analyzed:

- ***Local:*** within and immediately adjacent to the project area.
- ***Regional:*** remaining area outside of the project area, including the remaining Reservation.

As discussed in Chapters 1 and 2 of this SEIS, the proposed ACSP would expand the solar field of the previously approved MSEC project. Below is a summary of the proposed changes to solar field components that would result from implementation of the ASCP. These changes are the focus of this SEIS analysis (also summarized in Table 2-1 in Chapter 2):

- Expansion of solar field from 850 acres to up to 2,200 acres
- Addition of BESS
- Increase in maximum height of solar panels from 12 feet to 18 feet
- Increase in water consumption during construction from 50 AFY to 100-300 AFY
- Modification to site preparation techniques to mow vegetation to a height of 18 inches and drive and crush the remaining vegetation with equipment as needed during construction
- Modification to site perimeter fencing around groups of arrays instead of the entire project perimeter and to leave a gap of 6-8 inches at the bottom of the fence to allow movement of animals, including desert tortoises, onto and through the solar site after construction
- Utilize a septic system for wastewater management during operations instead of evaporation ponds
- Use of trucks to bring in water during operations

The proposed ACSP would be one of four utility-scale PV solar projects on the Reservation to be recently evaluated in an EIS. In addition to the MSEC project, the three other evaluated solar projects on the Reservation include:

- K-Road Moapa Solar Facility (K-Road) – 350 MW PV solar project, Final EIS published in 2012, east-southeast of the proposed Project, constructed and operating (BIA 2012)
- Aiya Solar Project (Aiya) - 100 MW PV solar project, Final EIS published in 2016, north of proposed Project, approved but not constructed (BIA 2016)
- Eagle Shadow Mountain Solar Project (ESMSP) - 300 MW PV solar project, Final EIS published in 2019, north of proposed Project, approved but not constructed (BIA 2019)

While the solar site expansion associated with the proposed ACSP would occupy an expanded footprint from the previously evaluated MSEC solar project, the type of facilities, location, and many of the activities evaluated would be similar to the analysis in the MSEC EIS (BIA 2014). This SEIS tiers to the previous MSEC EIS and those analyses performed for the other solar projects on the Reservation are incorporated by reference in this SEIS, where applicable.

The FEIS for the original MSEC Project as well as the FEISs for the other three previously evaluated solar projects on the Reservation can be found at the following link: https://www.arrowcanyonsolarseis.com/previous-eiss.html.

Referencing allows BIA to prepare environmental documents without duplicating relevant portions of the previous EISs and RODs.

Each resource discussed in the original MSEC EIS and the changes to impacts that would result from the proposed ACSP solar field expansion are described in the sections below.

3.2 Climate

3.2.1 Affected Environment

The proposed ACSP lies within the northeast portion of the Mojave Desert. The climate of the Mojave Desert is characterized by extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. The existing climatological conditions in the ACSP area and applicable climate policies are described in detail in the MSEC FEIS (BIA 2014, Section 3.2, pages 3-1 through 3-4).

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

The potential climate impacts from the original MSEC Project are described in the MSEC FEIS (BIA 2014, Section 4.2, pages 4-4 through 4-5). In addition, climate change impacts were also described for the other previous solar projects evaluated on the Reservation (BIA 2012, pages 4-4 through 4-7). The MSEC analysis and the other previous analyses determined that there would be short-term minor increases in green-house gases (GHGs) from construction and decommissioning of the solar projects from construction equipment and vehicle exhaust increasing ambient concentrations of GHGs.

Renewable energy projects like the ACSP generally have an overall net long-term beneficial effect on climate change by their operations offsetting fossil-fuel generation. The short-term effects on climate from GHG emissions associated with the ACSP expansion of the solar field from the original 850-acre footprint to up to 2,200-acres would be expected to be like the original MSEC project during construction and decommissioning. While the ACSP footprint would be up to 1,350 acres larger, the construction duration is projected to be slightly shorter for the ACSP (20 months versus 24 months) due to modified construction methods (significantly less grading and larger construction workforce). The estimated emissions of GHGs for the construction and decommissioning phases of the ACSP (less than 15,000 metric tons) are expected to be well below the 25,000 metric tons of CO_2-equivalent (CO_2e) GHG emissions per annum established by the CEQ as the threshold to require a quantitative and qualitative assessment of GHGs (CEQ 2010).

Operation of the ACSP would include combustion emissions from worker commutes, delivery trips and maintenance equipment. Emissions of GHGs are estimated to be like that described in the MSEC FEIS (BIA 2014) due to similar operational requirements and workforce. The management of desert vegetation and soil disruption associated with the proposed construction methods to be used for the ACSP (mowing vs grading) could have a small beneficial effect on the ability of the local ecosystem to cycle or sequester carbon and modulate atmospheric CO_2 levels during the operational life of the Project when compared to the original MSEC Project. Although the ACSP footprint is larger than the original

MSEC, grading would be minimized to only those areas where necessary and existing vegetation would be mowed to 18 inches over most of the solar field. This would allow on-site vegetation to re-establish more quickly following construction, increasing the local ecosystem's ability to continue to cycle or sequester carbon.

Like the MSEC, the ACSP would result in short-term minor GHG emissions and would not adversely hinder Federal or State goals to reduce GHG emission levels.

3.2.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Climate impacts and emissions of GHGs from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.3 Topography, Geology and Geologic Hazards

3.3.1 Affected Environment

The existing topography, geology, and geologic hazards in the ACSP area are described in detail in the MSEC FEIS (BIA 2014, Section 3.3, pages 3-4 through 3-7) and summarized here.

Elevations across the Project area range from approximately 1,991 feet to 2,224 feet above mean sea level (**Figure 3-1**). The northern portion of the Project area (expansion lands) features low hills with caliche capped plateaus. The topography becomes more level from north to south. The Project area is in Quaternary alluvium (Longwell et al. 1965) deposited by flowing water and is characterized as low potential for paleontological resources.

The Basin and Range physiographic province is an area that is subject to periodic earthquake shaking. The USGS (2020) reports 55 earthquakes of magnitude 4.0 or greater have occurred within approximately 100 miles of the site since 1973. Of these, only 4 were magnitude 5.0 or greater and none exceeded magnitude 5.9. The Project area lies within an area with a moderate to high potential for strong earthquake shaking.

The closest mapped faults are the California Wash Fault that forms prominent scarps in Quaternary alluvial fan sediments along the western flank of the Muddy Mountains approximately 10 miles east of the site and the Arrow Canyon Range Fault approximately 6 miles northwest of the site. No faults are known to cross the Project area and none were suggested by the geotechnical investigation. Because the site area is underlain by dense to very dense caliche soils and bedrock, liquefaction potential is negligible at the site.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

The potential topographical, geologic, and geologic hazards related impacts from the original MSEC Project are described in the MSEC FEIS (BIA 2014, Section 4.3, pages 4-6 through 4-9). In addition, these impacts were also described for the other previous solar projects evaluated on the Reservation (BIA 2012: pages 4-7 through 4-10; BIA 2016: pages 4-6 through 4-8). The MSEC analysis and the other previous analyses determined that there would be no significant effects on topography or geology from construction activities because the projects would avoid major drainages and would be graded only where necessary so contour changes would be minor and would not create a long-term effect to local topography.

While the ACSP solar field would occupy a larger footprint than the original MSEC Project (up to 2,200 acres versus 850 acres), the effects on topography, geologic resources and geologic hazards would be similar to those described in the MSEC FEIS. Only minor grading would occur which would not result in a long-term significant effect on the topography of the site. The proposed ACSP would not alter soil or geologic stability, would not create subterranean voids, and would not increase the risk of on- or off-site landslides, lateral spreading, subsistence, liquefaction or collapse. Therefore, the ACSP would not contribute to, or worsen the geologic hazards in the Project area. Although the Project area has moderate to high potential for strong earthquake shaking, all proposed Project structures would be required to comply with applicable seismic building codes. Compliance with applicable building codes would minimize potential risk associated with the geologic hazards in the area.

There would be no significant effects on topography or geology resulting from the proposed Project. With proper Project engineering and the application of BMPs outlined in **Appendix C**, potential adverse effects would be reduced so they would be minor, short-term and localized.

3.3.2.2 No Action Alternative

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Impacts to topography, geology and geologic hazards from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.4 Soils

3.4.1 Affected Environment

Soils in the expanded ACSP solar field are similar to those described in the MSEC FEIS (BIA 2014, Section 3.4, pages 3-7 to 3-9). Typical of soils in arid environments, local soils are poorly developed and shallow and are almost completely absent in some areas. In general, the local soils are typically only four inches deep and rarely more than 18 inches in depth over an underlying caliche layer.

The three soil series represented on the expanded solar field are the same as those within the original MSEC footprint. These are the Grapevine series which covers 66 percent of the expansion area, the

Ireteba series which covers 5 percent of the expansion area, and the Bard series which covers the remaining 29 percent (**Figure 3-2**). Detailed descriptions of these soil series can be found in the MSEC FEIS (BIA 2014).

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

Implementation of the proposed ACSP could result in effects to soils that are detailed in the MSEC FEIS (BIA 2014, Section 4.4.2.1, pages 4-10 and 4-11) and are summarized here. Impacts to soil resources as a result of the expanded ACSP solar field would be greater in geographic extent than those described in the MSEC FEIS (up to 2,200 acres rather than 850 acres) but lower in intensity since grading activities would be reduced (187 acres of permanent disturbance rather than 850 acres). Most of the solar site would be mowed and vehicles would drive over and crush vegetation thereby leaving soil intact instead of grading, which would result in loosening and exposing bare soil. The implementation of BMPs outlined in **Appendix C** would further reduce potential impacts from erosion.

In addition, like the original MSEC Project (BIA 2014, page 4-10), the proposed ACSP would have long-term impacts on areas where biocrust and desert pavement are present. Construction activities in these areas would disturb and minimize the soil stabilization benefits that a biocrust and desert pavement provides. The potential for wind and water erosion would be increased by soil disturbance during construction and decommissioning resulting in potential short-term adverse impacts to soils.

3.4.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Impacts to soils from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.5 Water Resources

3.5.1 Affected Environment

The proposed ACSP lies in the northeastern portion of the Mojave Desert within the closed Garnet Valley (Dry Lake Valley) basin within the watershed of the Colorado River. To the west and north, the area is bound by Paleozoic limestone outcrops that are the limits of the Arrow Canyon Range. The existing water resources, rights, and water quality issues are summarized below and described in detail in the MSEC FEIS (BIA 2014, Section 3.5, pages 3-9 through 3-15).

Surface Water

A field investigation conducted for the original MSEC Project area in May 2010 identified one primary ephemeral drainage in the proposed Project area. The expanded ACSP area includes the upstream extents of the same drainage as the original MSEC, as well as two additional ephemeral drainages located on the east and west sides of the original MSEC Project area, all terminating in the Dry Lake

playa approximately 1.0 mile south of the proposed Project site. The proposed ACSP expansion area is not located within the Federal Emergency Management Area (FEMA) 100-year floodplain; the nearest 100-year floodplain identified by FEMA is the Dry Lake playa. **Figure 3-3** shows the surface water flood zones in the Project area.

As described in greater detail in the original MSEC FEIS (BIA 2014, Section 3.5.1.1, pages 3-9 through 3-11), there are no perennial waterbodies in the proposed Project area and consequently, there is no surface water quality data available. The proposed Project does not contain, nor is a direct tributary to, any waterbodies that are on Nevada's 303(d) list for exceeding state water quality standards (NDEP 2020).

Ground Water

The water to be used during construction and operation of the ACSP would be provided from the same existing well owned by the Band that was described in detail for the MSEC Project. Detailed information describing the local and regional groundwater regime (geomorphology / aquifer characteristics, groundwater hydrology / modeling, and groundwater quality) are provided in the MSEC FEIS (BIA 2014, Section 3.5.2, pages 3-11 through 3-14).

Water Rights

The water provided from this well is part of a 2,500 AFY groundwater right issued to the Band by the State Engineer in 1989. These groundwater rights are described in the MSEC FEIS (BIA 2014, Section 3.5.3, page 3-14).

Jurisdictional Waters, Drainages, and Riparian Areas

As mentioned above and in the MSEC FEIS, there are no perennial water bodies within the proposed ACSP area. The ephemeral drainages within the Project area all drain into the Dry Lake playa. A jurisdictional determination (JD) from the US Army Corps of Engineers (USACE) was obtained for the original MSEC Project in August 2010 that confirmed that the USACE would not assert jurisdiction over these ephemeral drainages because they and the Dry Lake playa are not connected to navigable waters. Therefore, all ephemeral drainages on the ACSP expansion area would not be jurisdictional as well. For more information on jurisdictional waters see the MSEC FEIS (BIA 2014, Section 3.5.4, pages 3-14 through 3-15).

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

The potential impacts to water resources associated with the original MSEC Project are described in the MSEC FEIS (BIA 2014, Section 4.5, pages 4-12 through 4-22). In addition, water resources impacts were also described for the other previous solar projects evaluated on the Reservation (BIA 2012: pages 4-14 through 4-23; BIA 2016: pages 4-12 through 4-20). The changes between the original MSEC Project and the ACSP are described below.

Surface Water

The original MSEC Project proposed grading almost all the 850-acre site except for one drainage. Construction and operation of the proposed ACSP would avoid more drainages. The types of surface water impacts would be similar to those described in the MSEC FEIS. The proposed ACSP would affect more acres (2,200 acres vs. 850 acres) but is proposing significantly less grading (187 acres of permanent disturbance rather than almost 850 acres), which would reduce the effects of erosion and sedimentation and help result in more natural water flow regimes within the Project area and downstream.

The proposed ACSP would avoid construction within the major washes on the Project site except specific areas where berms and channels would be necessary to direct surface flows upstream of the site to the larger ephemeral drainages and through the site and to the playa downstream. Most of these washes would be left in their natural condition and would maintain primary existing drainage patterns through and around the solar field. Minimizing impacts to these drainages would maintain associated habitats, maintain drainage functions, and reduce erosion and sedimentation impacts. Most of the site would continue to be drained by sheet flow to the major ephemeral drainages. While more acres would be disturbed by the ACSP, the proposed minimization of grading and mowing vegetation to a height of 18 inches where grading is not needed would reduce impacts from erosion and sedimentation compared to the original MSEC project. There could be temporary increases in sedimentation and scour in the local drainages however these impacts would be minimized by controlling runoff through the implementation of BMPs that would include erosion and sediment control plans and the surface water protection plans as outlined in **Appendix C**.

Like the original MSEC Project, the proposed ACSP is not located within a 100-year floodplain and Project structures would be designed to accommodate runoff from the 100-year storm event at a minimum. These measures along with the other surface water BMPs would reduce the flooding hazards to negligible levels.

Groundwater

The ACSP proposes to use 100 to 300 AFY of water during construction and up to approximately 30 AFY during operations. The original MSEC project planned to use 50 AFY during construction and 30 AFY for operations. Water would be used primarily for dust suppression and soil compaction during construction. During operation, water would be used for panel washing, potable and sanitary uses, and other operational uses, such as dust control.

During construction, water would be provided from the Band's existing groundwater well located about 5.4 miles northeast of the site. It would be delivered to the Project site via the previously approved temporary water pipeline and stored in covered above-ground water tanks located on site. Potable water could be provided via bottled water during construction.

The impacts on groundwater quantity and flows resulting from withdrawal of water from the Band's well was described in detail in the MSEC FEIS and the FEISs prepared for the previous-Road Moapa Solar Project on the Reservation (BIA 2014, pages 4-13 through 4-14; BIA 2012, pages 4-14 through 4-17). Withdrawals of significant amounts of groundwater (up to 7,000 AFY) from this well field were previously analyzed and shown to not have significant observable changes to the local aquifer and to the Muddy River Springs Area hydrology except only during prolonged drought periods.

The potential groundwater impacts from the water withdrawal associated with the original MSEC Project were summarized in the MSEC FEIS (BIA 2014) and modeled / analyzed in detail in an appended groundwater hydrology report (Mifflin 2013). This analysis showed that proposed groundwater use of 50 AFY during construction and 30 AFY during operation for the MSEC Project (and up to 600 to 800 AFY during operation of CSP solar technology that was analyzed as an alternative in the MSEC FEIS) would not impact local water levels or flows at the Muddy River Springs area.

Based on this analysis and its conclusions, it is expected that the up to 300 AFY during construction and 30 AFY during operation of the ACSP would also not impact local water levels or flows at the Muddy River Springs area.

The proposed Project would result in the same minor potential for impacts to the quality of groundwater in the area as the original MSEC described in detail in the MSEC FEIS (BIA 2014, Section 4.5.2.1, pages 4-13 through 4-17).

Water Rights

For the reasons discussed above, the Project's proposed use of tribal groundwater would not have a negative impact on Band's water rights. The use of this water would help demonstrate their legitimate need for these water rights against any adverse claims by others in the future.

Jurisdictional Waters, Drainages, and Riparian Areas

As described above, there are no federally jurisdictional waters located on the ACSP site. Therefore, there would be no impacts to jurisdictional waters that would result from the expansion of the solar field.

3.5.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Water resource and hydrologic impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.6 Air Quality

3.6.1 Affected Environment

3.6.1.1 Existing Ambient Air Quality

The existing air quality in the proposed ACSP area and applicable air quality policies, standards, and definitions are described in detail in the MSEC FEIS (BIA 2014, Section 3.6, pages 3-15 through 3-20) and summarized here.

Clark County is divided into separate airshed regions synonymous with hydrographic areas (HAs) and the proposed ACSP is located within HA 216 (Garnet Valley). Clark County regulates air quality throughout

the County but does not regulate air quality on the Reservation which is the responsibility of the EPA. The air quality designations relative to the National Ambient Air Quality Standards (NAAQS) for Clark County within this geographic area (outside of the Las Vegas metro area) is in attainment/unclassifiable for all six criteria pollutants.

See the MSEC FEIS Section 3.6.1.1 for more information regarding background concentrations, State ambient air quality standards and significant thresholds. Existing sources of air pollutants in the proposed ACSP area would be similar to those described in the original MSEC FEIS and would include fugitive dust, the Harry Allen gas-fired plant, and mobile sources associated with I-15. For additional information on existing sources of air pollutants within the MSEC Project area, see the MSEC FEIS (BIA 2014, Section 3.6.3, pages 3-19 through 3-20).

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

The potential air quality impacts from the original MSEC Project are described in the MSEC FEIS (BIA 2014, Section 4.6, pages 4-22 through 4-32). In addition, air quality impacts were also described for the other previous solar projects evaluated on the Reservation (BIA 2012: pages 4-23 through 4-32; BIA 2016: pages 4-20 through 4-30). The MSEC analysis and other previous analyses determined that the projects would result in negligible short-term and long-term, direct and indirect adverse air quality impacts from construction, O&M, and decommissioning.

During construction, O&M, and decommissioning of the proposed Project, emissions of regulated air pollutants from specific types of area sources (i.e., fugitive dust and vehicles / equipment) have the potential to affect air quality. The types and sources of pollutants during construction, O&M, and decommissioning of the ACSP would also be the same as those analyzed in the MSEC FEIS. Similar to the original MSEC, the impacts associated with the ACSP are anticipated to be well below all applicable thresholds that define any noticeable change to air quality.

Overall construction emissions could be slightly greater for the ACSP than for the original MSEC because of the larger construction footprint (up to 2,200 acres versus 850 acres) and potentially larger construction workforce. However, the ACSP construction period is proposed to be shorter (20 months versus 24 months) and grading and vegetation removal would be minimized more than what was proposed for the MSEC Project where the entire site was proposed to be graded. Where feasible for the ACSP, site preparation activities would first implement mowing existing vegetation to a height of approximately 18 inches with the remaining standing vegetation flattened by the construction equipment using drive and crush techniques to minimize impacts to the roots of plants. This change in site preparation is expected to produce less fugitive dust. Also, mitigation measures outlined in **Appendix C** would be implemented to help further reduce dust emissions during construction.

Although not directly related to air quality, activities that produce fugitive dust also have the potential to release *Coccidioides immitis* spores (a fungus causing Valley Fever). The proposed Project site is suspected endemic for the fungus, which lives in soils of the Southwestern U.S. and Mexico. Any measures that help reduce fugitive dust emissions would help reduce the potential for workers or the

general public to contract Valley Fever. For additional information regarding Valley Fever and mitigation measures designed to reduce the potential for contraction, see Section 3.14, Public Health and Safety.

Like the MSEC Project, ACSP emissions during operations would be minor and would not result in an increase in air quality impacts above or beyond what was identified in the original FEIS. The ACSP has a smaller daily operational workforce (up to 12 workers versus 20-40 workers) but could have periodic delivery of water via water trucks to support panel washing if needed.

3.6.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Air quality impacts from development of the Project would not be greater than that described in the MSEC FEIS (BIA 2014).

3.7 Noise

3.7.1 Affected Environment

As described for the original MSEC FEIS (BIA 2014, Section 3.7.1, pages 3-22 to 3-24), the ACSP expansion area is undeveloped and rural. Noise sources around the Project include road traffic, railroad traffic, aircraft flyovers and industrial activities. The nearest existing noise sources (the railroad and I-15) are approximately 1.5 miles to the east. The nearest residential noise receptor is approximately 15 miles northeast of the Project (Moapa Town). There are no other identified human sensitive receptors located in the vicinity.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

The noise impacts resulting from the ACSP would be similar to those described for the MSEC Project in Section 4.7.2.1, pages 4-33 to 4-38 of the MSEC FEIS. The duration of the short-term noise effects from construction of the ACSP would be slightly less than the original MSEC project as the anticipated construction timeframe for the ACSP would be less than the MSEC proposed duration (20 months vs 24 months). The intensity of construction noise from the ACSP could be higher from the projected increased amount of construction workers and potentially construction equipment working at one time. Combined noise levels from construction activities would depend on the duration of each task and the exact number and utilization factor of each piece of equipment and vehicle.

Construction activities would produce a short-term increase in noise at the site boundary over the existing ambient noise levels but would not be perceptible at the nearest receptors because of the significant distance to them. Short term noise impacts could affect wildlife species as discussed in the wildlife section.

Long term noise effects from O&M of the proposed ACSP would be very minor and the same as described in the MSEC FEIS (BIA 2014, page 4-36). Noise impacts from decommissioning would be similar to those described for construction.

3.7.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Noise impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.8 Biological Resources

3.8.1 Affected Environment

The ACSP lease study area includes the 850-acre solar field from the original MSEC project and the lease expansion study area of up to 1,833 acres. The existing biological communities and habitats within this area is similar to what was described for the MSEC in the MSEC FEIS (BIA 2014, Section 3.8, pages 3-24 through 3-46).

Updated biological resource information for the ACSP was gathered through literature review, field surveys and site visits. Field surveys were conducted for vegetation cover types in March 2020 and for Gila monsters (*Heloderma suspectum*), desert tortoises (*Gopherus agassizii*), and burrowing owls (*Athene cunicularia*) in 2019. Data reviews were conducted by assessing a variety of current regional scientific literature and accessing public biological databases and resources.

Vegetation / Habitat

The ecosystems and biological communities of the ACSP and broader region are largely unchanged from the MSEC FEIS (BIA 2014). Vegetation within the expanded ACSP lease study area is composed primarily of Creosotebush-White Bursage scrub. Other plant cover types found within the lease study area include xeroriparian, Mojave yucca scrub, and disturbed habitat. The descriptions of Creosotebush-White Bursage, Xeroriparian and Disturbed habitats remain unchanged from what was included in the MSEC FEIS (BIA 2014, Section 3.8.1, pages 3-26 through 3-29). The Mojave Yucca Scrub cover type is new to the expanded solar field area and is typically found in alluvial fans, rocky slopes, and upper bajadas and soils are typically well-drained, sandy loams. Mojave yucca is characteristically present in this shrub community along with creosote-white bursage, and it is found in the higher elevations (approximately 2,100 ft. and higher) in the northwest portion of the lease study area.

Table 3-1 lists the acreages of the various vegetative cover types occurring within the lease study area and **Figure 3-4** shows their distribution on the site.

Table 3 1 Vegetative Cover Types within the Lease Study Area		
Project Component	Vegetation Cover Type	Acreage
Solar Field	Creosotebush-White Bursage	1,878
	Xeroriparian	432
	Mojave Yucca Scrub	366
	Disturbed	7
	PROJECT AREA TOTAL	2,683

Wildlife

Terrestrial species inhabiting the ACSP lease study area are the same as those described in the MSEC FEIS (BIA 2014, Section 3.8.3.1, pages 3-36 to 3-37).

Federally-Listed Threatened, Endangered and Candidate Species

An updated list of federally-listed species that could occur within the lease study area was obtained (USFWS 2020) and **Table 3-2** lists these species, their status, and critical habitat (if any), and proximity to the lease study area. No federally-listed, threatened, endangered, or candidate, plant species are known to occur in the lease study area (USFWS 2020).

Mojave Desert Tortoise

The Mojave desert tortoise was listed as threatened under the ESA on April 2, 1990 (USFWS 1990). A total of 6.4 million acres of Critical Habitat were designated in 1994 (USFWS 1994).

Tortoises in this portion of the Mojave Desert are active in late summer and early autumn in addition to spring, reflecting the fact that this region receives up to 40 percent of its annual rainfall in the summer and supports two distinct annual floras on which tortoises can forage (USFWS 2012). Desert tortoises feed on cacti, perennial grasses, and herbaceous perennials. Desert tortoises dig burrows (usually located under shrubs) and den in caliche caves in bajadas, washes, or caves in sandstone rock outcrops for winter hibernation and summer estivation (USFWS 2011, USFWS 2012). Additional detail about the natural history and status of desert tortoise can be found in the MSEC FEIS (BIA 2014, Section 3.8.3.3.1, pages 3-38 through pages 3-42).

To assess the presence of the Mojave desert tortoise in the ACSP area, field surveys were conducted on the expanded solar site (including the original MSEC Project area and expansion area) during May 2019 (Heritage 2019).

The survey covered 100 percent of the lease study area. A total of 13 adult desert tortoises [≥180 mm midline carapace length (MCL] and 6 juveniles were observed over the course of the surveys, primarily in the northern portions of the lease study area (**Figure 3-5**). Desert tortoise sign (scat, carcasses/shell fragments, tracks and burrows) was observed throughout the lease study area (**Table 3-3**), with higher densities of tortoise sign in the northern portions of the lease study area where the live tortoises were

discovered. The estimated number of tortoises within the expanded solar field area was calculated to be 24, with a 95% confidence interval of 13 to 46 tortoises based on the USFWS 2019 Protocol equation.

Desert tortoise health assessments were conducted within a larger "Action Area" in the spring of 2020. The Action Area for this Project includes the 2,683-acre lease study area plus potential recipient areas for tortoise translocations (an additional 1.5-kilometer buffer). More tortoises were found in this larger Action Area during health assessments (43 adults and 8 juveniles).

Table 3 2
Federally listed Species Considered

Species	Status	Critical Habitat/Location	Potential for Occurrence
Birds			
Yuma clapper (Ridgway's) rail (*Rallus longirostris yumanensis*) Population: U.S. only	Endangered	No USFWS Designated Critical Habitat	Not likely to occur within the project area; nearest suitable habitat is associated with the Muddy River, over 20 miles east of the project.
Southwestern willow flycatcher (*Empidonax trailii extimus*)	Endangered	USFWS Designated Critical Habitat approximately 20 miles east of the Project area	Not likely to occur within the project area; nearest suitable habitat is associated with the Muddy River, over 15 miles northeast of the project.
Western yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	No USFWS Designated Critical Habitat	Not likely to occur within the project area; nearest suitable habitat is associated with the Muddy River, over 15 miles northeast of the project.
Reptiles			
Mojave desert tortoise (*Gopherus agassizii*)	Threatened	USFWS designated Critical Habitat approximately 10 miles west of the Project area	Known to occur within and around the project area.
Fish*			
Moapa dace (*Moapa coriacea*)	Endangered	No USFWS Designated Critical Habitat	No potential to occur within the project area; nearest suitable habitat is associated with the Muddy River and headwater spring, over 15 miles north and northeast of the project.

*Moapa dace was not included in the USFWS official species letter but is addressed in this BA due to the anticipated groundwater withdrawals for construction and operation of the Project.

Table 3 3 TORTOISE SIGN FOUND IN PROJECT AREA						
	Class 1 (Used today)	Class 2 (Used this week)	Class 3 (Used this season)	Class 4 (Old Requires Excavation)	Class 5 (Old Collapsed)	Total
Burrow	15	76	73	22	1	187
Carcass	0	2	3	3	10	18
Scat	0	5	1	0	0	6

Heritage 2019

[1] Burrow Class Definitions: 1. currently active, with tortoise or recent tortoise sign. 2. good condition, definitely tortoise; no evidence of recent use. 3. deteriorated condition; definitely tortoise. 4. good condition; possibly tortoise. 5. deteriorated condition; possibly tortoise.

[2] Shell Remains: 1. fresh or putrid. 2. normal color; scutes adhere to bone. 3. scutes peeling off bone. 4. shell bone is falling apart; growth rings on scutes are peeling. 5. disarticulated and scattered.

[3] Scat: 1. wet (not from rain or dew) or freshly dried; obvious odor. 2. dried with glaze; some odor; dark brown. 3. dried; no glaze or odor; signs of bleaching (light brown), tightly packed material. 4. dried; light brown to pale yellow, loose material; scaly appearance. 5. bleached, or consisting only of plant fiber.

Yellow-billed Cuckoo

On October 3, 2014, the yellow-billed cuckoo (*Coccyzus americanus*) was listed as threatened under the ESA (79 FR 59992; USFWS 2014). Critical habitat has not yet been designated. The yellow-billed cuckoo has always been rare in Nevada. There are small areas of suitable habitat within the state, with documented breeding occurring very rarely in Southern Nevada. Yellow-billed cuckoos may utilize remnant habitats present within the state during migration.

The scattered cottonwoods on the Colorado River tributaries (Virgin, Muddy, and Pahranagat) are the last places in Southern Nevada where the yellow-billed cuckoo could potentially occur. There is no suitable habitat for the species in the lease study area, but it is considered in this analysis due to its presence in the project vicinity.

Yuma (Ridgway's) Clapper Rail

The Yuma clapper rail (*Rallus longirostris yumanensis*; also known as Yuma Ridgway's rail) was listed as an endangered species on March 11, 1967 (32 FR 4001). A Recovery Plan was finalized in 1983 and portions of the plan were initiated over the ensuing years. This species is known to occur along the Muddy River within the Overton Wildlife Management Area, approximately 20 miles north of the lease study area. There is no suitable habitat for the species in the lease study area, but it is considered in this analysis due to its presence in the project vicinity.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus)* was listed by the USFWS as an endangered species within its entire range on February 27, 1995 (FR 60: 10693-10715). Critical habitat for the species was designated in 2013 (USFWS 2013). Critical habitat for the southwestern willow

flycatcher in Nevada is currently limited to portions of the Virgin River approximately 20 miles north of the Project, above its confluence with the Muddy River (FR 70: 60886-61009).

For nesting, southwestern willow flycatchers require dense riparian habitat. No suitable riparian habitat exists within the lease study area. The closest known breeding habitat for this species is located along the Muddy River, at Warm Springs Ranch, approximately 15 miles northeast of the lease study area. There is no suitable habitat for the species in the lease study area, but it is considered here due to its presence in the project vicinity.

Moapa Dace

The Moapa dace (*Moapa coriacea*) is listed as endangered under the ESA and is only known to occur in the Muddy River and several associated headwater springs in the Warm Springs area. A detailed description of the Moapa Dace's natural history and status in and around the project area can be found in the MSEC FEIS (BIA 2014, Section 3.8.3.3.2, pages 3-42 and 3-43). Suitable habitat is not present in the lease study area but this species is considered in the analysis because of potential indirect impacts from groundwater withdrawals.

Selected Birds Protected under the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Selected State-Listed Wildlife

The section below discusses migratory birds, golden eagles (*Aquila chrysaetos*), and selected state-listed wildlife. The burrowing owl and Bendire's thrasher (*Toxostoma bendirei*) are identified as USFWS Birds of Conservation Concern (BCC) or species that warrant special attention. The Gila monster is also discussed below based on comments provided by the Nevada Department of Wildlife (NDOW). Additional detail about these species can be found in the MSEC FEIS (BIA 2014, Section 3.8.3.4, pages 3-43 to 3-46).

Burrowing Owl

MSEC FEIS Section 3.8.3.4.1 describes species information regarding burrowing owls. This is a BCC and has been previously observed in the Project area. The entire site is considered suitable foraging habitat for burrowing owls. Burrowing owl sign was observed at two burrows during field surveys but no individuals were observed (Heritage 2019). The species is expected to occur on the site but in low densities.

Bendire's Thrasher

The Bendire's thrasher is protected by the Migratory Bird Treaty Act (MBTA), considered At-Risk by NNHP, is a BCC, and is a MSHCP proposed species. The Bendire's thrasher can be found in desert habitats, especially areas of tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland. Bendire's thrashers were not observed in the Project area during surveys (Heritage 2019) though they could occur.

Migratory Birds

Several species of migratory birds common to the Mojave Desert are either known or expected to use habitats in and around the lease study area. The majority of the solar site is covered by creosotebush-white bursage scrub which generally supports low nesting densities.

Golden Eagle

The golden eagle is protected under the Bald and Golden Eagle Protection Act as well as the MBTA. See the MSEC FEIS (BIA 2014, Section 3.8.3.4.5, page 3-45) for additional information about this species. The entire lease study area is considered suitable foraging habitat for golden eagles and this species could potentially forage within the lease study area. No suitable nesting habitat is present in the lease study area and no nests are known to be present.

Gila Monster

Gila monster is considered a protected reptile under Nevada Administrative Code 503.080. A detailed description of this species including its status in the lease study area can be found in the MSEC FEIS (BIA 2014, Section 3.8.3.4.6, page 3-45). The Nevada Natural Heritage Program (NNHP) lists the entire lease study area as suitable habitat for this species. Surveys conducted for the desert tortoise during May and October of 2012, October of 2013, and May of 2019 did not detect any Gila monsters or sign but did confirm that the area represents suitable habitat for this species (Heritage 2013, 2019).

3.8.2 Environmental Consequences

3.8.2.1Proposed Action

The ACSP would disturb up to 2,200 acres of the 2,683-acre lease study area evaluated for the expanded solar field. Effects on biological resources that could result from the implementation of the proposed ACSP during construction, operation, and decommissioning would be similar to that described in the MSEC FEIS (BIA 2014, Section 4.8, pages 4-39 to 4-76).

Vegetation / Habitat

Table 3-4 shows the expected permanent and temporary vegetation/habitat impacts that are expected to result from the ACSP.

Impacts to vegetation/habitats from the proposed ACSP would be similar to but greater in extent than those described for the MSEC project (2,200 acres vs 850 acres) but in lower intensity by employing the proposed site preparation techniques described for the ACSP. For additional information about effects to vegetation see the MSEC FEIS (BIA 2014, Section 4.8.2.1.1.1, pages 4-41 to 4-44). Effects resulting from the ACSP that would be different are discussed below.

The ACSP would have a smaller permanent effect to vegetation than the original MSEC project because the ACSP would be graded only as needed to provide clearances for construction and operation of the solar field. Where grading is not necessary, vegetation would be mowed to a height of approximately 18

inches and driven over / crushed during construction activities where feasible and where it does not pose a safety risk. It is anticipated that grading would be avoided throughout much of the ACSP area. Vegetation would be allowed to regrow within the solar field area, including the ephemeral washes that cross the site.

Table 3 4
TEMPORARY AND PERMANENT DISTURBANCE

Vegetation Cover Type	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Creosotebush-White Bursage	1,341.4	112.3
Xeroriparian	302.9	50.6
Mojave Yucca Scrub	286.5	23.3
Disturbed	5.8	0.4
Subtotal	**1,936.6**	**186.6**

The exposure of soil resulting from site preparation activities would increase risk for the potential spread of nonnative, invasive weed species. The effects of the proposed ACSP on invasive weeds would be similar to those described in the MSEC FEIS (BIA 2014, Section 4.8.3.1, pages 4-48 and 4-49). While the area affected by the proposed ACSP would be larger, grading would only be employed where necessary and so the risk of weed infestations should be lower than the original MSEC Project. The Applicant would implement an approved Weed Management Plan (WMP) to control the growth of weeds and other undesired vegetation. A draft of the WMP is provided in **Appendix F**.

The Applicant has developed a draft Habitat Restoration and Revegetation Plan defining the procedures for the revegetation and rehabilitation of areas disturbed by the proposed Project (**Appendix E**). This plan would be implemented immediately after construction for the areas that are temporarily disturbed. It would also be implemented after decommissioning of the Project.

Following construction, vegetation under solar panels would be shaded for parts of the day and could experience reduced photosynthetic activity and modified moisture regimes (Tanner et al 2020). The effects on vegetation and associated wildlife habitat arising from these abiotic changes would be variable and determined by many interacting factors.

To minimize the potential impacts on vegetation, a variety of best management practices BMPs and mitigation measures described in **Appendix C** would be implemented.

Wildlife

Impacts to wildlife from the proposed ACSP would be similar to that described in the MSEC FEIS (BIA 2014, Section 4.8.3, pages 4-48 to 4-50 and 4-52). Primary differences would result from the expanded footprint that would be affected as well as the reduced intensity of impacts to native habitats for the ACSP resulting from limited grading. Native vegetation would be allowed to regrow within the solar field and in the ephemeral washes that cross the site.

Wildlife impacts resulting from direct mortality or injury, visual or noise disturbances, increased predation pressure, hazardous waste exposures, and wastewater management would remain unchanged from the MSEC analysis. Effects resulting from the ACSP that would be different are discussed below.

The removal and/or modification of natural vegetation communities would reduce forage, shelter, and nesting opportunities for wildlife including multiple special status wildlife species. Loss and/or degradation of up to approximately 2,200 acres of wildlife habitat would cause wildlife to rely more heavily on habitats in surrounding areas, at least temporarily.

Unlike the originally proposed MSEC Project, the proposed Project would avoid grading to the extent practicable, leaving a substantial portion of the solar field to revegetate and become potentially suitable for re-occupancy by native wildlife. The three primary ephemeral drainages crossing the site would be avoided by development of the solar arrays to allow stormwater flows to pass through the site and maintain overall drainage patterns. Most of these drainages would be left in their natural condition except specific areas where berms and channels were needed to help keep the flows within the drainages. These areas where improvements are needed would be revegetated.

Exclusion of wildlife from the fenced portions of the proposed ACSP site during construction could temporarily add pressure on the food resources in adjacent areas. The desert tortoise exclusion fence would be removed after construction is completed and the permanent site perimeter fence would include a 6 to 8-inch opening at the bottom of the fence to allow desert tortoise and most other native wildlife to re-inhabit the site during operations. In the long- and short-term, the three primary drainages crossing the site would also allow wildlife movement through the site, particularly as these areas revegetate.

Federally-listed Threatened, Endangered and Candidate Species

Five federally-listed species have the potential to occur in or around the ACSP area and be impacted by the proposed Project. These are the Mojave desert tortoise, Moapa dace, Yuma (Ridgway's) clapper rail, southwestern willow flycatcher, and yellow-billed cuckoo (see **Table 3-2**). Surveys for special status species and analysis of their required habitat indicate that only the Mojave desert tortoise occurs in the Project area. Potential impacts are summarized for these species below; more detail on the status of and potential impacts to these species can be found in sections 4 and 5 of the draft Biological Assessment that has been prepared concurrently with this SEIS (**Appendix G).**

Mojave Desert Tortoise

The potential direct and indirect effects to the Mojave desert tortoise as a result of the proposed ACSP include:

- Injury or mortality from construction activities;
- Temporary stress from handling during relocation efforts;
- Temporary constriction of movement corridors during construction;
- Disturbance from vibrations during construction that could affect tortoises near the boundary of the construction area;

- Temporary and permanent loss of suitable habitat and burrows. Approximately 186.6 acres of suitable habitat for the desert tortoise would be lost long-term due to the construction of the proposed Project. **Table 3-4** describes temporary and long-term disturbance to desert tortoise habitat.
- Potential noise and lighting effects on behavior and movement;
- Introduction of weeds and invasive species within the construction area during construction and operation;
- Exposure to chemicals (herbicides, palliatives and spills from equipment);
- Potential increased raven and other predator populations resulting from perches provided by the solar structures and perimeter fencing, and human introduction of trash within or near the Project Area boundary

An estimated 24 desert tortoises are expected to occupy the lease study area (95% CI: 12.91 – 45.64) (based on 2019 USFWS protocol calculations using the 2019 survey data). However, 51 tortoises (43 adult and 8 juvenile) were found during health assessments performed within the Action Area in 2020. Therefore, construction of the proposed ACSP may result in impacts to approximately 24 to 43 adult desert tortoises through injury or direct mortality of desert tortoise. Tortoises would be captured and relocated prior to the development of the Project. Because of the difficulty in locating juvenile desert tortoises and eggs, some but not all are likely to be relocated from the solar field. All individuals larger than 160 mm MCL in the disturbance area are anticipated to be observed so it is expected that all individuals in this age class will be relocated.

The relocation/translocation effort would adhere to the following procedures as well as those stipulated in the Terms and Conditions of the USFWS's Biological Opinion (BO):

- Following installation of exclusionary tortoise fence, translocation of tortoises would be conducted to specific locations outlined in the approved project-specific translocation review package (TRP) and disposition plan and based on construction and translocation timing considerations for each tortoise. The Project will employ two strategies for translocating tortoises, depending on the initial capture location of each animal.
    - Short-distance Relocations: Tortoises found on the solar site within 500 meters of the site perimeter would be relocated to areas immediately outside of the Project's temporary exclusion fencing. Following the completion of construction, the exclusion fencing would be removed and the permanent site fencing would be open at the bottom to allow movement of tortoises on/off the site. Existing vegetation on the Project site is expected to be in a condition that allows it to re-establish following construction. Therefore, the short-distance translocation strategy is designed to allow tortoises to freely re-occupy the site following construction.
    - Study Area Translocation: Tortoises found in the interior of the solar site (>500 meters from the exclusion fence) would be translocated to receiver sites identified within parts of the larger 2,683-acre lease area identified for the Project that are not proposed for Project development, or within 1.5 kilometers of the lease area boundary.

- An authorized biologist will perform health assessments and draw blood samples for each tortoise to be relocated. Blood testing will determine whether any desert tortoise suffer from upper respiratory tract disease (URTD).
- Tortoises will be temporarily tagged with combination global positioning system (GPS)/radio-transmitter tags so that the tortoise can be retrieved and handled as directed by USFWS if the results of blood work indicate that a tortoise is infected with URTD.
- When determining a release location for an individual tortoise, release site preference will be to find a like-for-like shelter resource. Every attempt will be made to find similar cover sites and habitat to that at the location of each individual on the Project site, otherwise all translocatees shall be released at the most appropriate unoccupied shelter sites (e.g., soil burrows, caliche caves, rock caves, etc.). The disposition of relocated tortoises will be evaluated and reported following the Terms and Conditions of the BO.
- If a tortoise voids its bladder while being handled, it will be given the opportunity to rehydrate before release. Tortoises will be offered fluids by soaking in a shallow bath, or an authorized desert tortoise biologist will administer nasal-oral fluid, or injectable epicoelomic fluids. Any tortoise hydration support beyond offering water or shallow soaking would only be provided by an authorized biologist who has received advanced training in health assessments and been specifically approved by USFWS for these procedures.

Adverse impacts to desert tortoises would include the removal of all desert tortoises from the solar field and the short and long-term loss of suitable desert tortoise habitat. The solar site would be fenced for the duration of the operational life of the Project to allow for unrestricted movement of tortoises through the site following construction. Therefore, impacts to movement corridors and habitat connectivity for the tortoise would be short term but impacts to tortoise during the long-term O&M of the Project could occur because of their ability to re-inhabit the site. There would be a long-term loss of 186.6 acres of suitable desert tortoise habitat. To minimize all potential impacts, the Applicant would be required to adhere to all terms and conditions outlined in the Project-specific Biological Opinion and to implement a USFWS-approved Translocation Plan.

Moapa Dace

The Moapa dace is only known to occur in the Muddy River and several associated headwater springs in the Warm Springs area. The Moapa dace would not be directly affected by the construction or operation of the proposed action. The withdrawal of up to 300 AFY of groundwater for construction and up to 30 AFY for operation represent the only potential indirect effect to this species. The effects of groundwater withdrawals up to 16,100 AFY were previously analyzed in a 2006 Programmatic Biological Opinion (PBO) that addressed groundwater withdrawals in the Coyote Spring Valley and California Wash Basins; effects of groundwater withdrawals for the ACSP could contribute to ongoing adverse effects that were analyzed in the PBO.

Yuma Clapper Rail, Southwestern Willow Flycatcher, Yellow-billed Cuckoo

No suitable habitat for the yellow-billed cuckoo, Yuma clapper rail or southwestern willow flycatcher is present within or adjacent to the lease study area. Groundwater withdrawals proposed for this Project may result in insignificant reductions in flow in the Muddy River, but the magnitude of effects would be too small to affect yellow-billed cuckoo, Yuma clapper rail, southwestern willow flycatcher or their habitats (e.g., riparian vegetation). Due to the low number of these three species that occur in the vicinity of the lease study area and the lack of habitat in the lease study area, the potential for direct mortality of these species is low, and the potential risk would be insignificant and discountable.

Selected Birds Protected Under the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Selected State-listed Wildlife

Construction of the proposed Project could cause adverse impacts on avian species, including nesting raptors and birds protected by the MBTA such as the burrowing owl and Bendire's thrasher, as described in the MSEC FEIS (BIA 2014, Section 4.8.4.1.6, pages 4-68 to 4-70). Impacts on migratory bird species could include nest abandonment or take of chicks or eggs in active nests, mortality of adults due to collision with Project facilities, or reduction of potential foraging and nesting habitats. Also, construction activities could cause birds to temporarily avoid suitable habitat and nest or forage in less suitable habitat.

Adverse impacts on MBTA protected species and raptors could occur during construction, operation, and decommissioning of the Project. These impacts would be both short- and long-term and would be localized. A draft Bird and Bat Conservation Strategy (BBCS) that details the measures that would be used to minimize impacts to avian species (as well as bats) is included in **Appendix H**.

Gila Monster

The MSEC FEIS (BIA 2014, Section 4.8.4.1.8, pages 4-74 to 4-75) provides information regarding potential impacts to Gila monsters. Project activities could result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Disruption of Gila monster behavior could occur due to noise or vibration from the heavy equipment during construction or operation of facilities. Gila monsters could be harmed by construction equipment or inadvertent hazardous materials spills, including equipment fuel and hydraulic fluid leaks. In addition to the implementation of the measures described below, the Applicant would implement the mitigation measures consistent with the most recent NDOW guidance (NDOW 2020) to help avoid or reduce impacts on the Gila monster (**Appendix I**).

Mitigation

The Applicant has incorporated several mitigation measures into the Project design in order to help avoid or reduce impacts on biological resources. These are described in **Appendix C**. In addition, the Applicant has drafted plans to guide the management of biological resources. These are appended to this SEIS and would be finalized prior to construction with the input and approval of the Band, BIA, and USFWS (as appropriate). These biological management plans include a Weed Management Plan, Raven

Control Plan (**Appendix J**), Decommissioning Plan, Restoration and Revegetation Plan, Worker Environmental Awareness Program and BBCS.

3.8.2.2No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Biological resource impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.9 Cultural Resources

3.9.1 Affected Environment

The area of potential effect (APE) for cultural resources is defined as the area within which cultural resources could be affected by the proposed ACSP. The APE for direct effects includes all project components associated with the ACSP as shown on **Figure 2-2**. It includes the originally approved 850-acre MSEC solar field and 1,833 acres of newly surveyed potential expansion. The BIA, in consultation with the Nevada State Historic Preservation Office (SHPO) and other consulting parties, defined the APE for indirect effects to include the greater of either a five-mile radius or the visual horizon around the proposed Project. The cultural resource study consisted of a literature review for both the direct and indirect APEs and a field inventory of the direct APE.

The pedestrian field inventory consisted of a 2013 survey of the original 850-acre segment of the APE as a component of the original MSEC project (BIA 2014, Section 3.9, Page 3-46) and a more recent survey of the additional 1,833 acre solar field expansion area. The field archaeologists systematically inspected the direct APE using parallel transects no further than 30-meters apart. No subsurface testing was conducted during the field inventory.

Brief Cultural History

Prehistoric sites across the Great Basin and the greater American Southwest exhibit the presence of humans during the late Pleistocene up to 15,000 years ago. Around 1,500 years ago, the Ancestral Puebloan inhabitants of the greater southwest came into the vicinity. There is clear evidence of Southern Paiute people in the vicinity of the proposed Project area by at least 850 years ago. Historically, the area was settled by Mormon farmers and ranchers in the 1800s.

Results of the Literature Review

The literature review identified 178 cultural resource sites in both the direct and indirect APE. One site has been previously recorded within the direct APE. The remaining 177 sites are located in the indirect APE. These sites include 120 prehistoric sites, 49 historic era sites, 6 multicomponent sites, and 2 ethnohistoric/prehistoric sites.

Results of the Field Inventory

The original MSEC pedestrian field inventory identified one site within the original 850-acre portion of the APE. The site was identified as a probable prehistoric rock rings and determined to be ineligible for the National Register of Historic Places (NRHP) (MSEC FEIS, Section 4.9.2, Pages 4-77 to 4-78). The recent pedestrian field inventory identified two new sites and one previously recorded site within the solar site expansion study area (direct APE). The two new sites are identified as a prehistoric lithic scatter (26CK10785) and a historic trash scatter (26CK10786). The previously recorded site is a prehistoric pot drop (26CK6149). All three sites have been completely recorded so the information potential is exhausted and no further information would be obtained from additional studies. BIA has applied the criteria of eligibility at 36 CFR 60.4 and determined that these three sites are not eligible for the NRHP.

The direct APE does not contain any traditional cultural properties identified as having cultural or religious significance based upon tribal consultations.

Results of Indirect Study

Eight of the 177 previously recorded sites in the indirect APE warranted further investigation. These sites include four prehistoric sites (26CK1366, 26CK1367, 26CK1368, 26CK1661), a relay/microwave tower (S2160), and three linear sites that are eligible with unevaluated segments. These three linear sites are the Mormon Wagon Road (26CK3848), the Union Pacific Railroad (26CK4429), and Highway 91/Arrowhead Trail-Highway (26CK4369). As part of the field effort, site visits were conducted on these previously recorded sites in order to determine potential impacts on the visual setting associated with these sites. Visual setting is a characteristic that determines the sites' eligibility for inclusion on the NRHP. The four prehistoric sites were not relocated, so a visual determination could not be completed. Visual assessments were completed for the remaining four sites; results were negative. The remaining 169 sites did not have above ground features; therefore, the characteristics for which these might be eligible for listing on the NRHP would not be affected by the proposed Project.

The indirect APE does not contain any traditional cultural properties identified as having cultural or religious significance based upon tribal consultations.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

The previous study and consultation for the MSEC Project concluded that there would be no adverse direct or indirect effects to any archaeological site from development of the originally approved 850-acre solar site (MSEC FEIS, Section 4.9.2, Pages 4-77 to 4-78). Development of the proposed solar field expansion area would have no effect on eligible historic properties as none occur on that area. The sites within the indirect APE that are NRHP eligible or potentially eligible (unevaluated) would not be adversely affected based upon visual assessments. In addition, visual simulations were prepared for two locations on the Old Spanish National Historic Trail that were located outside the indirect APE resulted in no adverse effects as well (see Section 3.12.2.1).

Potential disturbance and/or loss of currently unidentified cultural resources resulting from the implementation of the proposed ACSP could occur and possibly add to the loss of information about our heritage in the area and in the region. Such losses would not be expected as an Unanticipated Discoveries Plan would be developed and implemented prior to the start of construction of the proposed Project.

Correspondence regarding cultural resource determinations are included in **Appendix K**.

3.9.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Cultural resource impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.10 Socioeconomic Conditions

3.10.1 Affected Environment

The existing socioeconomic conditions in the vicinity of the ACSP project area and applicable policies are described in detail in the MSEC FEIS (BIA 2014, Section 3.10, pages 3-47 to 3-58) and more recently in the ESMSP FEIS (BIA 2019). Because updated census information is available since the MSEC FEIS was published, data have been updated here where applicable (U.S. Census Bureau 2019). This section describes the existing socioeconomic conditions within the proposed ACSP area.

According to U.S. Census Bureau data, in 2017 there were 1,599 people, 399 households, and 345 families residing in CT 59.02 (Reservation). There were 399 households out of which 48.1 percent had children under the age of 18 living with them, 59.6 percent were married couples living together, 20.5 percent had a female householder with no husband present, and 13.5 percent were non-families. In addition, 12.3 percent of all households were made up of individuals and 3.8 percent had someone living alone who was 65 years of age or older. The average household size was 4.01 and the average family size was 4.33.

Table 3-5 shows the median household income and percentage of the population living in poverty according to estimates for 2017 for the geographic comparison areas. In 2017, the estimated median household incomes for the United States, Nevada, and Clark County were similar at $57,652, $55,434, and $54,882, respectively. The median income for a household in on the Reservation (CT 59.02) was $61,063.

The Reservation had 12.8 percent living below poverty level, Clark County had 14.6 percent living below poverty level, and the State of Nevada had a 14.2 percent poverty rate. These are all lower than or equal to the national poverty status of 14.6 percent. These income data support the conclusion that there are no environmental justice communities defined by income. However, Native American persons residing on the Reservation are considered an eligible environmental justice community as defined by Executive Order 12898.

Clark County median ($54,882) and per capita ($27,719) annual incomes are below the U.S. median, and 14.6 percent of the individuals within the county have incomes that are below the poverty level threshold. According to the US Census Bureau, an impoverished community is defined as one in which more than 20 percent of the population is below the poverty level. For a single person (not a family) the poverty income threshold is $12,488. For a family of four with two children under the age of 18, the poverty income threshold is $24,858. Moapa Indian Reservation (CT 59.02), northern Clark County (CT 56.13), and Clark County's mean incomes are above the current 2017 Department of Health and Human Services poverty threshold.

The Clark County economy is heavily dependent on the leisure and hospitality sector, as well as closely linked supporting sectors in arts, entertainment, and retail trade establishments. In addition, hotel and resort renovation, development, and expansion within Las Vegas have traditionally been a mainstay of the Clark County economy. **Table 3-6** shows the distribution of employment by industry within Clark County for FY 2017.

TABLE 3 5
POVERTY LEVEL AND MEDIAN HOUSEHOLD INCOME (ESTIMATES) IN 2017

Geographic Area	Median Household Income	Population*	Population Below Poverty Level	Percent Below Poverty Level
United States	$ 57,652	321,004,407	45,650,345	14.6
State of Nevada	$ 55,434	2,887,725	405,263	14.2
Clark County, Nevada	$ 54,882	2,112,436	304,449	14.6
CT 59.02 Moapa Indian Reservation	$ 61,063	1,599	204	12.8

Source: U.S. Census 2013-2017 American Community Survey
*Population for whom poverty status is determined

TABLE 3 6
EMPLOYMENT BY INDUSTRY IN FY 2017

Industry	Nevada	Clark County	CT 56.13 Northern Clark County	CT 59.02 Moapa Indian Reservation
Total All Industries	1,341,358	982,033	1,702	621
Agriculture, forestry, fishing, and hunting, and mining	21,843	2,927	21	5
Construction	85,110	60,671	154	95
Manufacturing	57,681	32,500	26	15
Wholesale trade	27,859	17,910	20	0
Retail Trade	159,110	117,649	62	112
Transportation and warehousing, and utilities	73,135	53,577	196	11
Information	21,423	15,673	33	35

TABLE 3 6 EMPLOYMENT BY INDUSTRY IN FY 2017				
Industry	**Nevada**	**Clark County**	**CT 56.13** Northern Clark County	**CT 59.02** Moapa Indian Reservation
Finance, insurance, real estate, and rental and leasing	76,045	58,529	59	32
Professional, scientific, management, administrative, and waste management services	148,248	112,737	281	53
Education, health and social services	210,560	146,382	362	73
Arts, entertainment, recreation, accommodation and food services	339,668	281,839	245	112
Other services (except public administration)	61,677	45,361	114	14
Public administration	58,999	36,278	129	64

Source: U.S. Census 2013-2017 American Community Survey

Table 3-7 shows the comparison between the various state, regional and local unemployment rates in 2017 as well as total reported labor force. The unemployment rate on the Reservation is 7 to 8 percent higher than for Clark County and the State of Nevada.

TABLE 3 7 UNEMPLOYMENT RATES				
	Nevada	**Clark County, Nevada**	**Census Tract 56.13** Northern Clark County	**CT 59.02** Moapa Indian Reservation
Labor Force	2,292,486	1,667,625	3,306	1,209
Employed	2,109,087	1,529,212	3,051	1,029
Unemployed	183,399	138,413	255	180
Unemployment Rate	8.0	8.3	7.7	14.9

Source: Census Bureau 2013-2017 American Community Survey 5-Year Estimates

Existing public infrastructure for the proposed ACSP is primarily the same as described in the MSEC FEIS (BIA 2014, Section 3.10.6, pages 3-56 through 3-58).

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

The potential socioeconomic impacts from the original MSEC Project are described in the MSEC FEIS (BIA 2014, Section 4.10, pages 4-79 through 4-92). In addition, socioeconomic impacts were also described for the other previous solar projects evaluated on the Reservation (BIA 2012, pages 4-64 through 4-78;

BIA 2016, pages 4-68 through 4-79, BIA 2019, pages 54 through 3-57). The MSEC analysis and the other previous analyses determined that the additional jobs created by the Projects would be a benefit to the Band and community. The MSEC Project was not expected to have any potential effects on the social well-being of groups representing the concerns of area stakeholders.

The effects on the social and economic resources that may occur with implementation of the ACSP would be similar to those effects described for the original MSEC Project. The construction workforce is anticipated to be larger for the ACSP (500 peak workers versus 300 peak workers) but the construction period would be slightly shorter (20 vs 24 months). The operational workforce is anticipated to be slightly smaller for the ACSP (12 versus 20 to 40 for the original MSEC). It is assumed that most of the workers during all phases will be local. The increase in peak workers during construction could be accommodated in Clark County where there is a large employment pool and a large hotel/motel room inventory. Under the Tribal Employment Rights Ordinance (TERO) agreement between the Band and the Applicant, Band members would have first right of refusal for any job positions for which they are qualified.

Similar to MSEC and the other solar projects on the Reservation, the increased spending on wages, materials, and services, and the increase in employment opportunities and income during construction of the ACSP should have short-term beneficial direct and indirect effects on local businesses, Clark County and the Reservation's employment levels, income, and the regional economy. These indirect impacts are anticipated to continue long-term during the operational phase of the proposed Project but at a lower rate because the facility workforce, payroll, expenditures on materials and services, and taxes would be lower than construction.

Over the 30-year term of the lease agreements for the ACSP, the Project would generate an annual fee to the Band as specified in the lease agreement. At the end of the 30-year lease, if the Project does not continue to operate under a lease extension, the Project would be dismantled by a workforce similar in size to the construction workforce, but over a shorter time period. During the construction, O&M, and decommissioning phases, the local workforce would earn payroll and pay taxes on employee compensation that would flow to Federal, state, and local jurisdictional treasuries. Additionally, tax revenues for Clark County would be generated from the direct and indirect construction expenditures on materials, equipment, and supplies.

Water for the ACSP would be provided by the Band and a septic disposal system would be used for wastewater management so no public services would be needed. Although the workforce would be slightly higher for the ACSP during construction, the impacts on other community infrastructure, public services, and utilities (such as fire and emergency medical services, police, hospitals, public schools, and solid waste) would be similar to those described in the MSEC FEIS Section 4.10.2.1.6.

Environmental Justice

While residents of the Reservation meet the criteria of an environmental justice community, a primary goal and expected result of the proposed ACSP is to provide positive benefits to the Band. No negative environmental justice impacts are expected to occur.

Indian Trust Assets

Like the original MSEC Project (BIA 2014, page 4-92), adverse impacts associated to Indian trust lands would occur from development of the Project. While these impacts would occur on more acres, they could be expected to be lower for the proposed ACSP than the original MSEC due to less grading and leaving natural vegetation in place wherever feasible. Indian Trust Assets such as fishing and mineral rights would not be impacted by Project implementation. The Project's proposed use of tribal water would exercise the Band's water rights demonstrating their legitimate need for these water rights against any adverse claims by others in the future.

3.10.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Socioeconomic impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.11 Land/Resource Use

3.11.1 Affected Environment

Land and resource uses in and around the Proposed ACSP area are the same as those described for the MSEC Project. Those land and resource uses are summarized below and described in detail in Section 3.11 of the MSEC FEIS (pages 3-58 to 3-61).

The proposed Project site is located in an area on the Reservation designated by the Band for economic development. Clark County has implemented land use plans for private lands within the Northeast County which includes some of the area around the Reservation. Northeast County is an unincorporated planning area administered by Clark County that includes the communities of Bunkerville, Glendale, Logandale, Moapa, Moapa Valley, Mesquite and Overton. These plans were adopted in 2012 and indicate the land uses surrounding the Reservation are Open Lands, Industrial, and Heavy Industrial.

No hunting, fishing or gathering has been reported by the Band in this portion of the Reservation. Likewise, there are no grazing allotments. Three mining claims are located within five miles of the proposed ACSP and none are listed as active.

Access to the ACSP site would be via the same existing roads / routes evaluated and the previously approved site access road identified for the original MSEC Project (BIA 2014, pages 3-59 through 3-60). The roads providing this approved access would include I-15, US-93, North Las Vegas Boulevard, and the previously approved 2.4-mile road between Las Vegas Boulevard and the site. The primary highway intersection at I-15, US-93, and Las Vegas Boulevard has undergone significant upgrading since MSEC Project was approved.

There are no registered airfields in the immediate vicinity of the Project but nine within 50 miles. The proposed Project would be located approximately 1.7 miles northwest of the Union Pacific Railroad which approximately parallels I-15 in this area.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

The effects on lands and realty that would occur by implementing the ACSP would be nearly identical to those described the MSEC in Section 4.11 of the MSEC FEIS (pages 4-92 to 4-98). The proposed ACSP would be constructed entirely on Reservation lands. There would be no additional impacts to existing public utilities and services from the ACSP. The ACSP would have no impact to airports or airport operations or to military training operations conducted by Nellis Air Force Base. Hunting, fishing or gathering as well as grazing and mining would also not be affected.

In the analyses for the MSEC Project, it was determined that traffic impacts would occur primarily during construction and would result in short-term adverse effects on traffic volume but would not adversely affect traffic flow on local roadways. The construction workforce for the ACSP would be larger (500 versus 300) contributing to additional traffic. In addition, construction is expected to occur over a slightly shorter period. There would be moderate increased short-term direct and indirect impacts to the local roadway system providing access to the Project site due to the increased volume of traffic generated by the workforce and commercial truck traffic during construction.

Impacts would be similar but less during decommissioning than construction and traffic impacts would be negligible during the long-term operations and maintenance phase of the Project.

In addition, a conceptual Traffic Management Plan has been prepared for the Project and is included in **Appendix L**. This plan provides the framework for a detailed traffic management plan that would be developed and submitted for approval prior to the start of construction by the contractor building the project.

3.11.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Impacts to land use, realty and transportation from development of the ACSP would be the same as described in the MSEC FEIS (BIA 2014).

3.12 Special Management Areas

3.12.1 Affected Environment

Special management areas (SMAs) in the ACSP are the same as those described in the MSEC FEIS. There are no designated wildernesses, areas of critical environmental concern (ACECs), or other special management areas within or close to the proposed Project area. The closest wilderness area is approximately 11 miles from the Project and the closest ACEC is approximately 9 miles away. Managed natural areas within the vicinity of the project include the Valley of Fire State Park (approximately 9 miles southeast) and Moapa Valley National Wildlife Refuge (approximately 12 miles northwest).

The proposed ACSP would be constructed entirely on Reservation lands managed by the Band. No recreation areas or dispersed recreational opportunities were identified within five miles of the Project area. Additional details about the existing special management areas in the vicinity of the ACSP can be found in the MSEC FEIS (BIA 2014, Section 3.12, pages 3-61 and 3-62).

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

The potential impacts of the ACSP to SMAs would be the same as those described in the MSEC FEIS (BIA 2014, Section 4.12, pages 4-98 and 4-99). The nearest SMA or similar natural area is approximately 9 miles from the ACSP project area. Located on the Reservation, the proposed Project site is not accessible to the general public and there are no roads that would be developed for the expanded solar field that would provide new access to public lands. Likewise, the Project would not restrict access by the public to SMAs or Wilderness Areas. The Project would not impact any desert wildlife management area (DWMA) locations and any needed desert tortoise relocation would take place within the Reservation. The Project is not expected to have impacts on the night sky or views from any SMAs as Project lighting would only be used when needed, would be designed to provide the minimum illumination required for safety and security objectives, and would be downward facing and shielded to focus illumination on the desired areas only.

3.12.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Impacts to SMAs from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.13 Visual Resources

3.13.1 Affected Environment

The existing visual resources in the ACSP project area and applicable visual resource policies are described in detail in the MSEC FEIS (BIA 2014, Section 3.13, pages 3-62 through 3-68) and summarized here.

The proposed ACSP solar field expansion would be located wholly on Reservation lands. Neither the Tribe nor the BIA has a visual resource management policy for tribal lands. The ACSP is not adjacent to or near any national parks or residential communities. The Arrow Canyon Mountain Wilderness is located 6 to 15 miles north of the Project site where views of the ACSP would be blocked by intervening topography. The Muddy Mountains Wilderness is located approximately 12 miles southeast of the site.

An evaluation of the landscape's scenic quality or visual appeal was conducted and considered to be low because of its uniform vegetation and location very near or adjacent to existing power projects, multiple high voltage transmission lines, pipelines, and substations. This is generally consistent with the rating of adjacent BLM lands.

To identify the areas from which the project could potentially be seen, a viewshed analysis was conducted for a 15-mile radius around the site. **Figure 3-6** exhibits the areas from which the expanded ACSP solar field could potentially be seen and shows that they are limited primarily to locations close to the Project area because of intervening topography. The Old Spanish National Historic Trail is an important historical and recreational resource in the area located approximately 5 miles east of the proposed Project site at its closest point. The visibility of the Project from the Old Spanish National Historic Trail (Trail) is discussed below.

Key Observation Points

Key Observation Points (KOPs) provide representative views to assess visual impacts of a proposed action. KOPs were identified as part of the original MSEC EIS process in coordination with agency personnel and are used in this analysis of the ACSP.

There are no residences in the area and, being located on the Reservation, access to the Project area is restricted. Therefore, selected KOP locations focused on nearby public travel routes and the Old Spanish National Historic Trail. Five KOPs were originally selected for the MSEC project. Four of these (KOPs 2 to 4) are being re-evaluated for the ACSP to show the comparative difference between the visual effects from the originally approved MSEC project and the proposed ACSP solar field expansion. KOP 1 from the original MSEC analysis was located on US-93 about 4 miles northwest of I-15. It is not being re-evaluated because views of the original MSEC Project were blocked by intervening topography at that location. **Figure 3-6** shows the locations of KOP1 and the other original KOPs and they are described below and in the MSEC FEIS (BIA 2014, pages 3-66 through 3-68).

KOP 2

This viewpoint is located on I-15 approximately 3.5 miles nearly due south of the Project site and provides a view of what northbound travelers on I-15 would see. The existing view is dominated by existing industrial uses and features. The horizontal lines and colors associated with I-15 dominate the view in the foreground. From this KOP, the vertical and horizontal lines associated with several transmission lines and many towers are visible in the foreground (1 to 3 miles) and middleground (3 to 5 miles) along with the Crystal Substation. The vegetation is creosote/scrub desert displaying colors of browns, tans, and yellows and mountain ranges are in the distance. **Figure 3-7a** shows the existing view from KOP 2 looking north to the proposed ACSP site.

KOP 3

This viewpoint is located on I-15 approximately two miles southeast of the ACSP site. This KOP is representative of the view of what northbound travelers on I-15 would see intermittently for up to nine miles. The existing view is dominated by the presence of the horizontal lines and colors associated with I-15 in the foreground. From this KOP, the horizontal and vertical lines associated with several transmission lines, many towers, and the Crystal Substation are visible in the foreground and middle-ground just beyond the highway. The vegetation is creosote/scrub desert displaying colors of browns, tans, and yellows. Mountain ranges are visible in the distance. **Figure 3-8a** shows the existing view from KOP 3 looking northeast to the proposed ACSP site.

KOP 4

This viewpoint is located on a portion of the Congressionally-designated location of the Old Spanish National Historic Trail where it crosses Route 40 (Valley of Fire Highway). This KOP is located approximately 6.75 miles east - southeast of the of the ACSP site. This KOP provides a representative view from both Route 40 (a local road) and part of the Old Spanish National Historic Trail which is assumed to be infrequently visited by the public.

In the original view from this viewpoint along the Old Spanish National Historic Trail, part of the Valley of Fire Road is visible in the foreground. The foreground and middleground contains a flat desert landscape with varying light and dark colors associated with the native vegetation displaying colors of browns, tans and yellows. Existing industrial uses and features (transmission, substation, highway) are present in the far distance but not readily visible. Mountain ranges are in the far background distance. **Figure 3-9a** shows the existing view from KOP 4 looking west to the proposed ACSP site.

KOP 5

This viewpoint is also located on a portion of the Congressionally-designated location of the Old Spanish National Historic Trail approximately 5.75 miles southeast of the of the ACSP site. There are no significant roads in this area and this part of the Old Spanish National Historic Trail is assumed to be infrequently visited by the public.

From this viewpoint, a flat desert landscape is in the foreground and vegetation and exposed soils display colors of browns, tans and yellows. Existing industrial uses and features (transmission, substation, highway) occur in the far background but are not readily visible. Mountain ranges are in the far background distance. **Figure 3-10a** shows the existing view from KOP 5 looking northwest to the proposed Project site.

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

The original MSEC FEIS (BIA 2014, Section 4.13) provides additional detail regarding the visual analysis of this Project. Relevant details that support the comparison of the originally approved project to the currently proposed ACSP solar field expansion are summarized here.

A visual simulation of the proposed ACSP was prepared for each the four KOPs (2-5) to compare the view of the proposed ACSP solar field expansion to the original MSEC Project. To produce the simulations for the ACSP, a three-dimensional (3-D) model was developed for the expanded solar field which were then superimposed on the DEM of the topography of the area. Each KOP was incorporated into the DEM to verify scale and viewpoint location and model renderings were combined with the high-resolution digital photographs to create the simulations.

The visual simulations for both the originally approved MSEC Project and the expanded ACSP are included as **Figures 3-7b** and **3-7c** (from KOP 2), **Figures 3-8b** and **3-8c** (from KOP 3), **Figures 3-9b** and **3-9c** (from KOP 4), and **Figures 3-10b** and **3-10c** (from KOP 5). As discussed above, KOPs 2 through 4 are

located on public travel routes (I-15 and Valley of Fire Road [State Route 40]). KOPs 4 and 5 are representative of views from the Congressionally-designated location of the Old Spanish National Historic Trail.

The Project would generally not be visible to southbound travelers on I-15 because of intervening topography northeast and east of the Project location (see **Figure 3-6**). When the Project would be visible from the highway to southbound travelers, it would be slightly behind them and not within their primary forward views. Northbound travelers could see portions of the proposed Project from locations on I-15 south and east of the site. **Figures 3-7b** and **3-7c** and **3-8b** and **3-8c** show visual simulations of the originally approved MSEC Project and the proposed ACSP solar field expansion from KOPs 2 and 3 located on northbound I-15.

KOP 2 is approximately 3.5 miles south of the site and from this location, both the original MSEC Project and proposed ACSP could be seen just above the guardrail of I-15 and below the mountains in the background. As shown in Figure **3-7b**, the MSEC Project would be visible in approximately 50 percent of the 180-degree lateral / horizontal dimension of the view from KOP 2. The expansion of the solar field for the ACSP would expand the view of the solar project laterally / horizontally from this KOP location – it would be visible in nearly 100 percent of the 180-degree view as shown in **Figure 3-7c**. The visible expansion to the west is the added portion of the ACSP in the extreme southwest corner of the Reservation. The expansion to the east is visually blocked by the guardrail in most of this view but can be seen under the guardrail at the right edge of the simulation. While more visible and noticeable than the original MSEC Project from this location, the ACSP would only be noticeable for a relatively short time (less than 2 minutes) because of the highway speeds and periodic presence of guardrails, mounds associated with I-15, or intervening topography that would block the view to the west. This would vary by the lane the vehicle is traveling in and the local topography along the roadway. Visibility of the Project could be greater from the passing lane for north-bound travelers, as the guardrails would be less likely to screen views from vehicles.

KOP 3 is approximately two miles southeast of the Project site and the simulations from this location are similar to KOP 2. As shown in Figure **3-8b**, the original MSEC Project would be visible in approximately 85 percent of the 180-degree horizontal view from KOP 3. The expansion of the solar field for the ACSP would expand the view of the solar project horizontally from this KOP location making it visible in 100 percent of this 180-degree view as shown in **Figure 3-8c**. The ACSP would also be more noticeable as a result of the depth of the solar field being expanded. However, like the MSEC Project, the ACSP would not be dominant in the view of northbound travelers at this location because it would visible at an angle more perpendicular to the highway and not in the view of northbound travelers who would be traveling (and predominantly looking) to the northeast. Traveling in a direction away from the Project would make it less noticeable and it would be in the travelers' view for less time. While the solar field would be noticeable from this location, the individual components of the Project would not be readily discernible.

KOP 4 is on Valley of Fire Road (State Route 40) approximately 6.75 miles east-southeast of the of the site near the location where it crosses the Congressionally-designated location of the Old Spanish National Historic Trail. **Figures 3-9b** and **3-9c** provides a visual simulation from this KOP of the originally approved MSEC Project and the proposed ACSP, respectively. These simulations show that no components of the approved MSEC Project nor the proposed ACSP would be visible because of the distance and slight rise in the intervening topography. This KOP location is now proposed to be

surrounded by the approved Gemini Solar Project which will dominate the foreground and middleground views from this KOP and this portion of the road and Old Spanish National Historic Trail.

KOP 5 is located approximately 5.75 miles southeast of the site also near designated location of the Old Spanish National Historic Trail. As shown in the visual simulation (**Figure 3-10b**), like KOP 4, no components of the original MSEC Project would be visible from this location. The expanded solar field associated with the ACSP would be very faintly visible in the middle portion of this view at the base of the mountains in the distance as shown on **Figure 3-10c**. While it could possibly be seen at significant distance, the ACSP would not be expected to be noticeable by any users of the Trail.

Located on the Reservation, the ACSP solar site is not open to public access. It would not be seen from any national parks, wilderness areas, or residential communities. The Project would not be easily discernable from the Muddy Mountains Wilderness due to the distance from the Project site. While the ACSP would not be readily visible in the visual simulations prepared for KOPs 4 and 5, as shown on **Figure 3-6**, it could possibly be visible from other segments of the Old Spanish National Historic Trail but the visual impact would be minimal because of the distance. Although the site is located near a major highway, the surrounding topography of the area would obstruct views of the Project from many highway viewpoints within the surrounding area also as shown on **Figure 3-6**.

There is currently no source of light or glare within the ACSP area. Lighting could be used during construction of the Project if needed. During operations, sources of light would be located on the solar site primarily in the area of the O&M building or BESS area. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be downward-facing and shielded. Therefore, the ACSP is not anticipated to create a new source of substantial light which would adversely affect nighttime views in the area.

PV modules are designed to absorb as much light as possible to maximize efficiency and use anti-reflective coatings to decrease reflection and increase conversion efficiency therefore, glare from the Project is expected to be minimal. The time and duration of any potential reflections from the panels are determined by the orientation of the panels and the position of the observer in relation to those panels. PV solar projects mounted on single-axis tracking systems as proposed for the ACSP, rotate the panels throughout the day to keep them as close as possible to perpendicular to the incoming rays of the sun to maximize solar absorption and energy output. This results in the panels being oriented towards the sun as much as possible throughout the day and over the course of the year as the position of the sun changes in the sky. This orientation towards the sun results in the portion of incoming light that is reflected to be directed back into the sky. The amount of light reflected upwards would not be expected to potentially affect the training done at NAFB or other air traffic in the area.

3.13.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Visual impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.14 Public Health and Safety

3.14.1 Affected Environment

The proposed ACSP site could be subject to existing hazards in the area including fire, earthquakes, flooding, existing soil or groundwater contamination, and other potential natural and infrastructure hazards. The existing public health and safety issues in the ACSP project area and applicable public health resource policies are described in detail in the MSEC FEIS (BIA 2014, Section 3.14, pages 3-68 through 3-70) and summarized below.

The potential for encountering hazards and hazardous material in the Project area is low because of the undeveloped nature of the site and surrounding areas. The same hazardous materials and associated health and safety measures to comply with OSHA standards described in the MSEC FEIS would be used during construction of the ACSP to minimize the risk of accidents or injuries.

The proposed Project is in a remote area, located approximately 15 miles from the nearest residential/urban area. Fire management in the area would be the same as that described for the MSEC. The BLM responds to all wildland fires on both BLM and Reservation lands and structure fire response would be covered by Clark County Rural Fire and/or Moapa Fire Protection District. BIA is drafting a fire management plan that includes the project area to improve direction in the future.

The project ACSP site is located in an area that the Centers for Disease Control has determined is suspected endemic for Coccidioides, a fungus causing Valley Fever in humans. Ground disturbing activities associated with the proposed action could result in dispersal of Coccidioides spores.

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

The effects on human health and safety due to exposure to or creation of hazards that could occur as a result of development and operation of the proposed ACSP would generally be the same as described for the original MSEC Project in Section 3.14 of the MSEC FEIS (BIA 2014 pages 4-107 through 4-112). Like the MSEC Project, potential health and safety impacts that could result from spills of hazardous materials, electrical hazards, or fire hazards would be expected to have a minor potential risk to public health.

The ACSP would be required by regulations to develop the same plans to minimize health and safety risk. These would include a Health and Safety Program, Emergency Response Plan, Hazardous Materials Management Plan, Waste Management Plan, and SPCC Plan.

During construction, the potential fire risk for the proposed ACSP would be the same as described in the MSEC FEIS (BIA 2014, pages 4-111 through 4-112) where construction activities and related equipment could expose people to an increased risk of wildland fires. A Fire Prevention Plan would be prepared prior to construction that would cover the construction, operation, and decommissioning of the facility. Fire protection measures would include prevention methods using fire-safe construction, reduction of

ignition sources, control of fuel sources, availability of water, and proper maintenance of fire-fighting systems. This plan would be coordinated with the BIA, Band, and Clark County.

The ACSP would include a BESS that was not part of the original MSEC Project. The BESS would be either distributed or centrally located and could increase the potential for fire and the need for fire safety during operations. To lessen the associated fire risk, the BESS would be designed to meet all applicable federal and local fire codes and each BESS container would have its own fire detection system. The BESS would also be incorporated into the Fire Prevention Plan.

To lessen the potential risk of Valley Fever from exposure to dust during construction, the following mitigation measures could be implemented as needed:

- Include training for workers and supervisors on the potential presence of Valley Fever spores, methods to minimize exposure, and how to recognize symptoms
- Limit workers' exposure to outdoor dust in disease-endemic areas by (1) providing air-conditioned cabs for vehicles that generate dust and making sure workers keep windows and vents closed, (2) suspending work during heavy winds, and (3) directing them to remove dusty clothing after fieldwork and store in closed plastic bags until washed.
- When exposure to dust is unavoidable, provide approved respiratory protection to filter particles.

3.14.2.2 No Action

Under the No Action Alternative, the expansion of the solar field would not occur and the project would make use of the originally approved 850-acre lease area. Health and safety impacts from development of the Project would be the same as described in the MSEC FEIS (BIA 2014).

3.15 Cumulative Impacts

This section analyzes cumulative impacts of the proposed ACSP in conjunction with other development that affect or could affect the area. Under NEPA, a cumulative impact is the impact on the environment that results from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions (40 CFR Section 1508.7). In order to facilitate the cumulative analysis, a cumulative scenario has been developed that identifies and evaluates projects that already exist within the vicinity of the proposed ACSP, that are reasonably foreseeable, or would be constructed or commence operation during the timeframe of activity associated with the proposed Project.

3.15.1 Cumulative Projects

The cumulative scenario includes projects within the same geographic and temporal scope as the ACSP. For the purpose of this study, the geographic scope for cumulative effects has been defined as within the Muddy River and California Wash watersheds within five miles of the Project area for physical and most biological resources (air and water resources, soils / geology, non-avian biological resources, cultural resources, lands/realty, noise) as this area provides natural boundaries for these resources. The geographic scope for socioeconomic impacts (employment, income, services, resource use patterns,

etc.) is within the local community or northern part of Clark County. The cumulative effects area for visual resources would be ten miles. Nearly all current or foreseeable projects that could take place within the area would be located on the Reservation or BLM-managed land respectively, so would be subject to NEPA and would also evaluate local cumulative impacts.

As with the geographic scope of the cumulative analyses, the temporal scope (construction, O&M) of each analysis varies by resource area. For this analysis, the temporal scale has been limited to projects constructed within the last five years because restoration activities have normally been implemented within that time and to projects that may be constructed within the next 10 years as details for potential projects beyond 10 years are not normally available.

The cumulative scenario includes renewable energy projects, transportation projects, infrastructure improvement projects, pipeline and electric transmission projects, and other projects that meet the following criteria:

- Projects that are closely-related and completed past projects;
- Projects approved and under construction;
- Projects approved but not yet under construction; and
- Projects that have been proposed but not approved.

Recent past projects include the existing K Road Solar Facility and the solar projects within the Dry Lake solar energy zone (SEZ). Reasonably foreseeable developments in the general area of the ACSP include other potential solar projects (Gemini, Eagle Shadow Mountain, Chuckwalla, Southern Bighorn I [SBS], and Southern Bighorn II SBS II]) and their associated utility lines and substations. Projects included in this cumulative analysis can be found in **Table 3-8**. This analysis evaluates the past, pending and current/future projects which are summarized in the sections below.

3.15.2 Cumulative Impacts by Resource

For this analysis, cumulative resource impacts are the combined direct and indirect effects of the present and reasonably foreseeable future actions, plus the direct and indirect impacts of the originally proposed MSEC Project and the proposed ACSP expansion.

Geology, Topography and Geologic Hazards

Like the previously evaluated MSEC Project, the proposed ACSP would not have impacts to geologic units, topography, or geologic hazards outside of the Project area and, therefore, would not contribute to cumulative impacts to geology and topography.

TABLE 3 8
POTENTIAL CUMULATIVE PROJECTS

Project Name	Project Type	Approximate Size	Status
Eagle Shadow Mountain Solar Project (300-MW)	Energy	2,500 acres	Approved, not constructed
Gemini Solar Project (690-MW)	Energy	7,100 acres	Approved, not constructed
Southern Bighorn Solar I (300-MW)	Energy	2,600 acres	Predevelopment phase
Southern Bighorn Solar II (100-MW)	Energy	1,000 acres	Predevelopment phase
Chuckwalla Solar (200-MW)	Energy	2,200 acres	Predevelopment phase
Harry Allen Solar Energy Center Project (130-MW)	Energy	715 acres	Approved, not constructed
Apex Solar Project (20-MW)	Energy	156 acres	Constructed
Playa Solar Project (200-MW)	Energy	1,700 acres	Constructed
Nellis Air Force Base Area III Solar Project (14.2-MW)	Energy	140 acres	Constructed
Nellis Air Force Base Area I Solar Project (15-MW)	Energy	160 acres	Constructed
Moapa Southern Paiute Solar Project [K Road] (250-MW)	Energy	2,000 acres	Constructed
Dry Lake Solar Energy Center Project (150-MW)	Energy	694 acres	Predevelopment phase
Dry Lake Solar Energy Center at Harry Allen (20-MW)	Energy	155 acres	Predevelopment phase
Dry Lake East Solar Designated Leasing Area Project	Energy	1,800 acres	SEZ expansion, approved by BLM
Aiya Solar Project (100-MW)	Energy	900 acres	Approved, not constructed
TransWest Express Transmission Project	Transmission	725 miles	Approved, not constructed
I-15 / US 93 Interchange Improvements	Transportation	7.7 miles	Constructed

Soils

Soils in the general area are poorly developed and shallow or almost completely absent in some areas. In general, the local soils are typically only 4 to 18 inches in depth over an underlying caliche layer. Once disturbed, these soils can be susceptible to erosion.

Existing development in the area has been limited to a few solar projects and multiple pipelines and transmission lines within the utility corridor. Foreseeable development throughout the cumulative effects area that would impact soils includes the multiple solar projects that are in development and their associated linear utilities. All these proposed and foreseeable construction projects would be required to implement control measures to prevent erosion similar to those planned for the ACSP and employed on past projects. The acreage affected by the other foreseeable projects is expected to have a minor cumulative impact to soil resources. Some of the proposed solar projects could have overlapping construction periods with the proposed ACSP during which time soil disturbance and associated impacts

would be maximized. The timing of these projects and implementation of appropriate BMPs would lessen some of the cumulative impacts to soil resources.

The proposed Project, when considered with the present and reasonably foreseeable future actions, would have a minor long-term contribution to the cumulative impacts to soils.

Water Resources

Surface waters in the area are ephemeral drainages that flow only in response to precipitation events. Those on and around the Project site are in a closed basin and drain south to the Dry Lake playa. Potential projects located north of the ACSP would be in drainage basins that drain north.

Groundwater in the area is produced from an extensive carbonate aquifer including the Band's well that would provide the water supply for the ACSP. Previous testing of the Band's well has provided clear physical evidence that cones of depression produced by pumping are undetectable beyond about two miles from the pumped well. In addition, the modeling analysis conducted for the MSEC Project showed that groundwater use from the tribal wells significantly greater than that proposed for the ACSP would not result in observable changes to the water levels or flows in the local aquifer (BIA 2014, Appendix F). The amount of available groundwater is expected to be affected over time by changes in climate. The Nevada State Engineer is currently evaluating the sustainability of groundwater development in the regional groundwater flow system.

The potential for groundwater resources in the area to be impacted by cumulative projects withdrawing water from the local aquifers was the focus for development of a Memorandum of Agreement (MOA) and the *Intra-Service Programmatic Biological Opinion* (PBO) for the Moapa dace. The MOA and PBO were developed through intra-service consultation and identify the monitoring and mitigation measures that would need to be undertaken to address the potential impacts from cumulative groundwater withdrawals. The conclusion of this analysis was that use of the Band's entire 2,500 AFY water right would not negatively affect flows in the Virgin River. Detailed information on the MOA and PBO is included in the MSEC FEIS (BIA 2014, Section 4.8.4.1.2, pages 4-62 through 4-65).

Most of the cumulative projects in the area are solar projects having moderate short-term water use during construction and minimal long-term water use during operations. Overall, cumulative impacts would be dependent on the number of other projects in the area that would utilize groundwater and their schedule for implementation. In addition, the cumulative impacts to groundwater could be accelerated by the contribution of climate change to the reduction of precipitation in the basin and its contribution to groundwater recharge. Therefore, the proposed groundwater use by this Project would have a negligible contribution to potential cumulative impacts to groundwater in this area.

All identified cumulative projects would be subject to the implementation of spill prevention measures and any potential release from either the ACSP or any current or foreseeable proposed projects would not be expected to have measurable effects to groundwater quality because of the depth to groundwater in the area and requirements for spill prevention and cleanup. Therefore, this Project when combined with the other actions in the area is not anticipated to negatively affect groundwater quality.

The ACSP would have a negligible contribution to potential cumulative impacts to water resources and water quality. When combined with other cumulative projects, there could be a minor short-term impact from overlapping construction schedules and associated water use but negligible long-term effects.

Air Quality and Climate

Climate change is expected to influence the western US on an ongoing basis. Effects on climate change caused by the release of GHG emissions are cumulative by nature and GHG emissions related to the ACSP would be minimal. Construction of the ACSP and other cumulative projects would generate relatively minor amounts of GHGs for the short-term. Operation of this and the other proposed solar projects in the area would offset electricity produced from fossil fuel energy projects and would be a net positive effect on GHG emissions.

Air quality in the area can be negatively affected by two primary sources - windblown fugitive dust and mobile emissions from on-road and off-road vehicles and construction equipment. Windblown fugitive dust is a widespread issue throughout Clark County and is increased by construction disturbance. Cumulative impacts to air quality could result from construction of the ACSP and other cumulative projects. Generally, construction emissions are localized and short-term. Construction emissions from the ACSP would have a negligible contribution to cumulative air quality impacts but together with the collective projects could potentially result in cumulative short-term, localized, and unavoidable impacts to air quality if they were constructed during the same timeframe. Unmitigated, multiple concurrent projects could cause short-term exceedances of existing air quality standards. However, all these projects would be required to apply BMPs for to control fugitive dust emissions so these short-term cumulative impacts would be expected to be minor and anticipated to occur at levels that would not exceed existing air quality standards. The operational phases of the ACSP and other cumulative projects would have minimal emissions of regulated air pollutants.

Noise

Like the original MSEC Project, the proposed ACSP would produce a short-term increase in noise at the site boundary over the existing ambient noise levels during construction activities. These increased noise levels would not be perceptible at the nearest receptors because of the significant distance to them. Long term noise effects from O&M of the proposed ACSP would be minor.

Other proposed projects in the vicinity would also generate noise during construction and very little during operations. The noise from all these projects are not likely to be additive because of the distance between each proposed project, potential differences in schedules, and the distance to the nearest sensitive receiver. However, development of multiple projects at the same time could cause an increase in traffic volumes along highways and local roads which could cause a minor increase in the noise levels along the highways. Therefore, the proposed Project, when considered with the present and reasonably foreseeable future actions, would have a negligible long-term contribution to the cumulative impacts to noise.

Biological Resources

Mojave Desert scrub/shrub vegetation makes up nearly all vegetation within the entire Mojave Desert. Like the original MSEC Project and proposed ACSP, many of the cumulative projects would affect this same type of habitat as well as the sensitive wildlife species that occur within this region and habitat including the desert tortoise. The cumulative effects to these resources would be both long-term and temporary, short-term.

It is expected that the collective development of the cumulative projects would result in the loss and fragmentation of significant amounts of desert tortoise habitat as well impacting significant numbers of individual tortoises. As indicated in **Table 3-5**, the local solar projects on and nearby the Reservation would impact almost 20,000 acres. Because most of the land in the area is federal or tribal, it is expected that each foreseeable project would be required to go through Section 7 consultation under the ESA.

Some past and proposed solar projects would collectively result in relatively long-term loss of thousands of acres of vegetation and habitat because of their plans to grade the entire site. However, the proposed ACSP (like the recently approved Gemini Solar and Eagle Shadow Mountain Solar projects) would employ grading only where necessary, mow vegetation to 18 inches in non-graded areas, and permanently impact much less habitat than previous projects. Therefore, these projects are expected to have long-term impacts on much fewer acres (187 acres for the ACSP).

In addition, the ACSP and the other two recent solar projects will have permeable fencing to allow for desert tortoise and other wildlife to reoccupy the site during and after operations. This will help reduce long-term fragmentation of tortoise habitat. To mitigate any direct effects or potential cumulative effects, the ACSP and other cumulative projects would develop and implement desert tortoise mitigation plans in consultation with the USFWS. These mitigation measures would reduce the impacts that projects would have upon the desert tortoise.

The linear utility projects in the cumulative effects study area would have a short-term effect on vegetation during the construction phase but would be allowed to revegetate or be restored and species such as the desert tortoise would be able to reutilize the area. Implementation of the ACSP and other cumulative projects could negatively impact native species and habitats by increasing the spread of weeds on the Reservation and nearby lands where weed species already occur. This increase in weedy species could increase wildfire potential on project lands and adjacent lands.

Long-term impacts to yucca and cacti species would occur from the implementation of multiple cumulative projects. The BLM also manages sensitive species as part of their review of the ROW agreements for transmission, pipelines, and utility roads within the existing utility corridor as well as large-scale solar projects on BLM lands. Mitigation measures required by the regulatory agencies minimize cumulative impacts to native and sensitive vegetation would occur as a result of the current and foreseeable projects.

Some of the projects considered for cumulative impacts would affect suitable foraging habitat for raptors including golden eagles. Loss of foraging habitat could impact foraging behaviors which could cause adverse impacts to the fitness of populations within known nesting grounds. The proposed and existing transmission lines would be located near one another in or near the utility corridor. The existing lines have been in place for many years and raptor foraging flight patterns have most likely adapted to

their presence. The existing and proposed lines in the area could increase the potential for the electrocution of raptors/eagles but would be mitigated by the implementation of APLIC guidelines to reduce the impacts that cumulative projects would have to raptors.

Overall, the proposed ACSP, when considered with the present and reasonably foreseeable future actions, would have a minor long-term contribution to the cumulative impacts to biological resources.

Cultural Resources

Existing developments in the vicinity include the transportation corridors such as I-15 and the Union Pacific Railroad to the south and east, the utilities within the designated utility corridor, the existing Harry Allen Power Plant/substation to the south and multiple existing solar projects to the south and east. Each of these projects have had direct and indirect impacts to cultural resources.

Reasonably foreseeable developments in the general area of the ACSP include other potential solar projects (Gemini, Eagle Shadow Mountain, Chuckwalla, Southern Bighorn I, and Southern Bighorn II) and their associated utility lines. Each of these projects have or could directly and indirectly impact cultural resources including impacts to previously unknown resources. Projects under BLM, BIA, or other federal jurisdiction would be subject to the same Section 106 requirements, requiring similar mitigation and impact minimization. The other existing or reasonably foreseeable actions in the study area for cumulative effects could also add to the cumulative loss of information about our heritage.

Like the MSEC Project, implementation of the proposed ACSP would not result in direct impacts to potentially eligible cultural resources but could possibly result in the disturbance and/or loss of currently unidentified sites or artifacts. The ACSP would not impact eligible historic properties. Therefore, the ACSP would not contribute to cumulative impacts to cultural resources.

Socioeconomics

Like the original MSEC Project, the socioeconomic impacts from the proposed ACSP would be limited to the local and regional area in Clark County surrounding and including the Reservation. Recent socioeconomic trends in this area show that income has increased on the Reservation but not as rapidly as in the surrounding area. The percentage of people living below the poverty line on the Reservation has improved in recent years but is significantly higher than northern Clark County.

The ACSP and other cumulative projects would have short-term and long-term beneficial impacts during construction, O&M, and decommissioning activities. All current and foreseeable projects would also contribute short-term and potentially long-term beneficial cumulative impacts to employment, housing, and local/regional tax base and sales. The type of proposed projects (renewable energy and corridor construction projects) would have a specific short-term socioeconomic impact during construction as large numbers of employees would be needed and a much smaller impact during operations of the facilities.

Most employees would come from the current employment pool including Band members, specifically for the projects on the Reservation. Local employment would result in local spending while employment of special trades from outside the area would boost hotel occupancy. The projects would also use local

resources, materials, and commodities from local suppliers during construction having a short-term effect. The Band would benefit from the lease and ROW payments from the ACSP and other projects on the Reservation and these projects would use the Band's Travel Plaza for fuel, food and other supplies.

Construction of ACSP in conjunction with the current and foreseeable projects would result in a beneficial, cumulative impact on the local, tribal, and regional economy and would increase employment during the periods of construction and decommissioning, and to a smaller extent, during operations.

Resource Use Patterns

The proposed ACSP, like the MSEC Project, would result in no resource use impacts. Therefore, it would not contribute to cumulative impacts to resource use.

Like the original MSEC Project, the proposed ACSP would potentially impact local traffic and transportation systems by increasing the volume of traffic during construction. ACSP and the other solar projects proposed for the southern part of the Reservation and on nearby BLM lands would all use the same primary access (I-15, US-93, and North Las Vegas Boulevard). Recent improvements have been made to the I-15 – US-93 – Las Vegas Boulevard interchange that greatly improves traffic flow and volume.

Cumulative impacts to traffic and transportation could result if the ACSP and some of the other cumulative projects in the area would have concurrent construction schedules. Cumulative traffic impacts would be expected to be mitigated in part by the development and implementation of a traffic management plan for each project planned to occur on the Reservation or nearby federal lands. These plans would be developed in coordination with the NDOT.

Special Management Areas

Cumulative impacts to Special Management Areas would not result from the proposed ACSP because, like the original MSEC Project, it would not impact any SMAs, National Preserves, Parks, or Wilderness Areas and would not contribute to cumulative effects.

Visual Resources

The landscape on which the ACSP and most of the cumulative projects would occur has a low scenic quality or visual appeal. This rating is based on the uniform vegetation in all directions (primarily desert scrub/shrub) and consistent colors as well as the existence of several existing power projects and multiple high voltage transmission lines, pipelines, substations, and other man-made structures in the area such as I-15 and the Union Pacific railroad. This low visual rating is generally consistent with the rating of adjacent BLM lands.

Cumulative impacts to visual resources could occur if multiple projects are developed in the same viewshed and significantly changes the natural surroundings. The terrain of the cumulative impact analysis area is relatively flat with the Arrow Canyon Range mountains in the background in views along

I-15 from which most people would see the ACSP and other proposed projects on or near the Reservation.

Planned development for the area that would contribute to cumulative effects on visual resources would include the additional solar projects and electric transmission lines. Each of these projects would have low to moderate long-term effects to the visual setting.

Given the high number of existing transmission lines and substations currently within the immediate area, future lines like the previously approved MSEC gen-tie would likely blend with the existing lines and not be discernable from most viewpoints. The existing K Road Moapa Solar project is located northeast of the ACSP and can be seen within the same viewshed as the proposed ACSP from some locations. Likewise, some of the other proposed solar projects (ESMPS, SBS I, SBS II, and Chuckwalla) could also be seen within the same view as the ACSP from a few specific vantage points along I-15. This would result in a long-term cumulative change in the visual character of the landscape from some specific locations.

Therefore, the proposed Project, when considered with the present and reasonably foreseeable future actions, would have a long-term contribution to the cumulative impacts to visual resources.

Public Health and Safety

Like the MSEC Project, hazardous materials could be used during ACSP construction activities and localized spills and leaks of hazardous materials from equipment, storage sites or vehicles/equipment could occur. O&M of the proposed Project would also involve the periodic use and transport of hazardous materials. Mitigation measures would be implemented to reduce potential impacts and the ACSP would not be expected to contribute to unavoidable cumulative adverse impacts to public health and safety.

3.16 Unavoidable Adverse Impacts

The following section describes the unavoidable adverse impacts that would occur as a result of the construction, operation, and decommissioning activities associated with the ACSP. This section also includes a discussion of the irreversible and irretrievable commitments of resources associated with the Project.

As discussed in **Section 3.1.2**, the primary drainages on the solar site would not be affected but smaller drainages would experience additional erosion and sediment flow temporarily during and after construction. While these impacts would occur, due to the implementation of BMPs, the unavoidable adverse risk of flooding and sediment production would be negligible. The ACSP would also withdraw water for construction and operations from an existing well on the Reservation.

Contamination of surface water could occur as a result of spills associated with the Project but implementation of BMPs outlined in the Spill Response and Emergency Response Plan would make these adverse impacts negligible.

The loss of habitat by implementing the ACSP would result in an unavoidable adverse impact to vegetation and wildlife habitat for the life of the project. The loss of the small amount of native vegetation would not be expected to cause an irreversible and irretrievable commitment of the resource on a regional basis.

Localized and long-term, unavoidable, adverse impacts on wildlife, including special status species, would occur. Unavoidable impacts to desert tortoise would occur and would be mitigated by the terms of the take permit that would be issued for Project.

Construction of the ACSP would affect cultural resources. Any loss or damage to these resources would be adverse and could potentially be irreversible. Any effects would be minimized by implementation of appropriate mitigation measures. Also, if ground disturbance causes the inadvertent discovery of previously unidentified subsurface cultural resources, these would be managed based on guidance from the appropriate agency and the Band. Therefore, there would be irreversible impacts to cultural resources but no irretrievable impacts to cultural resources are anticipated.

The Project is expected to create up to 500 construction jobs for a period of up to 20 months. After the construction is complete, up to 12 full time-equivalent positions would be required to operate and maintain the facility and provide plant security. This employment would have a beneficial impact on the local economy. The Project would provide long-term lease revenues to the Band and increase local spending which would also be beneficial. Therefore, there would be no unavoidable adverse impacts or irreversible and irretrievable commitments of the economic resources.

As discussed above, it is anticipated that the ACSP would have a positive effect on the local population including members of the Band by creating both temporary and long-term jobs and revenues. No unavoidable adverse impacts or irreversible and irretrievable commitments of resources are expected.

The ACSP would limit future use of up to approximately 2,200 acres of the Reservation for other uses for the life of the Project. This would not irreversibly and irretrievably commit the land resource as the use could change after Project decommissioning.

Views of the Project area from I-15 are blocked by intervening topography in most locations but there are some locations on I-15 from which the ACSP would be visible. The dominant man-made visual feature would be portions of the solar field. Existing views of the Project area from I-15 include the other man-made features in the viewshed including multiple high voltage transmission lines, substations, and power plants varying by viewpoint location. Construction of the ACSP would cause unavoidable, short-term and long-term, adverse impacts on visual resources by adding additional man-made features to the viewshed. However, this impact would not be irreversible or irretrievable commitment of visual resources as these features would be removed during Project decommissioning.

3.17 Relationship Between Short-Term Uses and Long-Term Productivity of the Environment

Construction, operation, and maintenance of the ACSP would result in the loss of resources over the life of the Project. Impacts to water, biological, and visual resources would occur. While there would be irreversible and irretrievable commitments of some resources, as noted above, there would be no permanent loss of the overall productivity of the environment due to the proposed ACSP.

CHAPTER 4
List of Preparers and Consultation/Coordination

4.1 List of Preparers and Reviewers

Below is a list of the individuals who contributed to the development of this SEIS.

Name	Title / Responsibility
Bureau of Indian Affairs, Western Regional Office	
Chip Lewis	BIA Project Lead / Regional Environmental Protection Officer
Garry J. Cantley	Regional Archeologist
Tamera Dawes	Realty Specialist
Christina Varela	Realty Specialist
BIA Southern Paiute Agency	
Jim Williams	Agency Superintendent
Department of the Interior, Office of the Solicitor	
Christopher Ruedas	DOI Solicitor
Moapa Band of Paiutes	
Laura Watters	Chairwoman
Terry Bohl	Director of Business Enterprises
BLM Las Vegas Office	
Nicholas Pay	Renewable Energy
US Environmental Protection Agency	
Karen Vitulano	Environmental Review
US Fish and Wildlife Service	
Carla Wise	Threatened and Endangered Species
Jessica Zehr	Threatened and Endangered Species
Roy Averill-Murray	Desert Tortoise Recovery Coordinator

Name	Responsibility
ENValue, EIS Consultant	
Randy Schroeder	Project Manager
Patrick Golden	APM, Biological Assessment
Scott Yanco	Biological Resources
Matt Schweich	Noxious Weeds
Will Van Vleet	Physical Resources, Biology
Mark Button	Visual Simulations
Emily Critchfield	Socioeconomics, Land Use
Jeud Perez	Biological Resources
Rachel Clark	GIS Mapping
AJ Thompson, Knight & Leavitt	Cultural Resources
OTHERS	
Patricia McCabe, Logan Simpson	Consultant to BIA – Environmental Planning
Diane Simpson-Colebank, Logan Simpson	Consultant to BIA – Environmental Planning
Ian Tackett, Logan Simpson	Consultant to BIA – Wildlife Biology
Mary Barger	Consultant to BIA – Cultural Resources

4.2 Consultation and Coordination

The BIA informed the public, landowners, Government agencies, tribes and interested stakeholders about the proposed Project and solicited their comments.

4.2.1 Public Scoping

The NOI to prepare an SEIS was published in the Federal Register on January 30, 2020. Federal, state, and local agencies that could be interested or may be affected by the Proposed Project were contacted to request their participation.

In addition, over 70 scoping letters were sent by the BIA to other various non-governmental organizations and other interested stakeholders. The scoping letter briefly explained the project (including maps), outlined the federal review process, announced the public scoping meetings, and described the various ways to provide comments. A project website: https://www.arrowcanyonsolarseis.com/ was also available to the public and provided project information as well as an online comment form.

A legal notice/public notice announcing the public scoping meetings was published in two local newspapers on February 9, 12, 16, and 19, 2020. The BIA hosted two public information and scoping meetings – one on the Moapa River Indian Reservation and the other in Las Vegas – on February 25 and 26, 2020.

Details about the public scoping process and the input received can be found in the Scoping Report included in **Appendix B** of this SEIS.

4.2.2 Consultation with Others

In addition to the outreach to public stakeholders, the following federal, state, and local agencies were provided an opportunity to consult during preparation of the Draft SEIS:

- Moapa Band of Paiute Indians (cooperating agency)
- Bureau of Land Management (cooperating agency)
- U.S. Fish and Wildlife Service (cooperating agency)
- US Environmental Protection Agency, Region 9 (cooperating agency)
- Nellis Air Force Base
- Nevada Department of Wildlife
- National Park Service
- Nevada Department of Conservation and Natural Resources
- Nevada Department of Air Quality and Environmental Management
- Nevada Division of Environmental Protection
- Nevada State Historic Preservation Office
- Nevada Department of Transportation
- Nevada Natural Heritage Program
- Conservation District of Southern Nevada
- Nevada Energy
- Natural Resources Conservation Service (Mojave Special Projects Office)
- Nevada Department of Transportation
- U.S. Army Corps of Engineers
- Federal Aviation Administration
- Clark County
- Clark County Flood Control District
- Clark County Department of Air Quality
- City of Mesquite
- Southern Nevada Water Authority
- The Honorable Jack Rosen, US Senate
- The Honorable Catherine Masto, US Senate
- The Honorable Dina Titus, US House of Representatives
- The Honorable Mark Amodei, US House of Representatives
- The Honorable Steve Horsford, US House of Representatives
- The Honorable Susie Lee, US House of Representatives

4.2.3 Non-Governmental Organizations

The following non-governmental organizations (NGOs) were provided an opportunity to comment during preparation of the SEIS:

- The Nature Conservancy
- Lahontan Audubon Society
- Red Rock Audubon Society
- Desert Tortoise Council
- Friends of Nevada Wilderness
- Nevada Wilderness Project
- Sierra Club
- Center for Biological Diversity
- Sierra Nevada Alliance
- Nevada Clean Energy Campaign
- Center for Energy Efficiency and Renewable Technologies
- Desert Tortoise Council
- Great Basin Resource Watch
- Nevada Wildlife Federation
- Nevada Natural Resource Education Council
- Natural Resources Defense Council
- Nevada Conservation League
- Western Resource Advocates
- Environmental Defense Fund
- Conservation District of Southern Nevada
- Sierra Nevada Alliance
- Friends of Gold Butte
- Union Pacific Railroad Company
- Kern River Pipeline
- Old Spanish Trail Association

NGOs, private citizens and state and federal agencies provided comments during the public scoping period. See **Appendix B** for details on the comments received during scoping.

4.2.4 Native American Tribes

Under consultation provisions of the NHPA, BIA approached the following Tribes asked if they attached religious or cultural significance to any historic properties in the APE:

- Las Vegas Paiute Tribe
- Kaibab Band of Paiute Indians
- Hualapai Indian Tribe
- Fort Mojave Indian Tribe
- Hopi Tribe
- Colorado River Indian Tribes
- Chemehuevi Indian Tribe
- Paiute Indian Tribe of Utah