

ES.0 Executive Summary

The following sections summarize the *Proposed Toquop Land Disposal Amendment to the Caliente Management Framework Plan (MFP) and the Final Environmental Impact Statement (FEIS)* for the proposed Toquop Energy Project. This summary provides a general overview of the project and its purpose and need; briefly describes the Proposed Action and other alternatives; summarizes major impacts for key resources associated with the Proposed Action, each action alternative, and the No Action Alternative; and lists key consultation and coordination activities.

ES.1 Introduction

ES.1.1 General Overview

The Proposed Action and alternatives for the Toquop Energy Project were developed in response to a proposal by Toquop Energy, Inc., (Toquop Energy) to construct and operate a 1,100-megawatt (MW) natural gas-fired water-cooled electric power generating plant in Lincoln County in southern Nevada. The plant and associated features (access road, utility corridors, and wellfield) in Lincoln County would be on public lands that are presently managed by the Ely Field Office of the U.S. Bureau of Land Management (BLM). A portion of the plant access road would be located on lands in Clark County that are presently managed by the Las Vegas Field Office of the BLM. The power plant site for the Proposed Action is near the Toquop Wash, approximately 50 miles south-southeast of Caliente, Nevada, and 12 miles northwest of Mesquite, Nevada. This site is referred to as the Toquop southern parcel. An

alternative power plant site is approximately 12 miles north-northwest of the Toquop Wash plant site. This site is referred to as the Toquop northern parcel. The power plant would require connections to natural gas, electric transmission, water, and site access facilities, which would require rights-of-way (ROWs) from the BLM. The BLM would issue ROWs for a total of 42 years to cover the construction and expected operational life of the project.

This document evaluates three BLM actions and the potential environmental effects that would result from: 1) issuance of Rights-of-Way (ROWs) under the Federal Land Policy and Management Act (FLPMA) for the construction and operation of the electric power generating plant, access road, water pipeline, and wellfield; 2) evaluation of the effects of adopting the *Proposed Toquop Land Disposal Amendment to the Caliente Management Framework Plan*, which would identify specific sections of public land as suitable for disposal; and 3) exchange of a federally managed parcel of public land where the plant would be located for a private parcel of land owned by the Nevada Land and Resource Company, LLC (NLRC). The private parcel is located in the Pah Rah Range in Washoe County in northwestern Nevada. Map ES-1 shows the project area for the Toquop Land Disposal Amendment to the Caliente MFP and the Toquop Energy Project.

ES.1.2 Purpose

The proposed plant would generate electrical power at competitive costs for use by consumers to ease the near- and

long-term shortages of power in the western United States. The proposed project would contribute to meeting the demand for power in the Western Systems Coordinating Council (WSCC) service area, including the Las Vegas area, and could also contribute to meeting the capacity and annual energy requirements for the remainder of the Arizona-New Mexico-southern Nevada power area.

The project would provide economic benefits to Lincoln County, Nevada, which will provide opportunities for an increased tax base and increased employment opportunities.

Responding to a request for a land exchange, the project would provide the BLM with a mechanism for acquiring a desirable parcel of private land in the Pah Rah Range in northwestern Nevada and would facilitate public land management by the BLM by creating contiguous tracts of land.

ES.1.3 Need and Background

The WSCC estimates a demand for approximately 11,300 MW of new power plant generation to be constructed in its region of the western United States over the next 10 years to maintain reliable operation of the transmission system. The Toquop project would provide much needed support to the overall energy supply in this region and contribute approximately 10 percent of the projected demand for new generation within the WSCC. Based on data available from the WSCC, the 2002 Operating Reserve Margin (the difference between available capacity, excluding transfers, and peak demand) for the Las Vegas area and the Arizona-New Mexico-southern Nevada area is minus 2.9 percent. This indicates that the area relies on importing electricity

to meet peak demands. This situation is the result of growth in the demand for electricity to serve a fast growing region. The proposed project would significantly strengthen the electric grid in the Las Vegas area, including the City of Mesquite, based on the flow of electric power on the existing transmission system.

Needed and desired economic benefits would result from the construction and operation of the power plant. Lincoln County is approximately 98 percent public land with limited industrial and commercial development. Lincoln County ranks near the bottom among Nevada's counties in population, total personal and per capita income and tax revenues. Development of the proposed power plant and associated linear facilities would provide important increases to the Lincoln County tax base through sales, use, and property taxes on the power plant improvements. The construction and operation of the power plant would have positive effects on employment opportunities and result in increased revenue from project-related purchases of goods and services.

The land exchange would be between NLRC and BLM's Carson City Field Office. NLRC owns over 1.2 million acres of land in northern Nevada, lying in a checkerboard pattern interspersed with other privately owned and federally managed public lands. Much of the NLRC land has many resources desirable to the BLM (such as sage grouse habitat) and is identified for acquisition in BLM land use plans. Since certain disposable BLM-managed lands are desirable for economic development by NLRC, this land exchange would benefit both parties and the general public.

Map ES-1 (11 x 17; color) (page 1 of 2)

Map ES-1 (11 x 17; color) (page 2 of 2)

ES.2 Description of Proposed Action and Alternatives

ES.2.1 Proposed Action and Action Alternatives

The Proposed Action and three other action alternatives were developed for the Toquop Land Disposal Amendment to the Caliente MFP and Toquop Energy Project. They include the following:

- **Proposed Action.** Water-cooled power plant, western utility alignment ROW, wellfield ROW, access road ROW, southern power plant site ROW, Proposed Toquop Land Disposal Amendment to the Caliente MFP, and/or Toquop/Pah Rah land exchange (southern parcel).
- **Alternative 1.** Water-cooled power plant, eastern utility alignment ROW, southern power plant site ROW, wellfield ROW, access road ROW, Proposed Toquop Land Disposal Amendment to the Caliente MFP, Toquop land disposal (southern parcel) through sale or exchange.
- **Alternative 2.** Water-cooled power plant, eastern utility alignment ROW, northern power plant site ROW, wellfield ROW, access road ROW, Proposed Toquop Land Disposal Amendment to the Caliente MFP, Toquop land disposal (northern parcel) through sale or exchange.
- **Alternative 3.** Air-cooled power plant, western utility alignment ROW, southern power plant site ROW, wellfield ROW, access road ROW, Proposed Toquop Land Disposal Amendment to the Caliente MFP,

Toquop land disposal (southern parcel) through sale or exchange.

Table ES-1 summarizes the specific elements of the Proposed Action, Alternative 1, Alternative 2, and Alternative 3. These elements include BLM actions, project facilities and features, and Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) that would be implemented as an integral part of the Proposed Action and action alternatives. An option to the Proposed Action and action alternatives that is evaluated in this document would be for the BLM to issue ROWs for all project facilities, including the power plant site.

ES.2.2 No Action Alternative

Under the No Action Alternative, the Caliente MFP would not be amended, the Pah Rah/Toquop land exchange would not occur, project-related ROWs would not be created, and the power plant and related facilities would not be built or operated as described for the Proposed Action, Alternative 1, Alternative 2, or Alternative 3.

ES.2.3 Alternatives Considered During Scoping but Eliminated from Further Consideration

Alternative fuels, project locations, and access roads were considered during project scoping but eliminated from detailed analyses, because they failed to meet project purpose and need, were operationally infeasible, were economically infeasible, and/or were environmentally unacceptable. Alternative fuels were eliminated because they would not be as efficient as using natural gas to generate electrical power at competitive

TABLE ES-1

Summary Description of Proposed Action and Action Alternatives

Project Element	Alternative			
	Proposed Action	Alternative 1	Alternative 2	Alternative 3
BLM Actions				
ROWs	All Alternatives—Issue ROWs by the BLM for constructing and operating the power plant and all related facilities			
Caliente MFP Amendment	All Alternatives—Amend the Caliente MFP to identify the site as suitable for disposal.			
Toquop Land Disposal	Complete a land exchange. Exchange publicly owned Section 36, T11S, R69E in Lincoln County for privately owned Section 9, T20N, R23E in Washoe County	Toquop land disposal (southern parcel) through sale or exchange	Toquop land disposal (northern parcel) through sale or exchange	Toquop land disposal (southern parcel) through sale or exchange
Power Plant Facilities				
Power plant construction	Construct and operate a 1,100-MW (maximum) combined cycle, natural gas-fired water-cooled electric generating plant		Construct and operate a 1,100-MW maximum combined cycle, natural gas-fired air-cooled electric generating plant	
Power plant location	Section 36, T11S, R69E in Lincoln County (southern power plant site)	Section 4, T10S, R69E in Lincoln County adjacent to the Tule Desert wellfield (northern power plant site)		Section 36, T11S, R69E in Lincoln County (southern power plant site)
Electric distribution and transmission lines	Construct and operate buried electric distribution power lines from the power plant to the well pumps and overhead transmission lines from the plant to the Navajo-McCullough Electric Transmission Line and the adjacent Red-Butte Harry Allen line.			
	1,300-foot transmission lines. Distribution line to the wellfield along the 12.5-mile-long western water pipeline ROW	1,300-foot transmission lines. Distribution line to the wellfield along the 12.6-mile-long eastern water pipeline ROW	12.0-mile-long line from the northern plant site along the eastern utility corridor ROW. Short distribution line to the wellfield	1,300-foot transmission lines. Distribution line to the wellfield along the 12.5-mile-long western water pipeline ROW

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Gas pipeline	2,400-foot, 20-inch pipeline from the Kern River Gas Pipeline to the southern power plant		12.0-mile-long, 20-inch pipeline from the Kern River Gas Pipeline along the eastern utility corridor ROW to the northern power plant	2,400-foot, 20-inch pipeline from the Kern River Gas Pipeline to the southern power plant
Road Access and Transportation				
Access road to power plant	Paving to a width of 24 feet and straightening sections of approximately 14.4 miles of an existing dirt and gravel road to produce an access road extending from I-15 to the southern plant		Paving to a width of 24 feet and straightening sections of approximately 26.6 miles of an existing dirt and gravel road from I-15 to the northern plant	Paving to a width of 24 feet and straightening sections of approximately 14.4 miles of an existing dirt and gravel road to produce an access road extending from I-15 to the southern plant
Access ROW to wellfield	Provide a 12.5-mile-long access ROW between the southern power plant and the ground water wellfield along an existing dirt and gravel road	Provide a 12.6-mile-long access ROW between the southern power plant and the ground water wellfield along an existing dirt and gravel road	Northern power plant is near the wellfield	Provide a 12.5-mile-long access ROW between the southern power plant and the ground water wellfield along an existing dirt and gravel road
Ground Water Wellfield				
Wellfield	Drill up to 15 wells over the life of the project in the Tule Desert Basin sufficient to produce an annual average flow of 3,800 gallons per minute (gpm) (7,100 gpm peak daily) of water for the power plant, which will use up to 7,000 acre-feet per year		Drill up to 3 wells over the life of the project in the Tule Desert Basin sufficient to produce an annual average flow of 100 gallons per minute (gpm) (200 gpm peak daily) of water for the power plant, which will use up to 170 acre-feet per year	
	Construct and operate a manifold collection system to interconnect the water output from the wellfield to a pressure-regulating water tank			
Water tank	Construct and operate a pressure-regulating water tank located near the wellfield before the water pipeline to the power plant			

TABLE ES-1
Summary Description of Proposed Action and Action Alternatives

Project Element	Alternative			
	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Water Pipeline				
Water pipeline	Construct and operate a 24-inch-diameter buried water pipeline extending from the wellfield to the power plant			Construct and operate a 4-inch-diameter buried water pipeline extending from the wellfield to the power plant
	12.5-mile-long western pipeline alignment through Toquop Gap.	12.6-mile-long eastern pipeline alignment	Power plant is near the wellfield	12.5-mile-long western pipeline alignment through Toquop Gap.
Best Management Practices and Standard Operating Procedures (apply to all alternatives)				
ROWs	Comply with the terms and conditions of all ROWs issued by the BLM.			
Desert tortoise	Protect desert tortoise and their habitat by following management prescriptions during project construction, operation, and maintenance activities that are consistent with the Desert Tortoise Recovery Plan, relevant Habitat Conservation Plans, and other management documents.			
BMPs and SOPs	Follow best management practices (BMPs) and standard operating procedures (SOPs) typically associated with the construction, operation, and maintenance of power plants, wellfields, pipelines, other utility corridors, and related facilities in this region of the western United States to avoid or minimize the potential for adverse environmental effects resulting from project-related activities			
Cultural resources	Comply with stipulations of the <i>Cultural Resources Programmatic Agreement</i> (Appendix C) to ensure that historic and prehistoric properties will be treated to avoid or mitigate project-related effects to the extent practical and to satisfy BLM responsibilities.			

costs. In addition, the effects of using some alternative fuels would make them less environmentally attractive than using natural gas.

Alternative project locations were eliminated because they would present unacceptable environmental impacts, increased costs for fuel delivery and transmission line access, and a lack of economic benefits to communities within and near Lincoln County. In contrast, the selected project location would provide benefits to Toquop Energy and consumers through the cost-effective generation and sale of electricity to help meet power demands, and to Lincoln County through increased economic benefits from project development.

Alternative access roads were eliminated because of policy and environmental constraints. An existing access road that would be improved is available from I-15 to the proposed power plant site. This road is located predominantly within the Mormon Mesa Area of Critical Environmental Concern (ACEC). Both the Caliente MFP, which covers the Lincoln County portion of the existing access road, and the Las Vegas Resource Management Plan (RMP), which covers the Clark County portion of the existing access road, allow the upgrade of an existing road within an ACEC, provided that all resource constraints in the MFP and RMP are enforced. Constructing a new road in an ACEC is not allowed under the MFP or RMP where a feasible alternative exists (in this instance, improving the existing access road). Further, any newly constructed or improved existing access road that avoids the Mormon Mesa ACEC and provides access from the City of Mesquite and I-15 to the power plant sites would be substantially longer than the

improved, existing access road and would impact desert bighorn sheep habitat.

ES.2.4 Preferred Alternative

BLM's Preferred Alternative is the Proposed Action which includes:

- Issue ROW for southern power plant site (Section 36)
- Issue ROW for western utility alignment
- Issue ROW for wellfield
- Issue ROW for access road between I-15 and the southern plant site
- *Proposed Toquop Land Disposal Amendment to the Caliente MFP—* Section 36 (southern parcel) suitable for disposal
- Toquop (Section 36)/Pah Rah (Washoe County) land exchange
- Construction and operation of a up to 1,100-MW natural gas-fired water-cooled power plant and ancillary facilities
- Comply with other requirements:
 - *Measures for Protecting Desert Tortoises and their Habitat (Appendix A)*
 - *Standard Construction and Operation Procedures (Appendix B)*
 - *Cultural Resources Programmatic Agreement (Appendix C)*

ES.3 Affected Environment and Environmental Consequences

ES.3.1 Proposed Action and Action Alternatives

Table ES-2, at the end of this chapter, summarizes major impacts anticipated under the Proposed Action and each action alternative by resource area as well as BMPs, SOPs, and mitigation measures that would be implemented. These measures are designed to avoid or prevent the occurrence of impacts and, where possible, to minimize the magnitude, extent, and duration of those impacts when their occurrence can not be prevented. BMPs, SOPs, and mitigation measures are referenced in Table ES-2. Briefly, they include complying with terms and conditions of ROWs issued by BLM; implementing SOPs and BMPs during project construction, operation, and maintenance that cover a broad range of resource areas and activities; following management prescriptions for protecting desert tortoises and their habitat; and complying with stipulations of the *Cultural Resources Programmatic Agreement*. Table ES-2 also notes any cumulative impacts anticipated from the combined effects of the proposed project and other reasonably foreseeable projects.

Unavoidable adverse impacts on resources are those residual impacts remaining after implementation of mitigation measures. These impacts would primarily be associated with lands that would be disturbed and/or included in construction ROWs. Lands disturbed during construction would total 449 acres under the Proposed Action, 451 acres under Alternative 1, 581 acres under Alternative 2, and 417 acres under Alternative 3. Following reclamation, net

new long-term impacts would total 182 acres under the Proposed Action and Alternative 1, 237 acres under Alternative 2, and 150 acres under Alternative 3. Affected resources would include soils and biological soil crusts; several threatened, sensitive, and/or protected species such as desert tortoise; plant species and vegetative cover; some wildlife species and their habitat; and the Mormon Mesa Area of Critical Environmental Concern (ACEC). Use of ground water from the Tule desert wellfield also would represent an unavoidable adverse impact. Another possible unavoidable adverse impact would be the accidental disturbance of cultural resources if inadvertently encountered during construction. Implementation of all BMPs, SOPs, and mitigation measures listed and/or referenced in Table ES-2 would serve to reduce the extent, magnitude, and duration of these unavoidable adverse impacts in the same way that other potential impacts would be prevented from occurring.

Construction of the proposed project would result in the irreversible and irretrievable commitments of some resources. Irreversible impacts would include labor, capital, some construction materials, fuels, and ground water. Irretrievable impacts on environmental resources would generally not extend past the life of the project. Affected resources would include biological resources, air quality and noise, visual and recreation resources, land use for livestock, the Mormon Mesa ACEC, possibly cultural resources, and socioeconomics.

ES.3.2 No Action Alternative

No project-related impacts would occur under the No Action Alternative, and the affected environment (existing conditions)

in the Toquop area and on the Pah Rah parcel would be the same as at present. However, the No Action alternative would not meet any of the purposes and needs identified for the proposed project.

ES.4 Consultation and Coordination

Public scoping for the Draft Toquop Land Disposal Amendment to the Caliente MFP/Toquop Energy Project DEIS was comprised of three separate scoping efforts:

- Scoping for the Pah Rah/Toquop Land Exchange—including public meetings conducted by the BLM during July 2001 in Mesquite and Reno
- Public meetings and scoping for the Toquop Energy Project—including public meetings conducted by the BLM during July 2001 in Caliente and Mesquite, and a scoping meeting in Las Vegas in August 2001
- Scoping for the combined Toquop Energy Project and Pah Rah/Toquop Land Exchange EIS, requiring an amendment to the Caliente MFP—conducted by BLM during November and December 2001

Most individuals who commented at the first set of scoping meetings opposed the land exchange. Those that did not state a position had questions about particular potential impacts, including wildlife habitat, cultural and historical resources, economic values, water development, visual and recreation resources, validity of the land exchange, and the NEPA process.

The Notice of Intent (NOI) to prepare the EIS on the Toquop Energy Project (the second set of public meetings) was published in the *Federal Register* on

July 22, 2001. Three individuals favored the project, indicating the site would not have serious environmental consequences. However, many individuals were concerned about potential impacts that should be addressed in the DEIS, including water development, use, and ground water impacts; wildlife habitat and soils; air quality and noise; economics and land exchange values; and comprehensive plans, cumulative effects, and the NEPA process. Many attending the public meetings were concerned that if an out-of-state company were selected to construct the Toquop Energy facility, the chosen firm would bring in out-of-state workers to build the plant.

In reviewing comments received during the first two scoping processes, the BLM determined that combining the two NEPA processes had merit. It was also determined that the Pah Rah/Toquop Land Exchange required an amendment to the Caliente Management Framework Plan. Consequently, the decision was made to combine these actions into a single EIS and to reopen the scoping process for the expanded project.

The NOI to prepare an amendment to the Caliente MFP and an EIS for the Toquop Land Disposal Amendment to the Caliente MFP/Toquop Energy Project was published in the *Federal Register* on November 7, 2001. The public comment period closed on December 7, 2001. Because the previous two scoping processes included public meetings, the BLM determined that further public scoping meetings were duplicative and unnecessary for the expanded EIS. Written comments received from the public suggested an air-cooled plant as an alternative; ground water withdrawal effects; air quality, cultural resources, and natural resources impacts; land exchange values and statutes; and NEPA compliance.

Numerous federal, state, and local governmental agencies and Indian Tribes were consulted during the preparation of this EIS. Native American consultation occurred initially in relation to the land exchange proposal, now an alternative component of the Toquop Energy Project. Consultation with American Indian tribes also was initiated specifically in regard to the Toquop Energy Project itself. Some Indian Tribes have indicated to BLM that they have no concern about the Proposed Action and its alternatives. For other Indian Tribes, BLM has requested, but not received, sufficient information to establish whether project-related issues exist for Native Americans, including any issues related to the location and use of the Salt Song Trail. Concerns have been expressed for the preservation of all archaeological sites.

The public comment period opened with the announcement of the availability of the Draft MFP Amendment/Toquop Energy Project EIS in the *Federal Register* on May 31, 2002. Public comments on the Draft MFP Amendment/EIS were accepted until August 29, 2002.

The DEIS was sent to, and comments requested from, the general public and entities including federal, state, and local governments; Tribal governments; other organizations; and Members of Congress. The document was available at numerous libraries.

BLM must publish a Notice of Exchange Proposal (NOEP) upon entering into an Agreement to Initiate an Exchange (“ATI”) with a land exchange proponent. BLM signed an ATI with NLRC on April 22, 2002 for this proposed land exchange. This document was published weekly for 4 consecutive weeks in local newspapers serving the Mesquite area, and both

Lincoln and Washoe County, Nevada. In addition, this document was sent to, and comments requested from the members of the public and other individuals who attended public meetings, and to entities including federal, state, and local governments; Tribal governments; other organizations; and Members of Congress.

A series of four public meetings were held to receive comments on the DEIS. Dates and locations of these meetings were as follows:

<u>Date</u>	<u>Location</u>
July 8, 2002	Caliente, Nevada
July 9, 2002	Las Vegas, Nevada
July 10, 2002	Mesquite, Nevada
July 11, 2002	Reno, Nevada

The BLM received 159 separate pieces of correspondence containing comments on the DEIS during the comment period. Comments were received from three federal agencies, four state agencies, two local agencies, three interest groups, and 147 citizens. In addition, the BLM received five letters on the NOEP for the land exchange, and those letters were considered in the preparation of this FEIS. Responses were prepared for comments that presented new data, raised new issues, or disagreed with the impact conclusions. Where appropriate, changes or additions were made in the FEIS to respond to comments. A noteworthy outcome of this coordination and consultation process and of public comments on the DEIS is the presentation and analysis of an additional action alternative (Alternative 3) in this FEIS. Alternative 3 is an air-cooled, rather than a water-cooled, power plant.

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
3.2.1 and 4.2.1— Soils					
Toquop Area	449 acres initially disturbed and/or in construction ROWs. 267 acres would be reclaimed and 182 acres used for project features. Disturbance and some loss of biological soil crusts at plant site and along pipeline alignment Temporary increase in erosion and wind-blown dust, potential localized increase in runoff and erosion, and possibly increased off-highway vehicle (OHV) use along improved access road	451 acres initially disturbed and/or in construction ROWs. 269 acres would be reclaimed and 182 acres used for project features.	581 acres initially disturbed and/or in construction ROWs. 344 acres would be reclaimed and 237 acres used for project features. Disturbance and some loss of biological soil crusts along pipeline alignment and possibly at plant site	417 acres initially disturbed and/or in construction ROWs. 267 acres would be reclaimed and 150 acres used for project features. Disturbance and some loss of biological soil crusts at plant site and along pipeline alignment	Project is designed to minimize surface disturbance. Implement BMPs and SOPs for erosion control, dust suppression, site stabilization and reclamation, and place signs to discourage OHV use Implement stormwater management plan to prevent runoff, erosion, and sedimentation (see Surface Water Hydrology below)
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.2.2 and 4.2.2— Geology					
Toquop Area	None	None	None	None	None
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

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Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
3.3 and 4.3— Surface Water Hydrology					
Toquop Area	Potentially degraded surface water quality from increased concentrations of suspended solids (sediment from disturbed soils) and dissolved constituents (such as petroleum hydrocarbons and metals from parking areas)				Implement stormwater management systems and plans per National Pollutant Discharge Elimination System (NPDES) stormwater permits
	Increased runoff from impervious surfaces at plant site and potential for flash flooding in washes				Construct stormwater retention basin at plant site sized for 100-year event
	Increased flows in washes adjacent to the filled wash at power plant on the southern site			Increased flows in washes adjacent to the filled wash at power plant on the southern site	Implement BMPs and SOPs for erosion, sedimentation, and stabilization control, sediment detention basins, stormwater conveyance, and monitoring plan effectiveness
					Divert and redirect flows from filled wash at southern plant site to minimize erosion of adjacent washes
					Schedule construction activities in washes when probability for flash flooding is minimal
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

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Resource ¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation ²
<p>3.4 and 4.4— Ground Water Resources</p>					
<p>Toquop Area</p>	<p>Ground water levels in the fractured-rock aquifer in the Tule Desert would only be lowered as a result of project pumping in the immediate vicinity (within a distance of approximately 1,000 feet) of the production wells. The effects described above would be restricted to the Tule Desert hydrographic area. There would be no substantial lowering of the water levels across the Tule Desert on the whole, nor would there be a substantial depletion of the ground water resource in the Tule Desert. This conclusion applies to both the fractured-rock aquifer as well as to ground water in the basin-fill deposits within the Tule Desert. Outside of the Tule Desert, ground water levels will not be lowered in either the fractured-rock aquifer or the basin-fill sediments.</p>			<p>Under Alternative 3, the demand for ground water (170 afy) would be considerably less than under the Proposed Action or either Alternative 1 or 2 (up to 7,000 afy). Therefore, inasmuch as there are no significant impacts to ground water levels, spring discharge, ground water quality, flow in the Virgin River, or land subsidence under the Proposed Action, Alternative 1, or Alternative 2, the impacts under Alternative 3 would similarly be minor.</p>	<p>Ground water levels in both the fractured rocks and the basin fill within the Tule Desert downgradient of the wellfield will be monitored and assessed.</p> <p>Ground water quality in the Tule Desert will be monitored and assessed.</p> <p>Pumped ground water will be monitored periodically to ensure its quality is suitable for power plant operation.</p> <p>The potential for contaminant releases that could affect resources will be minimized by adherence to regulatory requirements on hazardous substances (see Hazardous and Solid Wastes below).</p>

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
Ground Water Resources (continued)	<p>No adverse effects on ground water resources would occur as a result of the Proposed Action, Alternative 1, Alternative 2, or Alternative 3. Primary conclusions are as follows:</p> <ul style="list-style-type: none"> • No lowering of ground water levels in existing wells would occur • No regional depletion of ground water resources would occur • No decrease in the discharge from local springs would occur • No degradation of ground water quality would occur • No decrease in the flow of the Virgin River would occur as a result of the project <p>In addition, the potential for land subsidence and a corresponding loss of storage in either the fractured-rock aquifer or the basin-fill deposits is negligible.</p> <p>The temporary handling and storage of chemical substances and waste products would have a slight potential to affect ground water quality if there were an accidental release of these substances to the environment.</p>				
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

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Resource ¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation ²
<p>3.5.1 and 4.5.1—Threatened, Endangered, and Sensitive Species</p>					
<p>Toquop Area</p>	<p>Construction disturbance of 449 acres of desert tortoise habitat (habitat for 8 tortoises). Net new long-term disturbance of 182 acres (habitat for 3 tortoises).</p>	<p>Construction disturbance of 451 acres of desert tortoise habitat (habitat for 8 tortoises). Net new long-term disturbance of 182 acres (habitat for 3 tortoises).</p>	<p>Construction disturbance of 581 acres of desert tortoise habitat (habitat for 10 tortoises). Net new long-term disturbance of 237 acres (habitat for 4 tortoises).</p>	<p>Construction disturbance of 417 acres of desert tortoise habitat (habitat for 7 tortoises). Net new long-term disturbance of 150 acres (habitat for 3 tortoises).</p>	<p>BMPs, SOPs, and mitigation measures to protect desert tortoise and their habitat include the Terms and Conditions to implement Reasonable and Prudent Measures Numbers 5, 6, and 7 in the U.S. Fish and Wildlife Service's <i>Biological Opinion for the Caliente Management Framework Plan Amendment</i>. Measures also include SOPs issued by BLM to aid in the recovery of the desert tortoise. Categories of BMPs, SOPs, and mitigation include the following:</p> <ul style="list-style-type: none"> • Tortoise protection measures • Education by qualified biologist • Flagging of disturbed areas • Tortoise location and removal by qualified biologist • Speed limits • Signage • Trash and litter control • Spill handling procedures • Construction methods • Habitat remuneration <p>See Appendix A for detail on desert tortoise BMPs, SOPs, and mitigation measures.</p>
	<p>Construction disturbance of 222 acres of desert tortoise critical habitat in the Mormon Mesa Area of Critical Environmental Concern (ACEC), consisting of 143 acres in Lincoln County managed by the BLM Ely Field Office and 79 acres in Clark County managed by the BLM Las Vegas Field Office. Following reclamation, the net new long-term disturbance would be 65 acres (42 acres in Lincoln County, 23 acres in Clark County). For Alternative 2 only, additional construction disturbance of approximately 44 acres and long-term disturbance of 12 acres of desert tortoise critical habitat in Lincoln County outside the Mormon Mesa ACEC.</p>				
	<p>Direct and indirect impacts on tortoises resulting in their take and/or harassment from ground-disturbing construction activities; increased human activities during project construction, operation, and maintenance; and increased public access.</p>				
	<p>Potential for impacting other special status species or habitats including birds during breeding season, burrowing owls, bat roosts (if encountered), Gila monsters, and chuckwallas.</p>				

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource ¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation ²
Pah Rah Parcel	Management of important wildlife habitat, particularly for sage grouse, would be enhanced under BLM administration				Implement BMPs and SOPs for other special status species and/or their habitats, including bird nesting, breeding, and fledging; burrowing owl burrows and nesting cavities; trapping and relocating Gila monsters and chuckwallas; and avoiding bat roosts (if encountered).
Cumulative Effects	Impacts of non-federal actions, projects, and activities on the desert tortoise continue to occur throughout the range of the species. Off-highway vehicle use, shooting, and collecting of individuals continue to impact tortoise populations. The combined area of impact of nine interrelated projects, which include five other power projects, three land development projects, and one natural gas pipeline project, analyzed in the cumulative effects assessment would disturb a total of approximately 69,900 acres of desert tortoise habitat in southern Nevada. Types of direct and indirect impacts would be the same as described for the Toquop Energy Project.				Each project has specific mitigation measures for the protection of desert tortoise and their habitat.
3.5.2 and 4.5.2—Vegetation and Noxious Weeds					
Toquop Area	Construction disturbance and/or loss of 449 acres of habitat and vegetative cover. Net new long-term disturbance following reclamation of 182 acres.	Construction disturbance and/or loss of 451 acres of habitat and vegetative cover. Net new long-term disturbance following reclamation of 182 acres.	Construction disturbance and/or loss of 581 acres of habitat and vegetative cover. Net new long-term disturbance following reclamation of 237 acres.	Construction disturbance and/or loss of 417 acres of habitat and vegetative cover. Net new long-term disturbance following reclamation of 150 acres.	Implement BMPs and SOPs for site reclamation, restoration, and revegetation, as appropriate Identify and remove protected plant species from construction corridors and replant later Adhere to BLM's standard weed control stipulations Place signs to discourage off-road vehicle (OHV) use
	Protected species of cactus and yuccas along utility corridors may be impacted				

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
	Increased potential for the introduction and spread of noxious weeds and possibly increased OHV use along the improved access road				
Pah Rah Parcel	Native vegetation condition would be enhanced under BLM management through regulated livestock grazing, fire suppression, and monitoring				None
Cumulative Effects	Acres of vegetation potentially affected would be the same as described for desert tortoise. Direct impacts would result from construction activities, and some indirect impacts would result from increased public access and maintenance activities. Vegetation impacts would result from direct removal and fragmentation of habitat, degradation caused by soil compaction, and increased erosion. The potential for the introduction and spread of noxious weeds via vehicles and soil disturbances would increase.				All of the interrelated projects would involve mitigation measures designed to avoid or reduce impacts on vegetation.
3.5.3 and 4.5.3— Wild Horses and Burros					
Toquop Area	None	None	None	None	
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.5.4 and 4.5.4— Wildlife and Fisheries Resources					
Toquop Area	Construction disturbance and/or loss of 449 acres of wildlife habitat. Net new long-term disturbance of 182 acres.	Construction disturbance and/or loss of 451 acres of wildlife habitat. Net new long-term disturbance of 182 acres.	Construction disturbance and/or loss of 581 acres of wildlife habitat. Net new long-term disturbance of 237 acres.	Construction disturbance and/or loss of 417 acres of wildlife habitat. Net new long-term disturbance of 150 acres.	Implement BMPs for biological resources, landscape preservation and impact avoidance, and reclamation, restoration, and revegetation Place signs warning of desert bighorn sheep crossing along the access road
	Direct and indirect effects on wildlife species resulting from ground-disturbing construction activities; increased human activities during project construction, operation, and maintenance; and increased public access.				The evaporation pond water quality will be monitored and active mitigation will be implemented when water quality reaches levels that could have adverse impacts on avian fauna.

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
	Potential effects include disturbance and localized displacement of mobile species and some loss of less mobile species, such as reptiles and small mammals				
	Desert bighorn sheep may be impacted by increased traffic on the improved access road in a portion of the East Mormon foothills				
	Waterfowl, shorebirds, and other water birds may be impacted by the highly saline evaporation pond				
	No direct or indirect effects on aquatic habitat and fisheries of the Virgin River				
Pah Rah Parcel	Management of important wildlife habitat (for example, sage grouse) would be enhanced under BLM administration				None
Cumulative Effects	Cumulative direct and indirect impacts on wildlife and their habitat would be similar to the kinds of cumulative impacts described for desert tortoise (a threatened wildlife species) and vegetation (wildlife habitat). An ongoing potential exists for added incremental impacts on wildlife and wildlife habitat from other projects in the region, as well as regional benefits to wildlife from Habitat Conservation Plans				All of the interrelated projects would involve mitigation measures designed to avoid or reduce impacts on wildlife
3.5.5 and 4.5.5—Wetlands/Riparian Zones, Floodplains, and Waters of the United States					
Toquop Area	Approximately 50 ephemeral washes would be crossed by project features	Approximately 94 ephemeral washes would be crossed by project features	Approximately 92 ephemeral washes would be crossed by project features	Approximately 50 ephemeral washes would be crossed by project features	Restore and revegetate affected ephemeral washes according to conditions of a Clean Water Act Section 404 Permit Also, see BMPs, SOPs, and mitigation above for <i>Surface Water Hydrology</i>
	No impacts on wetlands/riparian zones or floodplains except as noted above in <i>Surface Water Hydrology</i>				
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource ¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation ²
3.6.1 and 4.6.1—Air Quality					
Toquop Area	Effects would primarily be short-term and localized, resulting from construction activities that create fugitive dust and vehicle and equipment engine emissions. Some degradation of air quality during construction and operation but no modeled violations of air quality standards				Implement air pollution prevention BMPs and SOPs to comply with federal requirements of the Prevention of Significant Deterioration (PSD) permitting program of the Clean Air Act Use best available control technologies (BACTs) for regulated emissions vented through stacks and vents and for sources of fugitive dust emissions during project construction, operation, and maintenance
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	The combined effects of the proposed project, other sources with emission permits or submitted permit applications, all reasonably foreseeable actions, plus natural background concentrations would be well below allowable standards for all pollutants				None
3.6.2 and 4.6.2—Noise					
Toquop Area	Noise would exceed ambient levels during construction (85 to 98 dBA at 50 feet) and operation (60 dBA at 550 feet) at a relatively minor level. No sensitive receptors exist.				Implement BMPs and SOPs for noise pollution prevention
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.7 and 4.7—Visual Resources					
Toquop Area	Presence of vehicles, equipment, personnel, activities, and project features in the viewshed during construction and operation				Implement BMPs and SOPs to minimize fugitive dust emissions and restore disturbed areas Use colors, non-glare materials, lighting, structure orientation, and landscaping to blend project features with the environment and comply with the BLM's Visual Resource Management (VRM) Class III and Class IV for the Toquop area

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
	No effect on visual experience from the Mormon Mountains Wilderness Study Area (WSA) approximately 5.5 miles distant				
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.8 and 4.8—Recreation Resources					
Toquop Area	Discontinuation of limited, existing recreation opportunities on the fenced portions of the power plant sites would be offset by improved recreationists access to the area because of the upgraded access road				None
Pah Rah Parcel	Transferring ownership from private to public would make the Pah Rah parcel available for public recreation				None
Cumulative Effects	None	None	None	None	None
3.9 and 4.9—Land Use, Prime or Unique Farmland, Rangelands					
Toquop Area	Removal of up to 17 acres in the wellfield from current livestock use may affect portions of the White Rock, Garden Springs, Summit Spring, and Snow Spring allotments		Removal of up to 5 acres in the wellfield from current livestock use may affect portions of the White Rock, Garden Springs, Summit Spring, and Snow Spring allotments		Implement BMPs and SOPs associated with fences and wire gates, repair any damages to existing range improvements, and include Big Galleta grass in the seed mix to revegetate disturbed corridors Obtain a variance or special use permit to develop a non-agricultural facility in an agricultural zoned area, and coordinate with others relative to grazing issues At the northern power plant site repair any loss of range improvement developments
	Temporary disturbance of rangeland managed for livestock use along the utility corridors in the Garden Springs and Gourd Spring allotments				

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
			Removal of 640 acres of rangeland within the Garden Springs Allotment being managed for livestock use may reduce permitted grazing use by 46 AUMs		
Pah Rah Parcel	Grazing may be facilitated under BLM administration through the integrated management of this parcel and adjacent public lands				None
Cumulative Effects	None	None	None	None	None
3.10 and 4.10—Wilderness Study Areas, Areas of Critical Environmental Concern, and Wild and Scenic Rivers					
Toquop Area	Construction disturbance of 222 acres of habitat within the Mormon Mesa ACEC along the improved access road from Interstate 15 (I-15) to the southern power plant site. This consists of 143 acres in Lincoln County managed by the BLM Ely Field Office and 79 acres in Clark County managed by the Las Vegas Field Office. Following reclamation, a net new long-term disturbance of 65 acres (42 acres in Lincoln County, 23 acres in Clark County).				Implement BMPs and SOPs for road construction and site reclamation, and consult with BLM and FWS to minimize the potential for environmental impacts Limit OHV access and the potential for noxious weed/invasive plant introductions, and educate employees on related issues
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
3.11 and 4.11— Wastes, Hazardous and Solid					
Toquop Area	None	None	None	None	Develop and implement a Spill Prevention Control and Countermeasures Plan (SPCCP) Proper onsite storage, containment, and handling of hazardous and solid wastes Offsite disposal at a licensed facility of hazardous and solid wastes that have accumulated onsite
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.12 and 4.12— Cultural and Historical Resources and Native American Religious Concerns					
Toquop Area	Ten sites and two isolated artifacts would be affected directly. None of these sites or isolates are eligible for listing on the National Register of Historic Places (NRHP) Indirect impacts could potentially result from greater human activity in the area and possibly increased OHV use	Twelve sites and nine isolated artifacts would be affected directly. One of these sites is eligible for listing on the NRHP.	Six sites and ten isolated artifacts would be affected directly. One of these sites is eligible for listing on the NRHP.	Ten sites and two isolated artifacts would be affected directly. None of these sites or isolates are eligible for listing on the NRHP.	Implement stipulations of the Cultural Resources Programmatic Agreement (see Appendix C for detail), including resource avoidance or recovery; consultation with the State Historic Preservation Office and interested parties, including Indian Tribes, to develop site-specific mitigation measures; and processes for the inadvertent discovery of human remains and unanticipated finds during construction Without additional information from Indian Tribes, no avoidance or other mitigation measures can be developed for any issues or concerns they may have

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
	Some Indian Tribes have indicated to BLM that they have no concern about the Proposed Action and its alternatives. For other Indian Tribes, BLM has requested, but not received, sufficient information to establish whether project-related issues exist for Native Americans, including any issues related to the location and use of the Salt Song Trail. Concerns have been expressed for the preservation of all archaeological sites.				
Pah Rah Parcel	Transfer of this parcel to public ownership may help ensure long-term protection/stewardship of cultural resources on the parcel				None
Cumulative Effects	No known cumulative effects				None
3.13 and 4.13— Indian Trust Assets					
Toquop Area	None	None	None	None	None
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.14 and 4.14— Environmental Justice					
Toquop Area	None	None	None	None	None
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None
3.15 and 4.15— Paleontological Resources					
Toquop Area	None	None	None	None	None
Pah Rah Parcel	None	None	None	None	None

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource ¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation ²
Cumulative Effects	None	None	None	None	None
3.16 and 4.16—Socioeconomics					
Toquop Area	<p>Project would generate short-term (500 to 950 jobs) and long-term (25 jobs) employment, income, and tax base opportunities</p> <p>Substantial economic benefits to Lincoln County from increased tax receipts would total approximately \$14 million during the 26-month construction period and an additional \$390,000 per year during each year of the 40 years of power plant operation under the Proposed Action and Alternative 1. Construction cost for Alternative 2 is 6 percent higher, and construction cost under Alternative 3 is 3 percent higher resulting in a proportional increase in tax receipts during construction.</p> <p>Lincoln County’s estimated share of the leased water rights (up to 7,000 acre-feet per year) would be up to \$9 million over the life of the project</p> <p>Increased project-related sales tax disbursed back to Clark County would be small relative to the County’s current total tax receipts</p> <p>Increased property tax income to Lincoln County from the land exchange would be beneficial to the county’s current total property tax income</p> <p>No adverse impacts on economic variables or community infrastructure in the Lincoln/Clark County area although project would place additional demand on police protection, fire protection, and emergency medical services.</p>				<p>Provide onsite fire and emergency medical services</p> <p>Develop a police, fire, and medical aid agreement through consultation with Lincoln County.</p>
Pah Rah Parcel	Decreased property tax income to Washoe County from the land exchange would not substantially affect county tax receipts				None

TABLE ES-2

Summary of Impacts and BMPs, SOPs, and Mitigation by Resource for the Proposed Action and Action Alternatives

Resource¹	Proposed Action	Alternative 1	Alternative 2	Alternative 3	BMPs, SOPs, and Mitigation²
Cumulative Effects	Types of potential cumulative beneficial effects (jobs, income, tax receipts) and adverse effects (police, fire, and medical needs) would be the same as for the proposed project, with no adverse impacts because of project-related BMPs, SOPs, and mitigation				Same as for proposed project
3.17 and 4.17—Transportation					
Toquop Area	Temporary 26-month increase in average daily traffic on I-15 near the East Mesa Interchange and at the interchange during project construction		No long-term impacts		Implement BMPs and SOPs for transportation such as scheduling work to minimize generation of additional traffic, scheduling vehicles to create smooth traffic flow patterns, yielding right-of-way at constricted areas, and regulating project vehicles' speeds
Pah Rah Parcel	None	None	None	None	None
Cumulative Effects	None	None	None	None	None

¹ Refers to detailed resource discussions in EIS sections of Chapter 3 (Affected Environment) and Chapter 4 (Environmental Consequences).

² Detailed BMPs, SOPs, and mitigation measures are contained in EIS Appendix A for desert tortoise and their habitat; Appendix B for BMPs and SOPs associated with project construction, operation, and maintenance covering a broad range of resource areas and activities; and Appendix C for cultural resources. These measures also include complying with the terms and conditions of all ROWs issued by the BLM.