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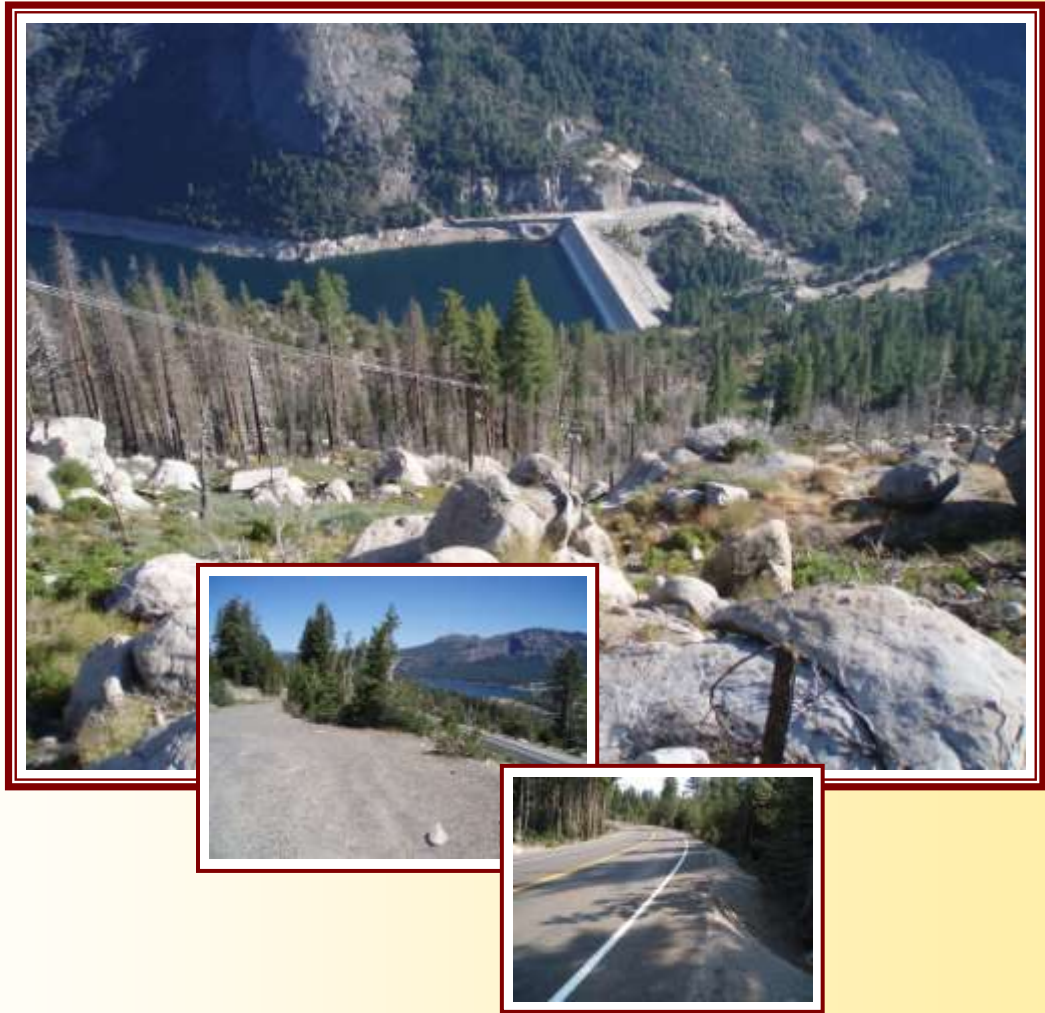


DRAFT
**Environmental Impact Statement/
Environmental Impact Report**

Kirkwood Meadows
Power Line
Reliability EIS/EIR

Eldorado National Forest
Placerville, California 95667

Volume I



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Draft
Environmental Impact Statement/
Environmental Impact Report

Kirkwood Meadows Power Line Reliability Project

Amador, Alpine &
El Dorado Counties, California

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CEQA Lead Agency: Kirkwood Meadows Public Utility District
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Reviewers should provide the Forest Service with their comments during the review period of the draft environmental impact statement. This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the final environmental impact statement, thus avoiding undue delay in the decision-making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. *City of Angoon v. Hodel* (9th Circuit, 1986) and *Wisconsin Heritages, Inc. v. Harris*, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

The opportunity to Comment ends 60 days following publication of the notice of availability (NOA) in the Federal Register.

Send Comments to: Ramiro Villalvazo, Forest Supervisor
Eldorado National Forest
100 Forni Road, Placerville, CA 95667
Email: comments-pacificsouthwest-elderado@fs.fed.us

The acceptable format(s) for electronic comments is MS Word or Rich Text Format.

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Executive Summary

Introduction

Kirkwood Meadows Public Utility District (KMPUD) proposes to construct and operate a 34.5 kilovolt (kV) power line that would connect the Kirkwood service area to an existing 115 kV transmission line owned by PG&E near Salt Springs Reservoir in Amador County. The approximate 28-mile project is located within Alpine, Amador, and El Dorado Counties in California, primarily on lands managed by the US Forest Service. In compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), the US Forest Service and KMPUD have prepared this joint Draft Environmental Impact Statement / Environmental Impact Report (EIS/EIR) to disclose detailed information about the environmental impacts of the project construction and operation, reasonable alternatives, and ways to avoid, minimize and mitigate adverse environmental impacts.

Existing Situation

Located in the Sierra Nevada Mountains, Kirkwood is a unique community consisting of approximately 700 full and part time residences and Kirkwood Mountain Resort (KMR). Located 60 miles east of Jackson, California and 35 miles southwest of Lake Tahoe, Kirkwood is physically isolated from large regional electric energy and natural gas distribution networks. Currently, electricity is provided to the Kirkwood community and resort through a locally operated generator system with diesel fired internal combustion engines. The electric service provider has historically been Mountain Utilities (MU), an investor-owned utility regulated by the California Public Utilities Commission (CPUC).

In April of 2010, Kirkwood Meadows Public Utility District (KMPUD) signed a purchase agreement with MU, and will replace MU as the electric service provider for the community and resort in mid 2011. KMPUD's electric services will be a publicly owned utility, not regulated by the CPUC.

Energy Use and Power Demand

Since its inception in 1972, and the approval of the first Kirkwood Master Plan in 1974, the ski resort and surrounding Kirkwood community have steadily grown, resulting in increasingly greater power demands. There are currently approximately 700 residential customers (maximum peak overnight population of approximately 3,000 persons) within the Kirkwood electric service area. The ski resort is currently designed to accommodate a maximum of 6,932 skiers at one time (Kirkwood Mountain Resort, 2010). Annual energy use within the MU service area averaged over the past few years is

approximately 7,000 megawatt-hours (MWhr), and peak power demand is presently calculated at 3.2 megawatts (MW) (Mountain Utilities, 2010).

The number of residential customers is expected to increase to roughly 1,400 units (peak overnight population of approximately 6,000 persons) at build-out of the community per the 2003 Kirkwood Specific Plan. Additional skiing and snowmaking facilities will also be developed at build-out, which is designed for a maximum of 10,300 skiers per day (Kirkwood Mountain Resort, 2002). Projected annual energy use to accommodate development of the community and the ski resort will increase from the current 7,000 MWhr to approximately 22,000 MWhr at build-out (Kirkwood Specific Plan, 2003), and peak power demand, or load, will be roughly 10 MW.

Power Supply and Electrical Service

Electrical rates at Kirkwood typically range between \$0.35 per kilowatt-hour (kWhr) and \$0.60 kWhr, and peaked in July 2009 at \$0.97 per kWhr (MU, 2010). These rates are four to ten times greater on average per kilowatt-hour than charged by Pacific Gas & Electric (PG&E). Rates are dependent on the volatile price of diesel, which is expected to continually fluctuate throughout build-out of the community and resort.

On January 1, 2010, and during preparation of the Draft EIS/EIR, the 28-year-old powerhouse at Kirkwood caught fire and burned to the ground. Presently, power is still being generated using portable generators located in semi-truck trailers. Two 2 MW generators serve primarily KMR and can provide sufficient electricity to meet peak demands of resort operation. An additional 1 MW generator is parked by the vehicle maintenance shops on Loop Road, and is used to provide electricity for the residential community. Use of the portable generators will continue until construction of a replacement powerhouse is completed in 2011.

Construction of a replacement powerhouse facility started in August 2010, which will be a diesel fired electrical power plant with an overall output capacity of 5.0 MW. It will supply electricity to the community and resort that was previously served by the original MU powerhouse, as well as to the wastewater treatment plant operated by Kirkwood Meadows Public Utility District. The new powerhouse with modern diesel engines and air pollution control technology will likely improve generation efficiencies and equipment reliability. However, the cost of electrical generation would still be dependent on the volatile costs of diesel fuel, would still emit air pollutants from diesel fuel combustion, and would not provide full power for the growth currently planned for in the approved 2003 Kirkwood Specific Plan and the 2003 Kirkwood Mountain Resort Mountain Master Development Plan.

Purpose, Need, and Objectives

The purpose of the proposed project is to replace the use of diesel fired generators within Kirkwood as the primary supply of power for current and future needs within the KMPUD Service Area.

1. There is a need for reliable electrical service within the Kirkwood service area. Electric outages and low power quality affect the quality of life for residents, and pose significant financial and safety risks for Kirkwood Mountain Ski Resort and its users. Interconnection would serve as the primary firm source of power and allow the powerhouse to serve as backup for emergency situations. The redundancy in electrical generation would reduce or eliminate power outages, which typically occur during winter months, improving public safety and ensuring continued operations of the ski resort. In the long term, the feasibility of permitting an in-valley diesel fueled generation facility that would satisfy ambient air quality standards during peak winter demand for power at build-out is uncertain. Interconnection to the grid would alleviate this concern and ensure sufficient and reliable energy for existing and future demands.
2. There is a need to reduce diesel generated particulates and emissions within Kirkwood Valley. This is in response to public concerns and anticipated stricter local, state, and federal air quality standards. Use of diesel generators emits numerous air pollutants, including oxides of nitrogen, carbon monoxide, sulfur dioxide, and diesel particulate matter, as well as carbon dioxide, the main greenhouse gas associated with global warming. The replacement plant for the MU powerhouse that burned down in January 2010 uses Best Available Control Technology and will have lower emission rates than the original generator system. However, modeling demonstrates that air quality will continue to be degraded. At peak use during the ski season certain ambient air quality standards would potentially be exceeded. In addition, diesel particulate matter emitted by the powerhouse is recognized by the State of California as a Toxic Air Contaminant, increasing cancer risk in the community. Expansion of the power generation system to accommodate build-out of the community and resort with diesel fired equipment would exacerbate these issues.
3. There is a need to stabilize rates within the KMPUD service area with access to a cost-stable source of power. Current electrical rates are dependent on the price of diesel, and the fluctuations in the price of diesel have caused electrical rates to spike dramatically. Current electrical rates in Kirkwood range between \$0.35 kWh and \$0.60 kWh, which are approximately seven times the average PG&E electrical rates. Rates peaked in July 2009 at \$0.97 per kWh (Mountain Utilities, 2010).
4. There is a need to modernize and improve our nation's energy infrastructure and improve the reliability of the delivery of energy from its sources to points of use. Executive Order 13212 encourages increased production and transmission of energy in a safe and environmentally sound manner, and instructs agencies to expedite their review of permits or take other actions

as necessary to accelerate the completion of such projects. Agencies should take such actions to the extent permitted by law and regulations, and where appropriate.

Project objectives include:

- Provide a cost effective and reliable energy generation system that meets both current demand and Kirkwood's future demand at build-out of the community and mountain resort.
- Reduce emissions from diesel-generated electricity and improve air quality within Kirkwood Valley.
- Maximize the use of existing disturbance areas and corridors to minimize impacts to environmental, visual and cultural resources.

Public Involvement

The Notice of Intent (NOI) and Notice of Preparation (NOP) to prepare a joint EIS/EIR was published in the Federal Register on February 27, 2009 (Federal Register Vol. 74, No. 38, page 8896-8899). In compliance with CEQA, the KMPUD filed its NOP with the California State Clearing House on February 27, 2009 (SCH# 2009022100). The NOI/NOP was published in the Mountain Democrat newspaper in Placerville, California and the Amador Ledger Dispatch newspaper in Jackson, California. Copies of the NOI/NOP were mailed to elected officials, community and environmental organizations, interested and/or affected persons and organizations, and those who had previously requested notice of actions undertaken by the Forest Service. Copies of the NOI/NOP were posted at the Eldorado National Forest Supervisor's Headquarters, the Amador Ranger District Office, the Kirkwood Meadows Public Utility District Office, and the county libraries in El Dorado, Alpine, and Amador counties.

The Forest Service held two public scoping meetings. Legal notices of the dates, times, and locations of public scoping meetings were published in both the Mountain Democrat and Amador Ledger-Dispatch on March 27, 2009. The public scoping meetings were held on April 7, 2009 at the Jackson Civic Center in Jackson, California and on April 8, 2009 at the KMPUD Board Room in Kirkwood, California. Approximately 39 comments on the proposed action were received through the NOI/NOP notification process.

Issues

During the scoping period three preliminary alternative routes were identified for analysis by KMPUD and presented to the public: Carson Spur alignment (Proposed Action / Proposed Project), Silver Lake alignment, and the Long Valley alignment. Multiple comments were received concerning the Silver Lake and Long Valley alternative routes. Both alternative routes were eliminated from detailed study

because their alignments cross the Tragedy/Elephant's Back Inventoried Roadless Area. The 2001 Roadless Rule, subsequent California Eastern District court cases, and a Memorandum of Understanding with the State of California prohibit activities that would disturb or change the roadless character of inventoried roadless areas in California.

After reviewing the public scoping comments, the following significant issues were used to generate alternatives:

- **Visual Resources:** The proposed action would negatively impact scenic vistas along Highway 88, the scenic character of Highway 88, the natural beauty of the area, private residences, and public recreation areas. The public requested that alternatives be developed both in regards to alignments and technology utilized that would mitigate visual impacts and preserve visual resources of the project corridor. The proposed action has been adjusted to reduce the miles of alignment along Highway 88. Negative impacts to the scenic integrity of Highway 88 would be minimized because all of the alignment visible from Highway 88 would be underground. The 3.1 miles of overhead lines are not visible from Highway 88.
- **Cultural / Historical Resources:** The proposed action could negatively impact known areas of historical importance such as: Tragedy Springs, the Carson - Mormon Emigrant Trail, the Old Alpine Highway, and other various archaeological sites in the area. The public requested that the alignment follow Highway 88 using underground cable. Alternative 3 was added to avoid negative impacts to archaeological sites.
- **Impacts to Highway 88:** Installing underground power lines along Highway 88 could negatively affect the California Department of Transportation (Caltrans) right-of-way along Highway 88 by constraining future highway projects due to increased costs related to utility relocation issues. The proposed action has been adjusted to reduce miles of alignment along Highway 88.
- **KM Green Substation Proximity to Bear River Recreation Cabins:** A letter was received from cabin owners from the Bear River Recreation Residence Tract stating that there were five (5) reasons they objected to the KM Green substation location on Forest Service Road 08N17: recreation, aesthetics, health and safety, visibility from scenic Highway 88, and property values of the cabins. The letter stated that the proposed action and construction of the KM Green substation would negatively impact recreational use of the surrounding forest for cabin owners at the Bear River Recreational Residences, detract from the forest experience by the visual impact and sound that the equipment would make, and pose a safety risk. The cabin owners are also concerned that the substation would be seen from Peddler Hill Scenic Vista and Shot Rock Vista located on Highway 88. The cabin owners requested that alternative site locations be developed that would reduce impacts to recreation and aesthetics. Alternative 4 was developed to respond to this request and analyze the impacts of an alternate KM Green substation site located on Cole Creek Road.

Alternatives Considered in Detail

This EIS/EIR analyzes four alternatives: Alternative 1 (No Action / No Project); Alternative 2 (Proposed Action / Proposed Project); Alternative 3 (Expanded Hwy 88), and Alternative 4 (KM Green substation at Cole Creek Road).

Under the **No Action / No Project Alternative**, no power line would be built and interconnection to the regional electric grid would not occur. Electrical power generation within Kirkwood would continue to primarily rely on diesel fueled combustion engines. Due to the differences in CEQA and NEPA, the CEQA No Project and NEPA No Action represent slightly different scenarios for future power use. The CEQA No Project Alternative is the operation, maintenance, and management of the new 5-megawatt powerhouse up to its full capacity, but does not include any expansion of the 5-megawatt powerhouse. Under NEPA, the No Action Alternative represents operation, maintenance and management of the new 5-megawatt powerhouse up to its full capacity, together with an expansion of the in-valley generation system to 10-megawatt to serve the build-out of the community under the approved 2003 Kirkwood Specific Plan and Kirkwood Mountain Resort, Mountain Master Development Plan.

Alternatives 2 (Proposed Action / Proposed Project), **Alternative 3** (Expanded Hwy 88), and **Alternative 4** (KM Green substation location at Cole Creek Road) propose the construction and operation of a 34.5 kV power line connecting the Kirkwood service area to an existing 115 kV transmission line owned by PG&E and located near Salt Springs Reservoir in Amador County. Alternative 2 represents the proposed power line alignment, and Alternative 3 represents variations in the proposed power line route that could be combined with Alternative 2 to reduce environmental impacts. Alternative 4 provides an alternative location for the KM Green substation, which can be used with either of the power line alignments described in Alternatives 2 and 3. Alternatives 2, 3, and 4 each include the following supporting components:

- **KM Green Substation** – A new KMPUD-owned substation that provides interconnection from the existing electrical grid to the proposed power line. The KM Green substation would be located at the terminus of the 115 kV line near the western end of the alignment and would step down the voltage from 115 kV to 34.5 kV. Both Alternatives 2 and 3 include the substation located at FS Road 08N17, while under Alternative 4 the substation would be located at Cole Creek Road.
- **KM Blue Substation** – A new KMPUD substation that would be located within the new KMPUD 5-megawatt powerhouse in the Red Cliffs parking area. This substation steps down the voltage from 34.5 kV to 12.5 kV for residential distribution.

- **Sectionalizing Cabinets** – These features would be used to join segments of buried power line together and aid in the buried line maintenance. Sectionalizing cabinets allow a section of the buried line to be isolated for testing and detection of faults. Sectionalizing cabinets would be located approximately every 2,600 to 3,500 feet along the buried power line segments.
- **Underground Vaults** – Similar to sectionalizing cabinets, these features would be used to join segments of the buried power line. Buried vaults would be used instead of sectionalizing cabinets along Highway 88 and Bear River Road to minimize impacts to aesthetics and maintain public safety. Vaults along these roadways would be spaced approximately 2,600 feet apart.
- **Fiber Optic Line** – Buried within the power line trench, fiber optic lines aid in communication between the two substations.

The proposed power line alignment has been divided into segments based on land ownership, construction techniques, and utilization of existing electrical structures. The power line route utilizes existing disturbance corridors to the greatest extent possible, while minimizing its location within the Caltrans right-of-way. The total length of the Proposed Action / Proposed Project alignment is 28.2 miles. Approximately 4.4 miles of the power line Proposed Action / Proposed Project alignment are located within the shoulder of Highway 88 and an additional 1.3 miles are along the outer edges of the Caltrans right-of-way. The Proposed Action / Proposed Project alignment is summarized in the following table from the western source of power near Salt Springs Reservoir to the eastern terminus at KM Blue, located in the KMPUD powerhouse. Table EX-1 describes the power line route segments for the Proposed Action / Proposed Project alignment.

Table EX-1. Alternative 2 Proposed Action / Proposed Project Alignment Summary

Segment No.	Length (miles)	Segment Description	Land Jurisdiction/Ownership
1	2.3	The existing 21 kV overhead line would be overbuilt with a 115 kV line from its existing termination point near the Salt Springs powerhouse up slope and over the ridge to the proposed KM Green substation at FS Road 08N17.	PG&E / ENF
2	0.8	The existing 21 kV overhead line would be overbuilt with a 34.5 kV line from the proposed KM Green substation at FS Road 08N17 down slope to Bear River Road.	PG&E / ENF
3	3.5	A buried power line would be placed within the shoulder of Bear River Road from the terminus of the existing overhead line, across the Bear River Reservoir Dam, and north to Hwy 88.	3.4 miles Amador Co/ENF; 0.1 mile of private land
4	2.6	A buried power line would be placed within the Old Alpine Highway from the intersection with Hwy 88 to 0.35 miles east of the Caltrans Peddler Hill Maintenance Station.	ENF
5	5.0	The power line would be direct-buried within the Old Alpine Highway (FS Road 9N96) to the Mormon Emigrant Trail Road. At Mormon Emigrant Trail snow park, the alignment follows the Canyon Crossing snow trail, which crosses the Mormon Emigrant Trail Road and parallels Hwy 88 on the northwest side until it reconnects to the Old Alpine Highway.	4.4 miles on ENF; 0.6 miles on private land
6	2.0	Starting 0.2 miles east of the Mormon Emigrant Trail Road, the power line would be direct buried within the Old Alpine Highway/Canyon Crossing snow trail to the Caltrans sand storage station. East of the Caltrans station, the alignment continues along the Canyon Crossing snow trail/ Carson-Mormon Emigrant Trail to an existing dirt road located just west of Devils Garden Ridge.	ENF
7	0.5	The power line would be buried in a single conduit within the north shoulder of Hwy 88 across Devil's Garden Ridge.	Caltrans / ENF
8	1.1	From the east side of Devil's Garden Ridge and vista point, the power line would be direct buried within the Old Alpine Highway to Tragedy Springs Road.	ENF
9	0.5	The power line would be buried within Tragedy Springs Road to an existing dirt road located near the eastern intersection with Hwy 88.	Private land
10	1.0	The power line would be direct buried within an existing dirt road from the east end of Tragedy Spring Road to the termination of the dirt road at Hwy 88.	ENF
11	1.0	The power line would be installed in conduit within the Caltrans right-of-way along the north shoulder of Hwy 88 to Loop Road.	Caltrans / ENF
12	0.4	The power line would be installed within conduit along Loop Road.	ENF

Segment No.	Length (miles)	Segment Description	Land Jurisdiction/Ownership
13	0.4	From the Loop Road, the power line would be direct buried within an existing dirt road that heads north past abandoned cabins and terminates on Hwy 88.	Private land
14	0.2	The power line would be installed in conduit within the Caltrans right-of-way along the north shoulder of Hwy 88 to the bridge across the Silver Fork of the American River. Across the bridge, the power line would be installed within 6" PVC conduit attached to the bridge I-beams.	Private land
15	0.5	The power line would be installed within conduit within the Caltrans right-of-way along the north shoulder of Hwy 88 from Kit Carson Road to the start of the Old Alpine Highway just west of Oyster Creek Picnic area.	0.2 miles Private land 0.3 miles ENF
16	0.3	The power line would be buried within a segment of the Old Alpine Highway located adjacent to Hwy 88 and within the Caltrans right-of-way, beginning 0.2 miles west of the former Oyster Creek picnic area and ending across the highway from the picnic area.	ENF
17	0.3	The power line would be direct buried within an existing dirt road located on private land in El Dorado County. The road parallels the west side of Hwy 88, beginning just north of Oyster Creek at the private land access drive and ends at the southern terminus of Forest Service Road 10N16.	Private land
18	1.4	The power line would be direct buried in FS Road 10N16 to northeastern access road into Martin Meadow campground.	ENF
19	1.0	The power line would be direct buried within the Caltrans right-of-way along the northwest side of Hwy 88 through an upland forest opening and would incorporate portions of the Old Alpine Highway when present. The segment begins east of Martin Meadow campground and continues to the end of the Old Alpine Highway just south of Thunder Mountain Trail Head.	Caltrans / ENF
20	1.5	The power line would be installed in conduit within the Caltrans right-of-way along the north side of Hwy 88 from the Old Alpine Highway just south of Thunder Mountain Trail Head to the KMR Northwest parcel.	Caltrans / ENF
21	0.6	The power line would be installed in conduit within the Caltrans right-of-way from the start of Merrill Road (in Kirkwood) to the fire access road located east of the KMR entrance.	0.3 miles Caltrans/ENF; 0.3 miles Private land
22	1.3	The power line would be buried within a private road (East Meadow Drive) along the east side of Kirkwood Valley to the KMPUD powerhouse and KM Blue substation located in the upper bay of Red Cliffs parking lot.	Private land

Alternative 3 (Expanded Hwy 88) includes many of the same segments as Alternative 2, but includes alternative segment alignments, which avoid environmentally sensitive areas, cultural resources, and land ownership conflicts. Alternative 3 provides alternative segments that replace all or portions of the Proposed Action / Project Segments 6, 8, 9, 12, 13, 17, 18, and 21. Total length of the Alternative 3 route would be 27.6 miles with approximately 7.9 miles of the alignment proposed within the shoulder of Highway 88 and 1.3 miles located along the outer edges of the Caltrans right-of-way. Table EX-2 describes the alignment alternatives proposed in Alternative 3.

Table EX-2. Alternative 3 (Expanded Hwy 88) Segment Descriptions.

Segment No.	Length (miles)	Segment Description	Land Management / Ownership
Alt 3: 6	0.7	The power line would be buried in conduit within the northern shoulder of Hwy 88 from the entrance of the access road to the Caltrans sand storage shed to the western end of Segment 7.	Eldorado National Forest
Alt 3: 8	0.8	The power line would be buried in conduit within the northern shoulder of Hwy 88 from a spur of the Old Alpine Highway to the western end of Tragedy Springs Road.	Eldorado National Forest
Alt 3: 9	0.5	The power line would be buried in conduit within the northern shoulder of Hwy 88 from the western end of Tragedy Springs Road to the eastern end of Tragedy Springs Road.	Eldorado National Forest
Alt 3: 12	0.4	The power line would be buried in conduit within the northern shoulder of Hwy 88 from the southwestern end of EID Loop Road to the intersection with Kay's Road.	Private Land
Alt 3: 13	0.3	The power line would be buried in conduit within the northern shoulder of Hwy 88 from Kay's Road to the western edge of the Caltrans bridge over the Silver Fork of the American River.	Private Land
Alt 3: 17	0.3	The power line would be buried in conduit within the northern shoulder of Hwy 88 from the intersection with a private land access drive to the intersection with Forest Service Road 10N16.	Eldorado National Forest
Alt 3: 18	1.1	The power line would be buried in conduit within the northern shoulder of Hwy 88 from the intersection with Forest Service Road 10N16 to Martin Meadow Campground.	Eldorado National Forest
Alt 3: 21	1.7	The power line would be buried within a private dirt road through the KMR northwest parcel and then in paved roads within Kirkwood to the proposed KM Blue substation located in the upper bay of Red Cliffs parking lot.	Private Land

Alternative 4 represents an alternative site for the KM Green substation. Under Alternative 4, the KM Green substation would be located at Cole Creek Road, rather than at Forest Service Road 08N17. Alternative 4 only affects the location of the substation and could be used with either power line alignment as described in Alternatives 2 or 3.

Summary Comparison of Alternatives

Table EX-3 compares the advantages and disadvantages of the Proposed Action / Proposed Project Alternative to the differing segment alignments proposed under Alternative 3 (Expanded Hwy 88) and alternative substation location proposed in Alternative 4. A more detailed description and comparison of impacts by alternative is provided in Table 2-6, found at the end of Chapter 2.

Table EX-3. Summary Comparison of Components of Proposed Action / Project and Alternatives

Alternative Segment	Advantages	Disadvantages
Alt 3: 6	<ul style="list-style-type: none"> • Avoids significant adverse impacts to cultural resources associated with 0.7 miles of Carson - Mormon Emigrant Trail. • Reduces area of new ground disturbance. 	<ul style="list-style-type: none"> • Impacts within 0.7 miles of Caltrans ROW
Alt 3: 8	<ul style="list-style-type: none"> • Avoids impacts to 0.7 miles Old Alpine Highway. • Avoids private land. 	<ul style="list-style-type: none"> • Impacts within 0.8 miles of Caltrans ROW
Alt 3: 9	<ul style="list-style-type: none"> • Avoids construction through an area with several adjacent cultural resources and high potential for buried cultural resources. • Avoids an area with shallow groundwater and perennial spring with extensive adjacent wetlands. • Easier constructability; avoids dense boulders adjacent to and within roadway of Segment 9; reduces constructed related disturbance. 	<ul style="list-style-type: none"> • Impacts within 0.5 miles of Caltrans ROW
Alt 3: 12	<ul style="list-style-type: none"> • Avoids impacts to the 0.4 miles Old Alpine Highway. 	<ul style="list-style-type: none"> • Impacts within 0.4 miles of Caltrans ROW
Alt 3: 13	<ul style="list-style-type: none"> • Avoids private land. 	<ul style="list-style-type: none"> • Impacts within 0.3 miles of Caltrans ROW

Alternative Segment	Advantages	Disadvantages
Alt 3: 17	<ul style="list-style-type: none"> • Avoids temporary impacts to a wetland. • Avoids an area with high potential for buried cultural resources. • Avoids private lands. 	<ul style="list-style-type: none"> • Impacts within 0.3 miles of Caltrans ROW
Alt 3: 18	<ul style="list-style-type: none"> • Avoids temporary impacts to 2 perennial drainages • Easier constructability; avoids large concentration of exposed bedrock and house-sized boulders; reduces constructed related disturbance. • Shortens alignment by 0.3 miles 	<ul style="list-style-type: none"> • Impacts within 1.1 miles of Caltrans ROW
Alt 3: 21	<ul style="list-style-type: none"> • Avoids impacts to 0.6 miles of Caltrans right-of-way. 	<ul style="list-style-type: none"> • More difficult construction due to numerous existing utilities in the right-of-way. • More crossings through Riparian Conservation Areas.
KM Green Substation Location	Advantages	Disadvantages
Alternative 4: Cole Creek Road	<ul style="list-style-type: none"> • Avoids potential impacts to dispersed recreation around Bear River Recreational Residences. • Located approximately further away (~1,900 feet) from nearest developed recreation area. • Substation and tree clearing would not be seen from any ENF or non-federal managed viewsheds. • Requires shorter 115 kV line and therefore less vegetation disturbance. 	<ul style="list-style-type: none"> • Would be visible by casual forest visitors using Cole Creek Road. • Located adjacent to Cole Creek Loop snow trail.

Design Criteria

The project design incorporates a variety of applicant proposed environmental protection measures and procedures. The objective of these protection measures, referred to as design criteria, is to avoid and reduce potential significant effects to environmental resources to less than significant levels. Design criteria were developed through public scoping and consultation with federal, state and local agencies. As a responsible municipal agency and with concern for the environment, KMPUD has incorporated the public and regulatory agencies' suggested minimization measures and Best Management Practices (BMPs) into the project design. Therefore, the design criteria described in this section and in Appendices A and B would be implemented as part of the project.

The design criteria, standard construction BMPs, and other measures have been compiled through consultation with the USFS, Caltrans, Amador, Alpine, and El Dorado Counties, and review of the following documents:

- *Water Quality Management for Forest Service Lands in California - Best Management Practices* (2000) describes the BMPs that are referenced in the Eldorado National Forest LRMP (1989);
- The Caltrans Construction Site BMP Manual (2003) includes instructions and illustrations for the selection and implementation of 41 construction site BMPs;
- The Kirkwood Specific Plan (2003);
- Amador County Guidelines for Grading and Erosion Control;
- Alpine County General Plan;
- El Dorado County Grading, Erosion, and Sediment Control Ordinance;
- El Dorado County Rule 223-1, Fugitive Dust - Construction, Bulk Material Handling, Blasting, Other Earthmoving Activities and Carryout and Trackout Prevention, Best Management Practices Tables 1 through 4: construction and other earthmoving activities, bulk material handling, removal and prevention of trackout, blasting activities; and
- California Stormwater Quality Association Stormwater BMP handbooks.

The project would be consistent with and in compliance with all applicable federal, state, and county regulations, plans, objectives, and guidelines unless specifically noted.

Environmental protection design criteria and BMPs pertinent to the power line construction, operation and maintenance are described below by the affected resource and are also provided in Appendices A and B. The environmental protection design criteria and BMPs to be implemented would be included in the construction plan specifications and provisions as well as the Stormwater Pollution Prevention

Plans. Contractors must consider rainfall patterns, soil types, slope inclinations, and slope lengths for BMP implementation.

Table EX-4. Project Design Criteria

Design Criteria	Description
Aesthetics and Visual Resources	
AES-1: VQO consistency	Project implementation would be consistent with the Visual Quality Objectives (VQO) set forth in the ENF LRMP on federal lands, and the Scenic Highway Element of the Amador County General Plan on private land within Amador County.
AES-2: KM Green at FS Road 08N17	The KM Green substation location at FS Road 8N17 proposed under Alternative 2 would be sited in consultation with the ENF Landscape Architect. The substation would be sited to minimize removal of mature trees (24 inch dbh and greater) located down slope (north) of the substation site. These trees provide critical screening of the substation from Forest Service managed viewsheds located at Bear River Reservoir, Peddler Hill Vista Point, and Highway 88 and should be preserved to the extent practicable.
AES-3: KM Green at Cole Creek Rd	The KM Green substation location at Cole Creek Road proposed under Alternative 4 would be sited in consultation with the ENF Landscape Architect. The substation would be sited to minimize removal of mature trees (24 inch dbh and greater) from the tree hazard zone.
AES-4: Substation color	Substation facilities that extend above the height of the chain link fencing would be dark in color (e.g. black, brown or dark grey). The chain link fencing surrounding the substation would be black with dark brown wooden slats.
AES-5: Minimize reflection	The overbuild of the existing lines would utilize non-specular (i.e. non-reflective) wire to minimize reflection from the conductors.
AES-6: Cabinet & vault screening	Sectionalizing cabinets would not be visually evident to travelers on Highway 88, Bear River Road, and recreation use areas. Native elements in the landscape such as boulders and shrubs would be used to screen sectionalizing cabinets as approved by the Caltrans District Landscape Architect, ENF Landscape Architect, or County Planning Department, as appropriate.
AES-7: Cabinet colors	All sectionalizing cabinets would be painted natural earth tones that blend well with the surrounding landscape as approved by the ENF Landscape Architect, Caltrans Landscape Architect, or county, as appropriate. Markers for the cabinets, vaults, and splice boxes would be predominantly dark brown, and where necessary, only the tip of the marker would be red
AES-8: Vegetation preservation	Sectionalizing cabinets would be sited to minimize damage to or loss of vegetation and avoid mature trees that are 24 dbh or greater in size.
AES-9: Minimize grading	Grading for the cabinets or vaults would be minimized and would be done in consultation with Caltrans District Landscape Architect, ENF Landscape Architect, and County Planning Department. Where grading necessary for cabinets would be visually evident from Highway 88, graded slopes would blend into the existing terrain in the immediate area of the cabinet.
AES-10: Staging visibility	Staging areas visible from Highway 88 would be limited to a maximum use of six weeks during the construction period.

Design Criteria	Description
AES-11: Revegetation	Revegetation would occur such that cleared areas would not be visually evident from Highway 88. A revegetation plan would be prepared and approved by the ENF and Caltrans District Landscape Architects and would comply with the Amador County General Plan's Scenic Highway Element in Amador and Alpine Counties.
AES-12: Transition to Hwy 88	When transitioning the power line from the Old Alpine Highway or other roadway to Highway 88, removal of vegetation for construction would not occur outside the existing road prism, such that the appearance of the buried power line corridor from Highway 88 would not be noticeably different than the existing condition.
AES-13: Warning signs	Spacing of the warning signs along Highway 88 would be minimized by integrating vault and splice box warning signs into the line spacing so that the least number of signs would be used to mark the line.
Recreation	
REC-1: Construction timing	Construction would be scheduled near developed recreation areas, including campgrounds, recreation residences, and resorts, to minimize disruption during peak season use.
REC-2: Public notification	Signs would be posted regarding temporary area closures and construction activities. Notification of planned temporary closures would be posted as early as possible in advance of construction. Notification procedures and posting locations would be coordinated with the Eldorado National Forest, Caltrans and Amador, Alpine and El Dorado Counties.
Cultural (Heritage) Resources	
CUL-1: Worker training	Prior to construction, all field personnel would be informed of federal and state laws protecting archaeological and historical sites and of the penalties for breaking those laws.
CUL-2: Site avoidance	Impacts to archaeological sites would be avoided through construction of temporary fencing and monitoring by a qualified archaeologist of all ground-disturbing activities (including equipment staging, construction, post-construction restoration, and routine maintenance) within 100 feet of a recorded site boundary.
CUL-3: Resource discovery	Should any previously unrecorded cultural resources be encountered during implementation of this project, all work would immediately cease in that area and an Eldorado National Forest Archeologist would be notified immediately to determine the significance of the discovery, and if deemed necessary, recommend management measures. These management measures may follow the procedures outlined in the Evaluation and Treatment Plan (Whitaker and Waechter, 2010), included as a confidential appendix to this EIS/EIR.
CUL-4: Cabinet placement	Sectionalizing cabinets and underground vaults would be located a minimum of 50-feet from identified cultural resources to avoid potential impacts the resources from annual maintenance or repair of the structures.
Traffic, Transportation and Public Safety	
TRA-1: Region 5 BMPs	The Region 5 BMPs (USDA Forest Service, 2000) for roads and equipment would be employed to prevent detrimental erosion and maintain adequate drainage on all Forest Service roads and trails. They are summarized in Appendix A.

Design Criteria	Description
TRA-2: Caltrans BMPs	Caltrans erosion control and drainage BMPs would be employed to prevent detrimental erosion and maintain adequate drainage on Highway 88 right-of-way. They are summarized in Appendix B. Any culvert and or drainage facilities damaged during construction would be repaired or replaced by KMPUD or their contractor.
TRA-3: County BMPs	County erosion control and drainage BMPs would be employed to prevent detrimental erosion and maintain adequate drainage on all county and private roads. They are summarized in Appendix B.
TRA-4: Traffic control measures	Traffic control measures approved by the county, Caltrans, and/or Eldorado National Forest would be implemented through plans and specifications to protect worker and public safety.
TRA-5: Traffic control plans	The KMPUD would provide specific traffic control plans for each segment of the power line construction project. The traffic control plans would be consistent with Caltrans, Amador County, and ENF standards, and would be reviewed and approved prior to commencing operations within the jurisdiction of each agency.
TRA-6: Minimize stop delays	The traffic control plans would specify less than 20-minute stop delays for lane closures.
TRA-7: Caltrans ROW construction timing	Construction within the Caltrans right-of-way limits would not occur during weekends or designated holidays, and would be limited to daylight hours.
TRA-8: County Road construction timing	Construction within the county road right-of-way limits would not occur during designated holidays or holiday weekends and would be limited to daylight hours.
TRA-9: Maintain vehicle access	Vehicle access to campgrounds, resort areas, residences, and for emergency personnel would be maintained at all times through the construction zone. Temporary road closures during construction would occur only along local Forest Service roads or private roads where there is alternate access to developed recreation sites, businesses or residences. No road closures would occur on county maintained roads or Highway 88.
TRA-10: Maintain bicycle access	Traffic control design would provide for safe bicycle and pedestrian access through construction zones.
TRA-11: Public notification	Information about construction schedules and locations for traffic delays and lane closures would be posted at critical road intersections and on informational websites (i.e. Kirkwood, Caltrans, ENF, and county) providing the public with advance notification. Notification procedures and posting locations would be coordinated with the Eldorado National Forest, Amador County, Alpine County, El Dorado County, and Caltrans.
TRA-12: Cabinet locations on ENF or private land	Where sectionalizing cabinet locations would be adjacent to ENF or private roadways, maintenance vehicle parking would be on the ENF or private road shoulders to allow access to cabinets for annual inspections or maintenance, while not blocking traffic.
TRA-13: Cabinet locations on Caltrans ROW	Aboveground sectionalizing cabinets within the Highway 88 and Bear River Road rights-of-ways would be outside the specific "clear zones" designated for each road for public safety and to allow for snowplowing.
TRA-14: Use of underground vaults	Underground vaults would be used where there are no feasible locations for aboveground sectionalizing cabinets outside the "clear zone" for Highway 88 and Bear River Road. Examples of infeasible locations include: narrow shoulder width due to the mountainous terrain, no existing alternate access road, or otherwise unacceptable resource impacts.

Design Criteria	Description
TRA-15: Concrete encasement and placement in shallow burial areas.	Where burial depths are less than designated by Caltrans and county standards the power line would be encased in conduit and the trench backfilled with concrete to protect the road surface and road integrity. The power line would also be placed in the travel lane or on the fog line to avoid conflict with road shoulder maintenance activities such as ditch cleaning, snow pole placement, and guardrail replacement.
TRA-16: Future road improvements	Where the power line would be constructed over existing culverts or buried more shallow than agency standards, agreements or permits developed between KMPUD and the agency responsible for road improvements (Caltrans, counties, or the ENF) would assign responsibility for costs to relocate or protect the power line installation if it conflicts with future roadway projects.
TRA-17: Existing drainage structures	Disturbance to existing drainage structures would be avoided or, if necessary replaced or repaired, consistent with standards adopted by the county, Caltrans, or ENF as appropriate. Pre- and post-construction roadway and drainage structure inspections would be conducted to identify and correct project-related damage.
TRA-18: Placement under culverts	The power line would be placed under culverts where feasible to prevent disruption to the power line when culvert replacement is necessary because the remaining useful life of culverts is often less than the power line.
TRA-19: Backfill compaction	The trench backfill would be compacted and checked with verification testing to avoid trench settling, pavement cracking and groundwater piping along trench lines.
TRA-20: Road resurfacing	Road resurfacing materials (aggregate base or asphalt concrete pavement), depths and compaction specifications would be implemented to prevent ponding, erosion, or pavement cracking.
TRA-21: Shoulder stabilization	Disturbed road shoulders would be stabilized to prevent erosion and surface damage during wet conditions.
TRA-22: Winterization	For construction within Kirkwood or along Amador County roads occurring outside Amador County's normal construction season of April 15 to October 15, an approved winterization plan would be implemented.
TRA-23: ENF road width consistency	The pre-construction road or trail widths would be re-established following construction to be consistent with Forest Service maintenance levels and road management objectives.
TRA-24: Road reclamation	No new permanent or temporary roads would be constructed. Any construction access disturbance outside roadways or trails would receive revegetation treatment as approved by the property owner and/or agency responsible for road maintenance and operations (County, Caltrans, or ENF).
TRA-25: Powerline markers	The powerline would be clearly marked at intervals required by the county, Caltrans, or ENF to minimize conflicts with future maintenance activities.
TRA-26: Post-construction roadway monitoring	Post-construction monitoring would occur for three years following construction to identify and correct additional maintenance (roadways, shoulders, embankments, culverts, ditches, other drainage structures).
TRA-27: Buried line inspection protocols	Protocols to protect workers and the public, and to minimize traffic disruption during buried line inspections along all roads would be included within the Encroachment Permits required by Caltrans and Amador County, and the Special Use Permit required by the ENF. Scheduled inspections and maintenance would avoid peak traffic conditions.

Design Criteria	Description
TRA-28: Transportation System Management Plans	Transportation System Management Plans between each utility provider (PG&E, Volcano Telecommunications, and KMPUD) and the ENF, which would identify long-term access requirements, maintenance standards for roads accessing the utility corridor, and commensurate responsibilities for shared maintenance. Volcano Telecommunications and PG&E have existing permits that would be modified to address the PG&E 115 KV and the telecommunication line proposed in joint trench with the KMPUD power line.
TRA-29: ENF road construction timing	No construction or road closures would occur during weekends or designated holidays for ENF road maintenance levels 3 through 5.
TRA-30: Emergency access to East Meadows Drive	The Contractor must notify KMPUD daily if the emergency access route between Highway 88 and E. Meadows Drive is blocked. Contractor would be required to restore access at KMPUD request.
TRA-31: KM Green access road surfacing	For the KM Green substation location on Road 08N17, the road between AMA-245 and the substation would be surfaced with compacted aggregate base, but closed to the public during the wet season (January 1 through March 31).
Air Quality	
AIR-1: Fugitive dust control plan	A plan for fugitive dust control would be prepared prior to construction to satisfy all air quality rules adopted by the Amador Air District, El Dorado County Air Quality Management District, and the Great Basin Air Pollution Control District.
AIR-2: Watering exposed surfaces	All exposed surfaces would be watered as needed to control dust. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads. Watering would be used as required to control dust at < 20% opacity or as determined by the appropriate county rules and procedures.
AIR-3: Truck hauling freeboard and cover	A minimum of two feet of free board would be maintained on haul trucks transporting soil, sand, or other loose materials on the site. Any haul trucks that would be traveling along freeways or major roadways would be covered.
AIR-4: Power vacuum street sweeping	A wet power vacuum street sweeper would be used to remove visible track-out mud or dirt from adjacent paved public roads at least once a day.
AIR-5: Speed limits on unpaved roads	Vehicle speeds on unpaved roads would be safe for the existing condition, and limited to the lesser of 15 miles per hour (mph) or the road design speed.
AIR-6: Stabilized entrances on unpaved roads	Site accesses would use a stabilized construction entrance (for example, a grizzly or a 100-foot approach to paved roads treated with wood chips, mulch, or gravel) to reduce generation of road dust and mud/dirt carryout onto public roads.
AIR-7: Idle time restrictions	Idling time would be minimized by either shutting off equipment when not in use or reducing the time of idling to no more than 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations.]). Signage would be posted at the entrances to the site that states this requirement for workers.
AIR-8: Proper equipment maintenance	All construction equipment would be maintained in proper working condition according to manufacturer's specification. The equipment would be checked annually prior to use for the project by a certified mechanic and determined to be running in proper condition to minimize air pollutant emissions.
AIR-9: Low emission diesel fuel	Construction equipment would use reformulated low emission diesel fuel.

Design Criteria	Description
AIR-10: Emission controls	Construction equipment would comply with the California Air Resources Board emission controls for mobile sources, as well as registration of portable equipment larger than 50 horsepower, or permitting with local air pollution control.
AIR-11: Solar and batter power	Solar or battery powered traffic signs would be used during construction.
AIR-12: Paving materials	Paving materials would not use cutback or emulsified asphalt for paving except as in accordance with El Dorado County Rule 224.
AIR-13: No burning for disposal	Vegetation cleared for power line construction would not be burned for disposal.
Noise	
NOI-1: Restricted construction hours near sensitive areas	Noise generating construction activities would be restricted to the hours of 7:00 a.m. to 7:00 p.m. or comply with applicable county ordinances, whichever is more restrictive, near residential commercial, and recreational facilities.
NOI-2: Public notification	Dates and times for blasting activities would be communicated to sensitive areas such as residences and resorts in the project vicinity through letters, phone calls, door hangers, signs posted at trailheads and campgrounds and the like.
NOI-3: Licensed blasters	Licensed blasters by the US Bureau of Mines; California Department of Industrial Relations Mining and Tunneling, or similar, would be used to supervise and visually direct blasting actions.
NOI-4: Blasting noise abatement	Where blasting activities would be within 500 feet of a sound sensitive area such as a residence or resort, blasting sound abatement measures would be used such as heavy mats to cover the charge and reduce the blast energy.
NOI-5: Sound barriers	Straw bales, baffles, or similar temporary sound barrier would be used where the construction noise is greater than the maximum allowable noise level for that land use designation.
NOI-6: Equipment maintenance	Construction equipment would be in good working order and maintained per the manufacturer's recommendations.
NOI-7: Equipment mufflers	Construction equipment would be adequately muffled.
NOI-8: Idle time restrictions	As specified under the Air Resources design criteria, idling of construction equipment and vehicles would be minimized during construction.
NOI-9: Low noise equipment	Transformers at substations would be constructed with low noise cooling equipment and installation techniques.
NOI-10: KM Blue installation	To minimize noise at the KM Blue substation, where residences are relatively close a low noise installation (screen/barrier, resilient mounting, isolation, flexible couplings, etc.) would be used to comply with standards at the nearest residential boundary.
Vegetation Resources	
VEG-1: Minimize disturbance	The power line would be installed in existing roadways and disturbance corridors to the greatest extent practicable to minimize disturbance to vegetation.

Design Criteria	Description
VEG-2: Tree and snag removal specifications	<p>Trees or snags located within or adjacent to the overhead powerline corridor that are likely to interfere with or fall into the power line or substation would be removed according to an approved vegetation maintenance plan that directs the strategic removal of hazardous trees or vegetation growing under the overhead lines that have potential to come in contact with the line.</p> <p>Stumps of the removed hazard trees would be cut to a maximum height of 12 to 18 inches, and the limbs cut and scattered. In the foreground retention visual zone, stump height would be 4-6 inches as measured on the uphill side.</p> <p>Trees designated for removal would be felled by either mechanical means (feller/buncher or cut-to-length tree harvester) or hand-felled with chainsaws. Trees or logs would be removed from the forest stand using ground-based equipment (forwarder, rubber-tire skidder, feller/buncher) and the logs or trees would be stockpiled at a designated staging area or within the project access corridor where they would be prepared for loading onto trucks.</p>
VEG-3: Brush and slash removal specifications	Removal of small diameter stems that would hinder the direct burial operation would be removed by masticator or bulldozer. The slash would be chipped and spread over the ground to a depth of no more than four inches. Excess slash would be hauled to a designated site approved by the Forest Service or county.
VEG-4: Preserve large trees	Removal of mature trees 30-inch dbh or greater in size would be minimized where possible.
VEG-5: Minimize clearing	Vegetation clearing for the substations, sectionalizing cabinets, and vaults would be minimized to the extent possible.
VEG-6: Vegetation maintenance	Along the segments of the buried power line not located in existing roadways or snow trails, a 10-foot wide area would be kept clear of trees for maintenance equipment access. Understory shrubs, grasses and other ground cover would remain.
Fire and Fuels	
FIR-1: Follow Forest Service special provisions	The Forest Service special provisions C (T)7.2#; C(T)7.2.2#; K(T)-H(T).2# and K(T)-H(T).2.2# specifying restrictions and requirements for equipment and procedures would be followed as appropriate during tree removal and construction operations throughout the project area. The appropriate special provisions would be a part of the construction permits and contracts required by the Forest Service.
FIR-2: Vegetation maintenance for overhead lines	To reduce the risk of fire ignition from line contact with trees, the overhead power line corridor would be maintained according to an approved vegetation maintenance plan that complies with the California Public Utilities Commission General Order No. 95 and the National Electric Safety Code. The Plan would direct the strategic removal of hazardous trees or vegetation growing under the overhead lines that have potential to come in contact with the line.
FIR-3: Future Maintenance	Chipping, mastication, and removal of cleared vegetative material for off-site uses (such as mulch, biomass, firewood, etc.) would be used where accessible by equipment to reduce fuel accumulation, and the potential for wildfire, during future maintenance under the overhead power lines.

Design Criteria	Description
Soil Resources	
SOI-1: Limits of disturbance	During construction, the limits of disturbance would remain clearly marked at all times. Vegetation would be preserved on site where no construction activity is planned or would occur at a later date.
SOI-2: Grading and erosion control plan	A grading and erosion control plan would be prepared by a California Registered Civil Engineer. Grading and design would comply with the California Building Code requirements and shall ensure that grading activities do not result in substantial soil erosion or loss of topsoil. The plan would identify the site-specific grading proposed for all soil excavation and fill areas.
SOI-3: Topsoil salvage	During trench excavation in areas outside of an existing road or road easement, the top 6-to-12 inches of topsoil would be separated from subsoil and replaced over the back fill. The area would be restored to original elevation and contour.
SOI-4: Construction limits during wet soil conditions	To prevent compaction, gulying and rutting in non-road work areas, mechanical equipment operations would be limited or excluded during wet soil conditions.
SOI-5: BMPs for erosion control	Erosion from exposed cut slopes, fill slopes, and spoil disposal areas would be minimized through BMPs which may include but are not limited to wattles, erosion nets, blankets, mats, tackifiers and soil seals. BMPs are further described in Appendix A and B.
SOI-6: EHR rating analysis and rehab efforts	<p>Site-specific Erosion Hazard Rating (EHR) analysis would be conducted in coordination with rehabilitation efforts in all areas of the proposed alignment where soil resources are impacted. Percent ground cover and uniform slope length would be modified as needed to achieve an EHR rating of Low.</p> <p>Disturbed soils would be roughed perpendicular to slope and revegetated. Woody debris would be scattered across the disturbance area.</p> <p>Greater than 70% ground cover would be maintained throughout Segments 1 and 2 in order to reduce the High EHR to a Low EHR and to reduce the risk of accelerated erosion. In addition, the uniform slope length would be maintained per the cross-drain frequency table provided in Appendix J. This would be accomplished through placement of large wood debris, berms or other features that intercept water movement and change flow direction.</p>
SOI-7: Trench compaction	In order to prevent accelerated erosion in roadways, the soils of the excavated trench would be compacted at least to a level comparable with the adjacent areas or roadway.
SOI-8: Stabilize disturbed areas	Exposed soils on disturbed areas outside of existing road prisms would be revegetated, mulched and or stabilized to reduce the potential for accelerated erosion. A site-specific revegetation plan would be prepared, provided to the landowner, or appropriate federal, state or local land manager for approval, and implemented.
SOI-9: Minimize soil compaction	In Segments 1 and 2 where slopes are greater than 25%, ATV mounted boring and digging equipment operating on tracks or flotation tires would be required.

Design Criteria	Description
Hydrology and Watershed Resources	
HYD-1: Construction timing for ephemeral channels	The power line would be installed through ephemeral and intermittent channel crossings when the channels are dry.
HYD-2: Trench breakers	Trench breakers would be installed in the trenches where groundwater is encountered during trench excavation to keep water from migrating along the underground trench. When necessary, dewatering during construction would be conducted in accordance with the Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010.
HYD-3: Bridge crossings	When perennial channels are crossed by bridges, the power line would be attached in conduit to the I-beams of the bridge, subject to structural review.
HYD-4: Culvert crossings	To the extent possible, where perennial channels are crossed by culverts, the power line would be trenched under the culvert to avoid impacts to the adjacent channel.
HYD-5: Culvert replacement	If culvert replacement is necessary, culvert placement would follow the applicable land manager's construction BMPs (USFS, Caltrans or county), and replacement culverts would be sized to pass runoff from a 100-year storm event.
HYD-6: USFS BMPs	When the power line is located on the ENF, the project would adhere to the Water Quality Management for Forest Service Lands in California - Best Management Practices (2000) described in Appendix A.
HYD-7: Caltrans BMPs	When the power line is located within the Caltrans right-of-way, the project would adhere to the Caltrans Statewide Storm Water Management Plan to manage pollutants discharged from construction activities. Pertinent Caltrans BMP practices for water quality protection are described in Appendix B.
HYD-8: County BMPs	When on private land, the project would adhere to county approved BMPs as identified within Appendix B.
HYD-9: BMP compliance inspections	The construction plans, specifications, and provisions would detail BMPs to be implemented in RCAs to control erosion and sedimentation (reference RCA design criteria and Appendices A and B). Compliance with the plan specifications will be ensured by the Contracting Officers Representative, Engineering Representative, or a Forest Service Representative through inspection.
HYD-10: Sediment barriers	Sediment barriers would be installed along the down slope of the exposed soils areas, or along streams and channels to prevent sediment from leaving the construction site. Sediment barriers would include, but not limited to, silt fences, fiber rolls, gravel bag berms and sand bag barriers.
HYD-11: Storm drain inlet protections	Storm drain inlet protections would be used at storm drains subject to runoff from construction activities to filter sediment-laden runoff prior to discharge into a storm drain.
HYD-12: Spoil and stock pile controls	The location of excavated material and soil stockpiles would be restricted to greater than 25-feet of each side of intermittent and ephemeral RCAs and 50-feet each side of perennial RCAs.
HYD-13: Paving BMPs	The procedures and practices outlined in the Caltrans BMP Manual for paving, saw cutting, and grinding operations would be followed to minimize the transport of pollutants to the storm drain system or receiving water body.
HYD-14: SPCC Plan	To prevent contamination of waters from accidental spills, a Spill Prevention Containment and Counter Measures Plan would be prepared if the total oil products on site in above-ground storage exceed 1,320 gallons, or if a single container exceeds 660 gallons.

Design Criteria	Description
HYD-15: Refueling	Refueling and certain other activities such as handling or storage of fuels, solvents or staging will not be allowed within 200 feet of water springs or wells.
HYD-16: Water quality sampling	A post-construction water quality test of Tragedy Spring as well as all other perennial waters will be conducted within 30 days of completion of construction.
Riparian Conservation Areas Including Waters of the US	
RCA-1: Field flagged	RCAs would be flagged in the field so that these areas are clearly visible during construction.
RCA-2: Narrow construction width	Within 50 feet of perennial drainage crossings and within 25 feet of ephemeral drainage crossings the temporary construction corridor would be reduced to the width of 15 feet or the width of the existing roadway, whichever is greater. These areas would be clearly marked on the construction drawings and flagged in the field.
RCA-3: Spoil and stock pile controls	Trenching spoils would not be located within 50 ft. of perennial channels or within 25 ft. of intermittent or ephemeral channels.
RCA-4: Spoil protection	All trenching spoils in RCAs would be protected from precipitation or other erosion factors.
RCA-5: Spoil containment	All trenching spoils would be contained within the road prism through RCAs to the extent possible.
RCA-6: Timely spoil clean-up	Trenching spoils would not be left in RCA's for more than one 10-hour workday.
RCA-7: RCA restoration	Where ephemeral RCAs would be driven through under the overhead portion of the project, contours would be restored and the area revegetated according to the post-construction restoration plans described under the project description in Chapter 2.
RCA-8: Refueling restrictions	All mechanized equipment would be refueled outside RCAs at designated staging areas.
Wildlife	
WIL-1: LOP for spotted owl	Maintain a limited operating period (LOP) for California spotted owls along Segments 1 and 2 through PACs, prohibiting activities within ¼ mile of known spotted owl nest sites during the breeding season (March 1 to August 15) unless surveys confirm that California spotted owls are not nesting.
WIL-2: LOP for goshawk	Maintain a LOP for northern goshawk along portions of Segment 5 as directed by the Amador District wildlife biologist, prohibiting activities within ¼ mile of known northern goshawk nests during the breeding season (February 15 through September 15), unless pre implementation surveys confirm that the northern goshawk are not nesting.
WIL-3: LOP for sensitive raptor nests	If previously unknown territorial sensitive raptor nests are located within ¼ mile of the proposed activities during project implementation or pre-implementation activities, Limited Operating Procedures would be put in place as determined by the District Biologist or California Department of Fish and Game.
WIL-4: Falcon pre-construction surveys	Conduct preconstruction surveys for peregrine falcon at Salt Springs Reservoir and prohibit construction activities within ¼ mile of falcon nests unless surveys confirm that Peregrine falcons are not nesting.

Design Criteria	Description
WIL-5: CDFG and FS coordination for TES species	If any federally or state threatened, endangered or sensitive (TES) species is located within this project during implementation or pre-implementation, the District Biologist or California Department of Fish and Game would be informed, and the Forest Service and or State biologist recommendations would be followed to evaluate and mitigate any possible effects that are unforeseen.
Sensitive Plants	
SEN-1: Pre-construction surveys	Conduct pre-construction surveys for sensitive plants.
SEN-2: Sensitive plant avoidance	Flag, buffer, and avoid sensitive plant locations where occurrences are identified during current surveys, or found during implementation, where they could be negatively affected by project activities.
Noxious Weeds	
NOX-1: Coordination	For purposes of describing these project design criteria, noxious weeds are defined here as those plant species having a rating of A, B, or Q by the California Department of Food and Agriculture (CDFA) or List A species designated by the ENF. Actions for noxious weeds occurring on National Forest System (NFS) land would be coordinated with the ENF Botanist, while actions for those located on private or state properties would be coordinated with the Agricultural Commissioner from the county of jurisdiction.
NOX-2: Weed surveys	Prior to construction, the entire project area, including 50 feet on either side of the project alignment centerline and all designated equipment staging areas, would be surveyed for noxious weeds. All occurrences of noxious weeds would be flagged and the locations surveyed with sub-meter accuracy GPS. The weed species, number of plants in the population, and the extent of the occurrence would be recorded and reported to the county of jurisdiction and the ENF Botanist. Vehicle parking and construction equipment staging and routing areas would be excluded from the flagged sites located during the preconstruction noxious weed survey.
NOX-3: Equipment cleaning and notification	All off-road equipment would be cleaned to ensure it is free of soil, seeds, vegetative matter, or other debris before entering the project area. Equipment working in flagged locations infested by noxious weeds would be cleaned prior to being moved from the immediate site. The Contractor would notify the Forest Service or the county of jurisdiction at least five (5) working days prior to moving each piece of equipment from portions of the project area flagged for noxious weeds. Appendix C includes the Equipment Cleaning Clause, which must be adhered to by all contractors.
NOX-4: New weed location reporting	New or previously unidentified infestations of noxious weeds would be promptly reported to the ENF Botanist or county's Agricultural Commissioner, and project construction operations would be delayed or interrupted at that location until the Contractor and Forest Service or Agricultural Commissioner agrees on a suitable treatment method.
NOX-5: Weed free certification	Straw or mulch used for erosion control would be certified weed-free or, if certified straw is not available, rice straw would be utilized.
NOX-6: Weed free fill	Sand, gravel, fill material, and boulders used within the project area must come from documented weed free sources. Prior to their use, the ENF and/or the county of jurisdiction would first certify material borrow sites as weed free.

Design Criteria	Description
NOX-7: Weed free seed	Plant seed used for restoration or erosion control would be from a locally collected source, as available, and tested and labeled as to its source, species composition, weed content, and weed free certification in accordance with CDFA requirements.
NOX-8: Post-construction weed surveys and reporting	Field monitoring for the spread of existing noxious weed infestations or the introduction of new noxious weed species to the project area shall be conducted annually by the Project Proponent for a three (3) year period following completion of project construction. The location and extent of new or expanding noxious weed infestations shall be reported to the Forest Service and the county of jurisdiction by October 31 each year. The Project Proponent shall implement mutually developed weed control measures agreed to by the Project Proponent, Forest Service and the county of jurisdiction.
Agricultural Resources	
AGR-1: Rangeland improvement avoidance and replacement	All private and public rangeland improvements and facilities that fall within the project area, or are otherwise impacted by the proposed project, would be located during the project design phase. Any noted project-related impacts to existing rangeland improvements or facilities would be repaired its current or better condition or replaced.
AGR-2: Rangeland improvement maintenance during construction	All existing livestock fences encountered within the project area would be maintained until the permittee has gathered all livestock and has let the fence down at the end of the grazing season. Any openings in the fence, by agreement or due to accidental damage, would not be left unattended. The Rangeland Specialist and ENF District Resource Officer would be notified of any damage to range improvements and fences would be repaid immediately if livestock are present on the allotment.
AGR-3: Construction timing	The timing for project construction would be set to avoid livestock control issues in and around the construction site and allow vehicle access to and from the permitted grazing allotments for livestock management and trucking. Furthermore, measures would be taken such as construction of temporary fencing, to assure livestock will not enter into areas where construction is occurring or where there are open trenches, or allow livestock to move outside of allotment boundaries.
Public Health and Safety	
PUB-1: Hazardous materials control	Construction equipment fuels and lubricants would be controlled through primary and secondary containment, covered dumpsters, and oil absorbing mats under stationary equipment.
PUB-2: Equipment inspection	Equipment would be inspected daily for potential leakage or failures and fuel tanks would be place within a secondary containment area or an area where the ground was covered with an impermeable liner to ensure that any accidental spillage would not escape to the environment.
PUB-3: Hazardous waste control	Hazardous wastes would be stored in sealed containers constructed of a suitable material and would be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, 179 and 261-263. Hazardous wastes would be stored separately from hazardous materials (hazardous products) and non-hazardous waste.
PUB-4: SPCC Plan	A Spill Prevention Containment and Counter Measures Plan would be prepared if the total oil products on site in aboveground storage exceed 1,320 gallons, or if a single container exceeds 660 gallons.

Monitoring

Monitoring is critical for evaluating the effectiveness of management decisions and the accuracy of analysis assumptions and conclusions.

Types of Monitoring and Responsibility

Implementation Monitoring

Implementation monitoring ensures that the plans and design criteria are implemented and are in compliance with applicable regulatory requirements. Implementation monitoring consists of visual monitoring of project construction activity areas, including access roads, stream crossings, and staging areas, to ensure that the best management practices and design features are implemented and installed as prescribed. Additionally, implementation monitoring ensures that known sensitive resources, such as cultural resources or sensitive plant populations, are identified and flagged or fenced in the field to be avoided.

Effectiveness Monitoring

Effectiveness monitoring consists of visual monitoring to evaluate the effectiveness of the prescribed design criteria and best management practices in meeting their objectives. Effectiveness monitoring includes evaluating the effectiveness of best management practices designed to prevent sediment delivery and protect water quality, such as erosion control measures, riparian buffers, silt fencing, and waterbars. Effectiveness monitoring also includes post-construction assessment of sensitive resources to determine if they were successfully avoided.

Monitoring Responsibility

KMPUD would employ a qualified Construction Inspector to be on-site at all times during construction activities. Primary inspection would be conducted by trained inspectors to ensure that the construction contractor fully implements the approved construction design and project design criteria contained in the construction plans, Forest Service Special Use Permit, and state and county road encroachment permits. Any incidents of non-compliance with the design criteria or other condition of project approval would be reported to KMPUD, the Forest Service, and applicable county and state resource agencies.

The Construction Inspector would prepare a procedures manual for KMPUD review. The manual would include procedures for inspection; reporting accidents; dealing with violation of the specifications and drawings, and landowner or agency stipulations and requirements; claim and change orders; report distribution; contract administration and inspection forms; and close-out.

The Construction Inspector would prepare daily reports that summarize construction progress, minimization measures, BMPs, weather, problems, and contractor staffing levels. The intent of the reports is to document the day without problems or identify those items requiring resolution. Additionally, weekly progress reports, with photos, summarizing the work completed would be submitted to KMPUD for review.

Additionally, specific resource areas for which monitoring would occur are:

- **Air Quality:** During project construction, implementation and effectiveness monitoring for dust control BMPs would be conducted in accordance with the project fugitive dust control permits and plans. Records and other supporting documents would be retained for two years following the termination of all dust generating project activities.
- **Noise:** Construction inspection by KMPUD or an approved contractor would verify that noise restrictions are implemented in accordance with the contract documents.
- **Soil, Water And Riparian Resources:**
 - Soil Moisture: In order to avoid soil impacts from construction related activities, soil moisture monitoring would be conducted prior to the start of construction in all areas and after precipitation events in an area that has been previously approved.
 - Storm Water Pollution Prevention Plan: A qualified inspector would conduct monitoring of the SWPPP practices according to the frequency and specifications in the State General Permit for Storm Water Discharges. Effectiveness of the SWPPP would be evaluated continually throughout construction, and changes would be made in the field to correct identified problems.
- **Cultural Resources:** All ground-disturbing activities within 100 feet of a recorded site boundary (including equipment staging, construction, post-construction restoration, and routine maintenance) would be monitored by a qualified archaeologist.
- **Transportation:**
 - Road Maintenance and Reconstruction: Roads would be inspected during active construction to confirm that design criteria and related BMPs are implemented and effective in accordance with the ENF, Caltrans, and county standards. Reconstructed roads would be inspected to insure that the roads adhere to the site-specific requirements for each individual road.
 - Post Project Road Use and Maintenance Monitoring: Roads used by the project, but closed to public use, would be monitored to assure that public closure devices were implemented and effective.
- **Revegetation Monitoring:** KMPUD would monitor the revegetation success for three years after revegetation measures are implemented. If monitoring indicates that the areas are not

stable or ground cover is inadequate, KMPUD would implement additional measures to achieve restoration and stabilization.

- **Sensitive Plants:** Prior to construction, KMPUD would notify the ENF botanists prior to project implementation activities in order to ensure sensitive plant areas are adequately flagged in accordance with the design criteria in Chapter 2. Sensitive plant areas would be monitored post-implementation to determine effectiveness of the design criteria.
- **Invasive Weeds:** During construction, noxious weed spread prevention practices would be monitored in compliance with the state and SNFPA (2004) standards, which require equipment washing before entering the project area when equipment has been transported from a location outside of the ENF if the previous location is unknown, or if the previous location is infested with weeds. Following project construction, annual field monitoring would be completed by KMPUD for a period of three (3) years to document if existing noxious weed infestations have spread or new noxious weed species have been introduced within the project area.

Summary of Project Effects and Applicant Proposed Design Features

Construction, operation, and maintenance of the proposed project or its alternatives would result in one significant, permanent, adverse effect to 0.7 miles of the Carson-Mormon Emigrant Trail. Temporary impacts associated with construction activities, and permanent impacts associated with operation and maintenance of the line would be reduced to less than significant levels with the implementation of the proposed design criteria. The design criteria, measures, and agreements are considered part of the proposed project.

The primary reasons for the findings of less than significant impacts are:

- The project minimizes land disturbance by locating the power line within existing roadways and other existing disturbance corridors.
- The project would implement design criteria and Best Management Practices to avoid and minimize impacts to sensitive resources, including visual resources along Highway 88.
- The project would be consistent with federal, state, and local planning documents, or conflicts resolved through approved exceptions and agreements prior to commencement of construction.
- Kirkwood would obtain all necessary federal, state, and local permits, approvals, and authorizations prior to commencement of construction.
- Kirkwood would restore disturbed areas and implement resource-specific monitoring to protect natural and cultural resources, avoid or limit environmental impacts, and promote restoration of areas disturbed during construction.

Table EX-5. Summary of Potential Impacts from Project Implementation and Proposed Design Criteria

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
LAND USE AND PLANNING				
	No Impacts	None	No impact	No effect
AESTHETICS AND VISUAL RESOURCES				
Adverse impact to a scenic vista	The overbuild of the existing overhead power line and KM Green substation at FS Road 10N17 would be seen in the far middleground to near background (2.5 to 3.5 miles) from Peddler Hill Vista Point. Visual impacts would be reduced through siting of KM Green substation, minimization of tree removal, use of non-specular lines, color of substation and revegetation. Impacts would be greatest during and immediately following construction.	AES-1: Consistency with VQOs and Scenic Highway Element AES-2: KM Green at FS Road 08N17 design AES-4: Substation color AES-5: Minimize reflection AES-11: Revegetation	Less than significant	Construction: Minor adverse effects due to construction of the overbuild along Segment 2 and KM Green substation. O&M: Adverse effects to viewshed from taller poles and wider right-of-way; but remains visually subordinate in the panoramic landscape view. Project maintains VQOs.
Substantially damage scenic resources within a State Scenic Highway or part of a river, stream, or estuary.	Overall, the project would not result in substantial degradation of scenic resources. Project would not substantially damage trees, rock outcroppings or historic buildings within scenic Hwy 88.	AES-1: Consistency with VQOs and scenic highway element AES-2: KM Green at FS Road 08N17 design AES-4: Substation color AES-5: Minimize reflection AES-6: Cabinet screening AES-7: Cabinet colors AES-8: Vegetation preservation AES-9: Minimize grading AES-10: Staging visibility AES-11: Revegetation AES-12: Transition to Hwy 88 AES- 13: Warning Signs AES-14: Aspen protection HYD-3: Bridge crossings RCA-2: Narrow construction width	Less than significant	Construction: Minor adverse effects due to construction activities and visibility of staging areas from scenic Highway 88. O&M: Adverse effects to viewshed from taller poles and wider right-of-way; but remains visually subordinate to the characteristic landscape. Project maintains VQO.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
<p>Degrade existing visual character or quality</p>	<p>Construction activities and staging areas would be visible from Hwy 88. Impacts would be temporary and greatest during and immediately following construction.</p> <p>Overbuild of the existing overhead power line would result in taller poles and a wider right-of-way, but would remain visually subordinate to the characteristic landscape.</p> <p>Cabinet installation, grading, and vegetation removal for installation of the power line and associated features (e.g. sectionalizing cabinets, vaults, warning signs) within a Scenic Highway Corridor would impact visual character. Above ground structures along scenic Hwy 88 would be screened so as to not be visually evident. Disturbed areas visible from Hwy 88 would be revegetated.</p>	<p>AES-1: Consistency with VQOs and Scenic Highway Element AES-2: KM Green at FS Road 08N17 design AES-4: Substation color AES-5: Minimize reflection AES-6: Cabinet screening AES-7: Cabinet colors AES-8: Vegetation preservation AES-9: Minimize grading AES-10: Staging visibility AES-11: Revegetation AES-12: Transition to Hwy 88 AES-13: Warning signs</p>	<p>Less than significant</p>	<p>Construction: Minor adverse effects due to construction activities and visibility of staging areas from managed viewsheds.</p> <p>O&M: Minor adverse effects to viewshed from overbuild; project remains visually subordinate to the characteristic landscape.</p> <p>Minor adverse effects to existing visual character of scenic highway corridor. Sectionalizing cabinets and warning signs would not be visually evident.</p> <p>Project maintains VQOs.</p>
RECREATION				
<p>Disruption of access to existing recreation opportunities</p>	<p>Short-term access closure (2 to 4 days) to 3 developed recreation areas. Closures would be coordinated with facility owners and scheduled to avoid peak use. Vehicle access to campgrounds, resort areas, and recreational residences would be maintained.</p>	<p>REC-1: Construction timing REC-2: Public notification TRA-9: Maintain vehicle access</p>	<p>Less than significant</p>	<p>Construction: Short term, localized effects.</p> <p>O&M: No Effect.</p>
<p>Impacts to scenic driving on Hwy 88</p>	<p>Construction activities would increase weekday traffic congestion along Hwy 88. Stop delays would be less than 20-minutes. Construction would not occur on weekends or holidays.</p> <p>Annual inspection to vaults within Hwy 88 right-of-way would result in short-term lane closures.</p>	<p>TRA-6: Minimize stop delays TRA-7: Caltrans ROW construction timing</p>	<p>Less than significant</p>	<p>Construction: Short term, localized effects.</p> <p>O&M: Minor adverse effects.</p>

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
CULTURAL (HERITAGE) RESOURCES				
Impacts to cultural resources and areas with high potential for buried resources.	<p>Impacts to known cultural resources would be avoided through temporary fencing and monitoring during construction (except Carson-Mormon Emigrant Trail, see below);</p> <p>Areas with high potential for buried resources would be monitored during construction and mitigated if necessary.</p>	<p>CUL-1: Worker training CUL-2: Site avoidance CUL-3: Resource discovery CUL-4: Cabinet placement</p>	Less than significant	<p>Construction: No adverse effects. Design criteria avoid impacts.</p> <p>O&M: No adverse effects. Design criteria avoid impacts.</p>
Potential to impact Carson-Mormon Emigrant Trail	Impact to 0.7 miles to a segment of the Carson-Mormon Emigrant Trail considered to be a contributing element of a NRHP eligible Historic Property.	None. Consultation with SHPO regarding mitigation would be necessary to resolve if this segment cannot be avoided.	Significant Impact	Construction and O&M: Significant, adverse effects.
TRAFFIC TRANSPORTATION AND PUBLIC SAFETY				
Traffic load and capacity	<p>Construction would create temporary traffic interruptions on Hwy 88 and Bear River Road.</p> <p>Minor increase in traffic for monthly and annual inspections (~ 1 utility truck per month).</p>	<p>TRA-4: Plans and specifications TRA-5: Traffic control plans TRA-6: Minimize stop delays TRA-7: Caltrans ROW construction timing TRA-8: County Road construction timing</p>	Less than significant	<p>Construction: Direct, minor adverse effects during construction on Bear River Road and Hwy 88.</p> <p>O&M: Direct, minor adverse effects from annual cabinet inspections and monthly substation inspections.</p>

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
Level of service	<p>Construction would create temporary traffic interruptions on Hwy 88 and Bear River Road. As designed, stop delays would be less than 20 minutes and construction activities timed to avoid periods of peak use. Notification of lane closures would be posted in advance.</p> <p>Minor increase in traffic for monthly and annual inspections (~ 1 utility truck per month.)</p>	<p>TRA-4: Plans and specifications TRA-5: Traffic control plans TRA-6: Minimize stop delays TRA-7: Caltrans ROW construction timing TRA-8: County Road construction timing TRA-11: Public notification</p>	Less than significant	<p>Construction: Short term, minor adverse effects.</p> <p>O&M: Minor adverse effects.</p>
Impact emergency access	<p>Emergency vehicle access would be maintained at all times through the construction zone. Contractor would notify KMPUD if emergency access route between Hwy 88 and E. Meadows Drive is blocked.</p>	<p>TRA-9: Maintain vehicle access TRA-30: Emergency access Kirkwood</p>	Less than significant	<p>Construction: Short term adverse effects.</p> <p>O&M: No effect.</p>
Impacts from stormwater runoff	<p>Construction activities could result in increased or altered storm water runoff. Impacts from storm water runoff during construction would be minimized through installation and maintenance of BMPs. Exposed soils outside of road prisms would be revegetated, mulched, and/or stabilized to reduce the potential for accelerated erosion.</p>	<p>TRA-1: Region 5 BMPs TRA-2: Caltrans BMPs TRA-3: County BMPs SOI-5: BMPs for erosion control SOI-8: Stabilize disturbed areas</p>	Less than significant	<p>Construction: Short term adverse effects.</p> <p>O&M: No effect.</p>
Impacts to public safety from project features within road right-of-ways	<p>The project includes placement of cabinets and vaults in the ROWs of Hwy 88 and Bear River Road, which require annual inspection. Utility trucks would park on roadways for inspection.</p>	<p>TRA-12: Cabinet locations on ENF or private lands. TRA-13: Cabinet locations in Caltrans ROW TRA-14: Use of underground vaults TRA-15: Concrete encasement and placement in shallow burial areas.</p>	Less than significant	<p>Construction: Short term, minor adverse effects.</p> <p>O&M: Minor adverse effects.</p>
Impacts to ENF roads	<p>Construction would result in temporary wider roadways. Roads would be re-established to be consistent with Forest Service maintenance levels and road management objectives and monitored post construction.</p>	<p>TRA-22: Winterization TRA-23: ENF road width consistency TRA-24: Road reclamation TRA-26: Post-construction roadway monitoring</p>	Less than significant	<p>Construction: Short term, minor adverse effects.</p> <p>O&M: No effect.</p>

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
AIR QUALITY				
Conflict with air quality plan	<p>Temporary short-term increase in air pollutant emissions during construction would be consistent with applicable air quality plans. Increase in emissions would be temporary and a small fraction of the regional emissions.</p> <p>Project would be in support of the air quality goals and objectives set within the Alpine County general plan, the California Regional Haze Plan, and Kirkwood Specific Plan.</p>	<p>AIR-7: Idle time restrictions AIR-8: Proper equipment maintenance AIR-9: Low emission diesel fuel AIR-10: Emission controls AIR-11: Solar and batter power AIR-12: Paving materials AIR-13: No burning for disposal</p>	Less than significant	<p>Construction: No adverse effects.</p> <p>O&M: No adverse effects.</p>
Violate any air quality standard	<p>Temporary short-term increase in air pollutant emissions during construction would not violate ambient air quality standards. Project would reduce potential to violate air quality standards within Kirkwood.</p>	<p>AIR-1: Fugitive dust control plan AIR-8: Proper equipment maintenance AIR-9: Low emission diesel fuel AIR-10: Emission controls AIR-11: Solar and batter power AIR-12: Paving materials AIR-13: No burning for disposal</p>	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No long-term adverse effects associated with operation and maintenance.</p>
Result in cumulatively considerable net increase of criteria pollutants for which the project region is in nonattainment.	<p>Construction activities would temporarily increase emissions of ozone precursors in Amador County and Eldorado County, which are designated in nonattainment for national ozone standards.</p> <p>Project would reduce cumulative emissions in the long-term.</p>	<p>AIR-1: Fugitive dust control plan AIR-8: Proper equipment maintenance AIR-9: Low emission diesel fuel AIR-10: Emission controls</p>	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects. Long-term benefit within Kirkwood.</p>
Increase in fugitive dust	<p>Temporary short-term increase in fugitive dust during construction.</p>	<p>AIR-1: Fugitive dust control plan AIR-2: Watering exposed surfaces AIR-3: Truck hauling freeboard and cover AIR-4: Power vacuum street sweeping AIR-5: Speed limits on unpaved roads AIR-6: Stabilized entrances on unpaved roads</p>	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects.</p>

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
Expose sensitive receptors to substantial pollutant concentrations	<p>Construction activities would temporarily expose campgrounds and picnic areas located within 500 feet of construction activities to increased air pollutant emissions. No schools, nursing homes, or healthcare facilities within project areas.</p> <p>Long-term project operations would reduce exposure of residential areas to levels of diesel particulate matter.</p>	<p>AIR-1: Fugitive dust control plan AIR-8: Proper equipment maintenance AIR-9: Low emission diesel fuel AIR-10: Emission controls AIR-11: Solar and batter power AIR-12: Paving materials</p>	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects. Long-term benefit to Kirkwood residents.</p>
Temporarily create objectionable odors	<p>Construction activities would create odors related to diesel exhaust and road paving. Paving over the underground power line installation would occur near campground, picnic areas, and residences (predominantly at Kirkwood) that may create noticeable odors. Impacts are short term as construction moves along project corridor.</p>	None	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects.</p>
GREENHOUSE GASES				
Generate greenhouse gases with significant impact on the environment	<p>Temporary short-term increase in greenhouse gas emissions during construction.</p> <p>Operation of the power line and interconnection to the regional electric grid would result in approximately 7,640 metric tons of CO₂e per year – a net reduction of ~7,000 metric tons per year (averaged over 30 years.)</p> <p>CO₂e emissions at build-out would be below CEQ and CEQA significance thresholds.</p>	None	Less than significant	<p>Construction: Short-term, effects on ambient air quality.</p> <p>O&M: Long-term positive effects.</p>

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
NOISE				
Exposure of persons to or generation of noise levels in excess of established standards	<p>Temporary, local noise increases associated with construction would comply with local noise ordinances.</p> <p>Permanent, variable noise increases due to operation of KM Green and KM Blue substations. Substations would be installed with low noise equipment. Noise increase would be below standards specified in Alpine and Amador County General Plan.</p>	<p>NOI-1: Restricted construction hours near sensitive areas NOI-2: Public notification NOI-4: Blasting noise abatement NOI-5: Sound barriers NOI-6: Equipment maintenance NOI-7: Equipment mufflers NOI-8: Idle time restrictions NOI-9: Low noise equipment NOI-10: KM Blue installation</p>	Less than significant	<p>Construction: Short term, adverse effects on noise levels.</p> <p>O&M: No long-term adverse effects. Noise level increases comply with county standards.</p>
Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels.	Construction activities would generate vibrations related to compaction or blasting activities that would affect people within 100 feet of construction activities. Effects would be short-term as construction activities proceed along project corridor. Impacts would be reduced through use of blasting abatement measures and sound barriers.	<p>NOI-2: Public notification NOI-4: Blasting noise abatement NOI-5: Sound barriers</p>	Less than significant	<p>Construction: Short term, adverse effects on noise levels.</p> <p>O&M: No effect.</p>
Substantial permanent increase in ambient noise levels in project vicinity.	Permanent, variable noise increases due to operation of KM Green and KM Blue substations. Substations would be constructed with low noise transformers. Noise increase would be below standards specified in Alpine and Amador County General Plans.	<p>NOI-9: Low noise equipment NOI-10: KM Blue installation</p>	Less than significant	<p>Construction: No effect.</p> <p>O&M: No adverse effects.</p>
VEGETATION RESOURCES				
Result in loss of forestland	Project would result in conversion of 0.4 acres to non-forest use for construction of the KM Green substation.	None	Less than significant	O&M: Long-term, negligible adverse effects to 0.4 acres of forestland.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
Temporary and permanent vegetation loss or modification	Approximately 17 acres of vegetation on ENF land would be permanently modified under the overhead line and over the buried line. Impact to 17 acres is negligible compared to size of surrounding national forest.	VEG-1: Minimize disturbance VEG-2: Tree and snag removal specifications VEG-3: Brush and slash removal specifications VEG-4: Preserve large trees VEG-5: Minimize clearing VEG-6: Vegetation maintenance	Less than significant	Construction: Short term and negligible adverse effects. O&M: Long-term, adverse effects to ~ 17 acres of forest.
FIRE AND FUELS				
Changes to fuel loading	Removal of the fuels generated by the project would maintain the existing fuel model types, and be predominately characterized as TL1, low load, and compact conifer litter.	None	Less than significant	Construction and O&M: No adverse effects.
Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	Overhead power line corridor would be maintained according to an approved vegetation maintenance plan that meets California Public Utilities Commission General Order No. 95, Rules for Overhead Electric Line Construction and the National Electrical Safety Code and directs the strategic removal of hazardous vegetation and minimizes the risk of fire.	FIR-1: Follow Forest Service special provisions FIR-2: Vegetation maintenance for overhead lines FIR-3: Future Maintenance	Less than significant	Construction and O&M: No adverse effects.
GEOLOGY				
Geologic Hazards	The construction, operation, and maintenance of the transmission line would not alter or increase the risk of geologic hazards along the proposed alignment. Project area is not located on a fault zone; the potential for soil expansion and liquefaction is low; underlying geology is stable and located in a region with a low ground-shaking hazard; no expansive soils were documented along alignment.	None	No impact	Construction and O&M: No effect.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
SOIL RESOURCES				
Soil productivity	Soil productivity would be permanently lost under the footprint for the KM Green substation and sectionalizing cabinets. Topsoil would be salvaged along buried power line when located outside of existing roadways.	SOI-3: Topsoil salvage	Less than significant	Construction and O&M: Minor adverse effects.
Result in substantial soil erosion or loss of topsoil.	Construction activity would cause temporary disturbance to soil productivity and hydrologic function.	SOI-1: Limits of disturbance SOI-2: Grading and erosion control plan SOI-3: Topsoil salvage SOI-4: Construction limits during wet soil conditions SOI-5: BMPs for erosion control SOI-6: EHR rating analysis and rehab efforts SOI-7: Trench compaction SOI-8: Revegetate disturbed areas	Less than significant	Construction: Minor adverse effect. To be restored to pre-construction conditions. O&M: No effect.
HYDROLOGY AND WATERSHED RESOURCES				
Substantially degrade water quality	The proposed project could degrade water quality by increasing erosion or sedimentation in surface waters or through the introduction of hazardous material into surface waters. Design criteria require installation, maintenance, and monitoring of agency required BMPs and preparation of a Storm Water Pollution Prevention Program that would prevent water quality standards from being violated or otherwise degraded.	HYD-6: USFS BMPs HYD-7: Caltrans BMPs HYD-8: County BMPs HYD-9: BMP compliance inspections HYD-10: Sediment barriers HYD-11: Storm drain inlet protections HYD-12: Spoil and stock pile controls HYD-14: Paving BMPs HYD-15: SPCC Plan	Less than significant	Construction and O&M: Minor adverse effects.
Substantially alter the existing drainage pattern of the site or area.	The project would not alter any stream course or river, or existing drainage patterns. Replacement culverts, if necessary, would be engineered to convey the 100-year storm event and installed at the appropriate slope to prevent scour and erosion within the stream.	HYD-4: Culvert crossings HYD-5: Culvert replacement	Less than significant	Construction and O&M: Minor adverse effects.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
Impacts to ground water and surface water	The power line trench could intercept groundwater and project grading could alter surface water patterns. Effects would be minimized through construction timing, installation of trench breaker to prevent water from migrating along the power line, and attaching the power line to existing bridges over perennial waters when practical.	HYD-1: Construction timing for ephemeral channels HYD-2: Trench breakers HYD-3: Bridge crossings	Less than significant	Construction and O&M: Minor adverse effects.
Have substantial adverse effect on federally protected wetlands	Construction of the power line would temporarily impact 0.04 acres and 0.1 acres of two emergent wetlands. Wetlands would be restored to preconstruction conditions upon completion of construction.	VEG-1: Minimize disturbance SOI-8: Revegetate disturbed areas	Less than significant	Construction: Short-term, minor adverse effects. O&M: No effect
Placement of structures within a 100-year Flood Hazard Area	There would be no permanent above ground objects placed within a 100-year flood hazard area. The power line would be buried within several 100-year flood hazard areas but would not impede or redirect flood flows because contours would be restored to closely match pre-construction conditions.	None	Less than significant	Construction and O&M: No effect.
Cumulative Watershed Effects	Project would not change the risk of cumulative watershed effects in any of the 7 th field watersheds that contain the project. Amount of ground disturbance and equivalent roaded acres generated by the project would be negligible when compared to the size of the 7 th field watershed.	VEG-1: Minimize disturbance	Less than significant	Construction & O&M: No adverse effects.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
RIPARIAN CONSERVATION AREAS INCLUDING WATERS OF THE US				
Impacts to RCAs	Construction activities would temporarily remove vegetation within RCAs with potential to increase erosion and sedimentation, affecting water quality. RCAs would be identified on project plans and flagged in the field. Impacts would be minimized by narrowing the construction corridor through RCAs and restricting soil stock pile placement.	RCA-1: Field flagged RCA-2: Narrow construction width RCA-3: Spoil and stock pile controls RCA-4: Spoil protection RCA-5: Spoil containment RCA-6: Timely spoil clean-up RCA-7: RCA restoration RCA-8: Refueling restrictions	Less than significant	Construction: Short-term, minor adverse effects. O&M: No effect.
SENSITIVE PLANT SPECIES, SPECIAL STATUS WILDLIFE, AND MANAGEMENT INDICATOR SPECIES				
Loss of habitat for special status wildlife and sensitive plant species	Construction would temporarily remove vegetation and associated habitat. Pre-construction surveys identified sensitive plant habitat to be avoided. Temporary disturbances outside of existing road prisms would be revegetated. Operation and maintenance of the overhead lines requires long-term modification of 17 acres of forest. Temporary loss and long-term modification of vegetation and associated habitat is minor and would not create significant long-term, impacts to habitat.	SEN-1: Pre-construction sensitive plant surveys VEG-1: Minimize disturbance VEG-4: Preserve large trees VEG-5 Minimize Clearing	Less than significant	Construction: Short-term, negligible adverse effects. O&M: Minor adverse effects.
Direct impacts to individual special status wildlife or plant species	Construction would create temporary impacts to some individuals resulting in temporary displacement. Direct impacts are avoided through preconstruction surveys and limited operating periods. Project may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for any special status wildlife or plant species.	SEN-1: Pre-construction sensitive plant surveys SEN-2: Sensitive plant avoidance WIL-1: LOP for spotted owl WIL-2: LOP for goshawk WIL-3: LOP for sensitive raptor nests WIL-4: Falcon pre-construction surveys WIL-5: CDFG and FS coordination for TES species	Less than significant	Construction: Short-term, minor adverse effects. O&M: Minor adverse effects.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
NOXIOUS AND INVASIVE WEEDS				
Introduction of invasive non-native or noxious plant species	<p>Potential impacts on sensitive vegetation, native vegetation communities, and wildlife habitat from introduction or spread invasive, non-native, or noxious plant species within the project area. Implementation of design criteria reduces potential for spread and establishment of weed species.</p> <p>A project specific Noxious Weed Risk Assessment concluded that all action alternatives posed a <i>low risk</i> for introducing new noxious weed species and a <i>moderate risk</i> for spreading existing noxious weed infestations located in the general proximity of the project area.</p>	<p>NOX-1: Coordination NOX-2: Weed surveys NOX-3: Equipment cleaning and notification NOX-4: New weed location reporting NOX-5: Weed free certification NOX-6: Weed free fill NOX-7: Weed free seed</p>	Less than significant	Construction: Minor adverse effects.
AGRICULTURAL RESOURCES				
Direct impacts to animals or rangeland improvements	<p>Construction activities may disturb animals or animals may be injured in the construction zone. Range improvements may be disturbed by the construction activities.</p> <p>Effects to livestock drift, or potential impacts to rangeland improvements or facilities from construction activities would be avoided or minimized through immediate repair of fencing in the construction area.</p>	<p>AGR-1: Rangeland improvement avoidance and replacement AGR-2: Rangeland improvement maintenance during construction AGR-3: Construction timing</p>	Less than significant	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects.</p>
Direct impacts to or loss of forage	Based on the limited extent of forage loss and large size of the affected grazing allotments, the loss of forage associated with project construction and operation is not expected to result in either a temporary or permanent change in permitted grazing uses. No impact to Prime or Important Farmland or Williamson Act contracts.	None	Less than significant	Construction and O&M: Negligible adverse effects.

Type of Impact	Summary of Effects	Project Design Criteria Implemented to Avoid and Minimize Effects ¹	CEQA Significance of Impact	NEPA Summary
PUBLIC HEALTH AND SAFETY				
<p>Create hazards through routine transport, use, or disposal of hazardous materials</p>	<p>Construction activities would use hazardous materials such as fuels, oil, grease and coolants for construction equipment, pulling lubricant for the tensioning equipment, and aviation fuel. Project would follow construction and operating procedures that include safe handling and disposal practices.</p> <p>Long-term operation and maintenance uses minimal hazardous materials (e.g. oils, batteries). The project would reduce the routine transport of diesel fuel, currently at 1 trip per week during the summer and 2-3 trips per week during the winter, to approximately 5 trips per year.</p>	<p>PUB-1: Hazardous materials control PUB-2: Equipment inspection PUB-3: Hazardous waste control PUB-4: SPCC Plan</p>	<p>Less than significant</p>	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effect; provides long-term benefit to Kirkwood and surrounding areas. From reduced transport of hazardous materials.</p>
<p>Create a significant hazard to the public or environment from accidental hazardous material spills.</p>	<p>The potential for accidental spills or leaks of lubricants or fuels would be minimized through compliance with standard best management practices as required by California Code of Regulations (Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, 179 and 261-263); creating designated containment areas for equipment fueling; storing liquid hazardous wastes would be stored in covered containment areas; and equipment would be inspected daily for potential leaks or failures.</p>	<p>PUB-1: Hazardous materials control PUB-2: Equipment inspection PUB-3: Hazardous waste control PUB-4: SPCC Plan</p>	<p>Less than significant</p>	<p>Construction: Short-term, minor adverse effects.</p> <p>O&M: No adverse effects.</p>

¹Design criteria are proposed by the Applicant as part of the project design.