EXECUTIVE SUMMARY

INTRODUCTION

Garkane Energy Cooperative (Garkane) delivers electrical service to more than 11,000 customers in northern Arizona and southern Utah, including Hatch and Tropic in Garfield County. Economic and population growth in Garfield and Kane counties has resulted in a 66 percent increase in Garkane's electrical demand during the past 5 years. This has caused an overloading of the 69 kV transmission line that currently serves the area and a decrease in the reliability of the electrical system. The existing 69 kV electrical transmission system cannot be modified to carry higher voltages due to physical limitations of the pole structures. Garkane has found it necessary to use temporary diesel generators to meet electrical demand.

Consequently, Garkane has filed applications for special use permits and/or rights-of-way grants with the U.S. Forest Service (USFS) Dixie National Forest (DNF); Grand Staircase-Escalante National Monument (GSENM; managed by the Bureau of Land Management [BLM]); BLM Kanab Field Office (KFO); and Utah School and Institutional Trust Lands Administration (SITLA) and Bryce Canyon National Park (BRCA; managed by the National Park Service [NPS]) proposing construction of a new 138-kilovolt (kV) transmission line that would replace some or all the existing 69 kV transmission line and increase the capacity of Garkane's electrical delivery system in this area of southern Utah.

The project area is in Garfield County, between the communities of Tropic and Hatch. The Project Area for the proposed project generally follows the proposed alignment of a 100-foot right-of-way that would be granted if the project was approved and constructed. The Project Area also includes other locations that incorporate proposed sites for building or expanding substations and temporary construction sites, including temporary work spaces (lay-down yards and pulling and splicing sites), as well as areas where the existing 69 kV transmission line would be removed.

PROPOSED ACTION

The Proposed Action (Alternative A) would involve the construction of a 138 kV transmission line from a proposed East Valley Substation east of Tropic to the Hatch Substation along a 30.41 mile route. It includes development of a new substation and expansion of the Hatch Substation to serve existing and anticipated future electrical loads in the region. The route adjoins an existing transmission line through the GSENM and Cedar Fork Canyon (DNF); turns west to cross John's Valley; passes north of the Bryce Canyon Airport; crosses State Route 12 and Johnson Bench; and passes south of Wilson Peak. From there it goes down Hillsdale Canyon, crosses the Sunset Cliffs, and west across U.S. 89 to Hatch Substation. The project includes removal and reclamation of a portion of the existing 69 kV transmission line west of the Bryce substation.

Implementation of the Proposed Action would also require the amendment of the GSENM Management Plan (2000) by changing the designation of a 100-foot wide 3.68-mile long stretch (44.58 acres) of the Primitive Zone to Passage Zone, and within this area, changing the existing VRM Management Class designation from Class II to Class III.

ACTION ALTERNATIVES

In addition to the Proposed Action, this Environmental Impact Statement provides analysis on two Action Alternatives. These are Alternative B (the Parallel 69 kV Line Route Alternative), which would roughly correspond to the existing 69 kV transmission line right-of-way; and Alternative C

(the Cedar Fork Southern Route Alternative). Alternative C would also require the amendment of the GSENM Management Plan (2000) by changing the designation of a 300-foot wide 3.68-mile long stretch (133.81 acres) of the Primitive Zone to Passage Zone to accommodate both the proposed right-of-way and the existing 230 kV Rocky Mountain Power/PacifiCorp transmission line, as well as provide for future utility needs; and within this area, changing the existing Visual Resource Management Class designation from Class II to Class III. Two interconnect options are presented, either of which would essentially allow the eastern segments of Alternative A to be coupled with the western segments of Alternative C, and vice versa. Amendment of the GSENM Management Plan would not be required under Alternative B.

The alternative routes were developed to address agency and public concerns identified during scoping. Among these were the locations of sage grouse leks and conflicts with the management plans of some of the several management areas crossed by the routes. These issues and others are addressed briefly below and thoroughly in the complete Environmental Impact Statement. Construction standards and resource protection mitigation measures are found in **Chapter 2**.

Table ES-1 shows the lengths of the three Action Alternatives by the administrative jurisdictions the routes would cross.

Table ES-1. Action Alternative Routes by Length (in Miles) and Jurisdiction

ALTERNATIVE	PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL LENGTH
Alternative A	1.84	4.23	3.31	3.68	17.35	0.00	30.41
Alternative B	8.80	3.63	8.29	0.00	5.58	2.81	29.11
Alternative C	7.03	2.06	3.43	3.68	13.58	0.00	29.78

The project would have two distinct phases, which are the construction and operations phases. The construction phase would be short-term and include right-of-way clearing; location and installation of conductor support structures; stringing of the conductor wire; decommissioning and removal of portions of the existing 69 kV transmission line; and substation construction. Inaccessible areas or areas with access restrictions (*limited access areas*) would be reached by foot, helicopter or other means. Construction would be expected to take up to two years, and removal of portions of the existing 69 kV line would take an additional year. Substantially more acreage would be disturbed during construction for lay-down areas, conductor splicing and pulling sites, and other requirements. The operations phase would have at least a 50-year life and include routine, major and emergency maintenance procedures.

NO ACTION ALTERNATIVE

The No Action Alternative is considered to be the continued operation of the existing 69 kV transmission line and future circumstances that would occur without federal approval of Garkane's proposal to construct and operate a 138 kV electric transmission line from Tropic to Hatch. Without the ability to increase capacity, Garkane would need to conduct major maintenance activities, overhauling the line within its existing right-of-way and permit conditions. Existing diesel-fueled generators would be used to compensate for capacity shortfalls. Under Alternative D the GSENM Management Plan would not be amended.

AGENCY PREFERRED ALTERNATIVE

The Agency Preferred Alternative was developed through a joint effort of all agencies (USFS, BLM, NPS) taking into consideration the impacts of all of the resources along the routes. The Agency Preferred Alternative (**Figure 2.11-1**) is Alternative C modified by combining components from the East-West Interconnect option and Alternative A. The total length of the preferred route would be 29.41 miles. Approximately 16.23 miles of the existing 69 kV transmission line infrastructure from the Bryce Canyon Substation to the Hatch Mountain Substation would be removed.

The Agency Preferred Alternative would also require the amendment of the GSENM Management Plan (2000) by changing the designation of a 300-foot wide 3.68-mile long stretch (133.74 acres) of the Primitive Zone to Passage Zone, and within this area, changing the existing Visual Resource Management Class designation from Class II to Class III.

AFFECTED RESOURCES AND POTENTIAL IMPACTS

The Project Area is located in the "High Plateaus" region of the Colorado Plateau within southern Utah. The eastern portion of the Project Area begins near GSENM within the Kaiparowits Basin and travels westward onto the Paunsaugunt Plateau through BRCA and into DNF. The remainder of the Project Area traverses DNF and terminates on BLM land, intermittently crossing state and private parcels. The eastern escarpment of the Paunsaugunt Plateau is the Pink Cliffs (of the Claron Formation) that constitute BRCA. Together the Kolob, Markugunt, Paunsaugunt, and Table Cliff Plateaus make up the Grand Staircase. Temperature and precipitation in the Project Area are typical of the arid high deserts of the west, and are generally characterized by an arid climate with cold winters, hot summers and rapid, sometimes striking climatic changes.

Paleontological Resources

The potential for indirect and direct effects to paleontological resources is best estimated by the amount of ground disturbance within paleontologically sensitive units associated with a proposed action. There is a potential to impact currently unknown paleontological resources, but implementation of the proposed mitigation measures during construction would reduce potential impacts to a negligible level.

Soils

Potential impacts to soils were based on soil disturbance and detrimental displacement, detrimental compaction, ground cover, sensitive soils and potential erosion. The USFS Soil Management Handbook (USDA 2003) indicates that no more than 15 percent of an activity area should have detrimentally disturbed soil (soil that has been detrimentally displaced, compacted, puddled or severely burned). Detrimental impacts affect the long-term productivity of the soils. While the proposed project would have the potential to detrimentally displace or compact soil, not all soil disturbance associated with the proposed project would be detrimental to the long-term productivity of the soils. Erosion was estimated using the Water Erosion Prediction Project model.

Short-term impacts to soils for all Action Alternatives would range between moderate and major for total disturbance. Detrimental soil disturbance and compaction would affect less than 15 percent of the total project area, considered a minor impact and which would keep it within the standard for the DNF and Region 4 USFS Soils Standards and Guidelines.

Water Resources

Potential impacts to water resources were determined based on number and types of drainage crossings, disturbance of highly erodible soils, disturbance to federal jurisdictional waters of the U.S., compliance with water quality discharge regulations and compliance with water rights allocations. Potential impacts vary between the action alternatives, but do not exceed a minor adverse level for either short-term or long-term, with the removal of portions of the 69 kV line having beneficial effects.

Vegetation Resources

Potential impacts to vegetative resources for each alternative were derived by comparing the relative abundance of each cover type with the estimated acres of disturbance to each vegetation cover type within that alternative's Project Area. Analytical indicators included acres of disturbance relative to overall abundance of the vegetation type; compliance with management policies (BRCA); and susceptibility to noxious weed infestations due to project activities. Disturbance can lead to short- or long-term loss of ground cover, changes in plant community composition, establishment of invasive species and other undesirable effects. Maintenance includes keeping vegetation in the right-of-way at or below 4 feet in height for the life of the project (long-term).

Impacts to all cover types were determined to be negligible to minor relative to the overall abundance of each cover type in the surrounding area. The project would increase susceptibility to noxious and invasive species; the magnitude of the spread of undesirable species would be directly related to the implementation of resource protection measures and Best Management Practices employed by construction and maintenance crews.

Forest Product Resource

Project effect on forest product resources was based on the net gain or loss of public timberlands or harvestable forest products. The analysis determined that there would be a negligible adverse impact on forest product resources.

Wildlife and Wildlife Habitat

Impacts to wildlife and wildlife habitat were based on acres of habitat disturbed, habitat fragmentation, noise levels, increase in invasive plant communities, proximity to reproductive sites (i.e., raptor nests or big game calving sites), impacts to aquatic habitat (i.e., stream or wetland crossings), and compliance with administrative agency standards and policies. Specialists evaluated the potential impacts to small mammals and reptiles; big game species; migratory birds; aquatic species; management indicator species trout; all Management Indicator Species (MIS); and all wildlife in general. Among the Action Alternatives, impacts to wildlife species (non-special status or TES) would be minor to moderate and short- and long-term across various acres. Moderate impacts may occur due to habitat loss or fragmentation or, for MIS trout, stream crossings. No alternative was found to be out of compliance for any of the species.

Special Status Species

Impacts to special status species were based on the same indicators as those used for wildlife, minus aquatic habitat. Species that might be present in habitat types found in the project area are as follows:

- Sagebrush: Utah prairie dog, Burrowing owl, Pygmy rabbit, Greater sage grouse and Ferruginous hawk
- Ponderosa pine: Northern goshawk, Flammulated owl and Lewis's woodpecker

- Pinyon/juniper: Ferruginous hawk
- Cliff/canyon: Peregrine falcon and sensitive bats
- Unique habitats: Mexican spotted owl
- Other: Sensitive plants

Among the Action Alternatives, impacts would be similar for most species and impact indicators with the exception of Utah prairie dog (Threatened) and greater sage grouse (Sensitive). For Utah prairie dog and greater sage grouse, impacts under Alternative C (Alternative C) would be less adverse than under Alternative B or Alternative A. Alternative C was developed to reduce impacts to these special status species. Impacts potentially greater than moderate in magnitude would include habitat fragmentation and disturbance of leks for greater sage-grouse for Alternatives A and B, and habitat disturbance for bald eagles under Alternative B.

Long-term (8 acres) and short-term (15 acres) impacts would occur in Designated Critical Habitat for Mexican spotted owl. Mexican spotted owl is a threatened species. Each alternative including the existing 69 kV transmission line crosses brood rearing habitat for greater sage grouse. Use areas for greater sage grouse covers about a third of the right-of-way area for Alternatives A and B, and covers less than half that area in the right-of-way for Alternative C.

Potential habitat for sensitive plant species makes up a major portion of the right-of-way. Impacts to sensitive plan habitat would be long-term and range from negligible to minor under all Action Alternatives. Long-term impacts from invasive species would be moderate under all Action Alternatives.

No additional designated Critical Habitat for any other listed species is located within the Project Area.

Range Resources

Impacts to range resources were determined based on long- and short-term disturbance to grazing allotments by acreage and available forage (animal unit months), as well as any impacts to range improvements, such as off-stream watering facilities and presence or absence of alternative allotments that might be substituted.

Under each Action Alternative, less than 1 percent of the land area within each allotment, and less than 1 percent of the forage in each allotment would be affected by construction or operation of the proposed 138 kV transmission line. Permittees would be contacted prior to any construction activities and livestock and would not likely be present within allotments when construction takes place. Operations and maintenance activities would be infrequent, transient and similar in nature to activities that typically occur on open rangelands. The magnitude of effects of project construction and operation on range resources and livestock would be negligible, with minor effects possible only if cattle were utilizing an area at the same time as construction crews.

Land Use

Three measures of impacts were used to analyze potential impacts to land use. They were the relative proportion of each land use under each jurisdiction that would change as a result of the project, compliance with existing management plans, and conflicts with existing rights-of-way or other land uses.

The proposed project would not conflict with DNF Land Resource Management Plan or the KFO Resource Management Plan, and overall impact to management of the affected federal lands administered by these entities is negligible. The proposed project appears consistent with SITLA rules

and trust responsibilities, so no adverse impacts to existing land uses on SITLA lands are anticipated. Private lands would be subject to Garfield County zoning, which allow for rights-of-way. Under either Alternative A or C the route would cross GSENM land, requiring amendment to the GSENM Management Plan to create a Passage Zone through what is classified as a Primitive Zone. A 100-foot wide Passage Zone created under Alternative A would allow the proposed 138 kV transmission line to comply with the GSENM Management Plan. Under Alternative C, a 300-foot wide Passage Zone created by amendment of the GSENM Management Plan would bring the existing 230 kV Rocky Mountain Power/PacifiCorp transmission line into compliance with the Management Plan in addition to allowing for the proposed 138 kV transmission line. Alternative B would result in the right-of-way crossing BRCA, resulting in unacceptable impacts to park resources under National Park Service Management Policies.

Distinctive Land Areas

Impacts to distinctive land areas (i.e., Inventoried Roadless Areas, Wilderness Study Areas, Primitive Zone, etc.) were determined using quantitative and qualitative indicators. Quantitative measures were acres of roadless or natural characteristics lost due to surface disturbing activities and placement of manmade structures on the landscape. Qualitative judgment of lost experiences for solitude and primitive recreational opportunities provide an additional measure of impact.

For the short term, during construction, there may be moderate and even major impacts to the character of several areas, even though the construction would occur outside the area boundary. For the long term, impacts to the character of fewer areas would be affected through direct disturbance and by fragmentation of areas with wilderness characteristics. Specialists determined that major long-term impacts would be to the GSENM under Alternatives A and C, and minor long-term impacts to BRCA under Alternative B.

Recreation

Potential impacts to recreation were based on direct impacts to some Recreation Opportunity Spectrum indicator characteristics and anticipated change in the pattern of use and quality of the recreation experience for dispersed activities or at developed sites. With few exceptions, potential impacts were determined to be negligible to minor, with potentially moderate impacts, short-term and long-term, under Alternative B in BRCA and to semi-primitive non-motorized areas of the DNF.

Visual Resources

Impacts to visual resources were modeled using GIS-based viewshed analysis from major project thoroughfares (i.e., U.S. 89, State Routes 12 and 63, and County Route 22). Magnitude of potential impacts was based on NPS, BLM and USFS agency guidelines and objectives. With few exceptions, adverse impacts to visual resources would be negligible to moderate, both short-term and long-term. For Alternative B, Scenic Integrity Objectives would likely be exceeded for recreationists using the Golden Wall Trail. Under Alternative A, Scenic Integrity Objectives would likely be exceeded from the DNF boundary at State Route 12. From many viewpoints there would be some benefit to removal of portions of the existing 69 kV line.

With amendment of the GSENM Management Plan under the Proposed Action the proposed 138 kV line would be consistent with the Visual Resource Management Class III objectives; however the existing Rocky Mountain Power/PacifiCorp 230 kV transmission line would be outside the Passage Zone and would not be consistent with Visual Resource Management Class II objectives. With amendment of the GSENM Management Plan under Alternative C both the existing Rocky Mountain Power/PacifiCorp 230 kV transmission line and the proposed 138 kV transmission line would be consistent with Visual Resource Class III Management Objectives.

Cultural Resources

The NHPA of 1966 as amended and its implementing regulations at 36 CFR Part 800 require the Forest service, BLM and National Park Service to take into account the effects of undertakings on federal lands by reviewing those undertakings, identifying "Historic Properties", assessing the effects of the project, and resolving or mitigating adverse effects. The NHPA also requires the federal agencies to provide the Utah SHPO an opportunity to comment on the project proposal and to consult with concerned American Indian Tribes prior to project implementation. These efforts were undertaken and a determination of No Adverse Effects to any Historic Properties was concurred upon by the Utah SHPO. No further consultation or Treatment Plan will be necessary. The Hopi, Navajo, Paiute, Utes, Zuni and Kaibab Band of Paiute tribes were consulted and their and no comments were received following the determination of No Adverse Effect.

Socioeconomics and Environmental Justice

Metrics used to determine potential effects of the Action Alternatives to the social structure and economics include projected short-term and long-term changes in employment, wages, local infrastructure, demographics, community services, tax receipts, property valuations, utility rates and improved utility service (i.e., how many additional customers can be served and improved reliability of service). Impacts to local infrastructure, community services, property valuations and demographics would be negligible. Overall the project would have a beneficial effect through short-term jobs, added money in the local economy and tax receipts, as well as long-term improvement in electrical service reliability and availability.

No minority or low income populations were identified in the project area. Consequently there would be no disproportionate adverse impacts to any such population.

Transportation

Potential impacts to transportation were determined based on current level of use of roadways that would be affected, potential impacts to level of service at key intersections and travel routes, and work that would be required on access roads (i.e., miles of new access road, repair or rehabilitation of existing local and forest roads). During construction there would be a slight increase in average annual daily traffic and increased wear and tear on roadways from construction equipment. Long-term impacts to transportation would be negligible. Access routes solely for maintenance and operation of the proposed transmission line would not be open to public travel. Administrative routes would be determined by the authorizing agency.

Cumulative Effects

Other resource impacts from the projects in the cumulative effects area would generally be adverse. Ground disturbance has the potential to impacts unforeseen paleontological and cultural resources, would directly impact soils and vegetation; and both directly and indirectly impact wildlife and habitat. Few moderate or major impacts are anticipated to result from construction or operation of the Proposed Action or any of the Action Alternatives, and would make a minor to moderate incremental contributions to overall environmental effects.

Cumulative socioeconomic effects for the projects in the cumulative effects area would generally be beneficial, with a financial infusion into the local economy from utility, corridor, and energy development, other infrastructure improvements, and locally improved utility service.

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