

Social and Economic Environment 10

The social environment is perhaps the most diverse and emotionally charged arena in ecosystem management. The social environment for this analysis comprises the people living in and adjacent to the project area in northern New Mexico. Forest resources play an important social role for the people of northern New Mexico. The goods, services and uses available from public lands represent major components in the lives of many residents within this area. Geographically this region can be described as mostly rural with large tracts of open lands and small communities that rely on a commercial center to augment their lifestyles. Recent population trends have moved the Southwest to be more urban oriented.

Humans have been an integral part of the Southwest for over 12,000 years. The arrival of Europeans had a catastrophic effect on native populations, as was the case throughout the New World (USDA 1997). During colonization of the New World by Spain, the non-Indian population grew very slowly and was estimated to be no more than 20,000 to 25,000 by the late 18th century (Simmons 1979). Throughout this period, small nonintensive agriculture farms were the staple for the community and family. The basic goal of the village economy was for local subsistence, not for commercial production (Raish 1995).

There is a long history of human use in the area. Prehistoric Anasazi made their homes on rivers and plateaus in the Sangre de Cristo Mountains from about A.D. 475 to 1100. Pueblo groups have farmed these lands for over 1,000 years. The Ojo Caliente Spanish Land Grant was granted in 1793. The project area communities are within the El Rito Ranger District and portions of the Tres Piedras Ranger District. The people influenced by the resources on these districts live in nearby villages. These communities are interwoven into the landscape with private lands within the valley bottom and National Forest System lands on the higher elevations.

Few generalizations can be made about the communities across the Southwest. They are as diverse as the people who live there. The ever increasing popularity of the Southwest as a highly desirable living location continues to increase the region's diversity (Figure 31). It should not be expected that all residents would have the same or even similar points of view on various issues. Within each community, there is a strong sense of independence and self-sufficiency. No matter what its size, there is no single viewpoint on most topics; each community has groups with varying opinions. Most of the time, people like to solve their own problems (Eastman and Gray, 1984, deBuys and Harris 1990, deBuys 1985, Horgan 1970).

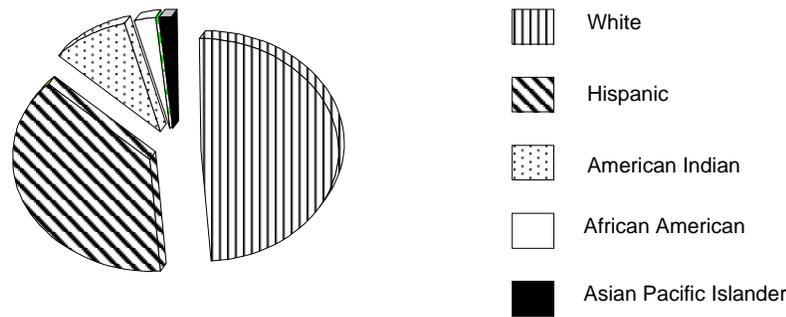


Figure 31. Percentage of the population of New Mexico by race (Census Bureau 2000).

The scope of this analysis is limited to the purpose and need for the proposed action (Chapter 1) and the development of alternatives for constructing an 115 kV transmission line to Ojo Caliente, New Mexico and an optional 25 kV grid connection line to the area south of Tres Piedras, New Mexico (Chapter 2).

In order to evaluate the affected social environment, the issues of a social nature that surfaced during scoping must be examined. The following issues were identified based upon review and evaluation of the array of comments received and discussion with members of the interdisciplinary team:

- The proposed action would create a new utility corridor. Constructing a new line and associated maintenance road could cause unnecessary adverse environmental impacts.
- The proposed transmission line would negatively affect scenic and visual values of the area through which it traverses—especially around Cerro Azul and Mesa Vibora.
- The proposed power line may negatively impact property values for private land adjacent to the power line.
- Proposing a power line along roadways and near residences, as well as through wild areas, may create negative effects on human and animal health as a result of the electromagnetic field.
- The cost of the proposed action may be unreasonably high, since the costs will ultimately be borne by Kit Carson Electric Cooperative members.
- The proposed action may disproportionately impact minority or low-income populations.

In addition to the issues listed above, the purpose and need for the proposed action needs to be evaluated. The purpose and need can be viewed as the “issue” that prompted the proposal.

Affected Environment

Kit Carson Electric Cooperative, Inc. (KCEC) is an electric distribution cooperative that provides electric service to consumers in Colfax, Mora, Rio Arriba and Taos Counties. This study area is located in the western part of Taos County and a small portion of Rio Arriba County. The current 25 kV distribution line originates near Taos, New Mexico and serves numerous small communities. The existing distribution line services Ojo Caliente, El Rito, La Madera, Canon Plaza, Mesa

Vista, Petaca, Las Placitas, Servilleta, Vallecitos, Carson and Pilar (Figure 32). It was built approximately 50 years ago and is experiencing demand overload and excessive line loss.

The existing Ojo Caliente system has reached its limitations regarding any additional installations to help maintain voltage during peak usage periods for approximately 1,700 domestic accounts. Current power demands exceed the capacity of the existing line, and voltage regulators periodically fail, creating outages and frequent voltage fluctuations to users. These fluctuations have led to intermittent brownouts and “blinks,” causing damage to all types of electrical equipment, from appliances to medical support systems. The Ojo Caliente system currently experiences the greatest maximum voltage drop of any service area within KCEC territory. Due to the age and type of line, the service area is also experiencing one of the highest line losses within the service territory. Line loss is a cost that is handed down to the consumer.

Demographics

Of the estimated 2,750 people who are served by the current Ojo Caliente system, the majority of residents (75 percent) are Hispanic whose families have lived in the area for many generations. The community of Carson is an exception, as most of the residents in this community and surrounding developments are white (72 percent). Figure 32 graphically displays the ethnic breakdown of the service area.

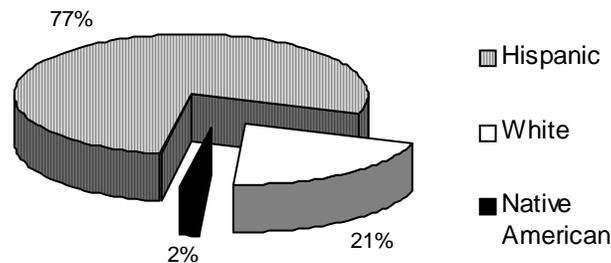


Figure 32. Percentage of the population by race within the zip code tabulation area's for the service area (Census Bureau 2000).

The populations of Taos and Rio Arriba Counties have increased since the existing 25 kV distribution line was constructed in the late 1940s. The population was basically static for about the first 20 to 30 years after line construction. The population of Taos County has nearly doubled in the last 30 years (17,516 in 1970 to 29,979 in 2000). A similar change is shown in Rio Arriba data (25,170 in 1970 to 41,190 in 2000). Although the population increase may not be uniform across a county, these changes indicate an increase in demand for electrical power through increase in population. The Carson, Ojo Caliente and the Vallecitos general areas have all seen increases in population as evidenced by home construction.

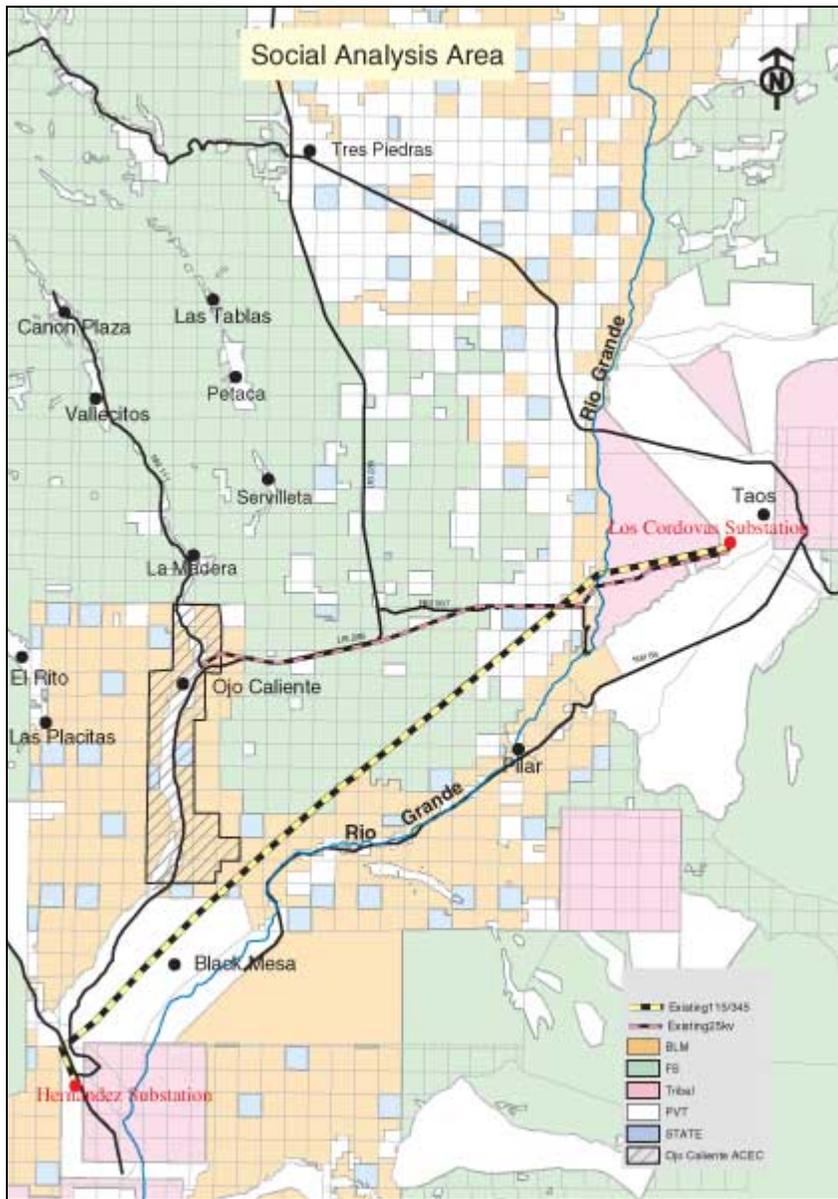


Figure 33. Kit Carson Cooperative service area for Ojo Caliente region.

Local Economy

Rural forest communities have long been known for their cultural distinctiveness, independent spirits and comparatively high poverty rates. Many of these communities rely on the potential economic and livelihood opportunities that the national forest provides them. In many places special forest products have important historic and contemporary uses (Emery 1999). Economic history of the small, rural communities of northern New Mexico illustrates links to both formal and informal markets. Wage labor, bartering, and petty commodity production and sale, along with subsistence activities, all exist in and are essential to many of these communities. A variety of research has been completed on villages in the service area, especially those linked to the Vallecitos Federal Sustained Yield Unit. These studies support the contention that these villages depend heavily on the natural resources in the area.

All the communities in the service area rely on the region for many of their needs. Special forest products and small commercial ventures contribute toward household livelihoods in northern New Mexico through both nonmarket and market strategies. Nonmarket strategies include subsistence activities for direct personal consumption and gifts. Sale of raw products and products processed into crafts comprise market uses. Special forest products increase in value when there is a financial emergency or a change in economic conditions of the household. At such times, subsistence uses can be critical and even small amounts of cash income can be very important to the household (Emery 1999).

Forest products also have important cultural and recreational values. The majority of these small rural communities were established as Spanish or Mexican “colonies.” These communities have established a cultural value of “stewardship” through many generations of interactions with the natural resources in the area. Quite often it is imperative for these residents to have a “hands on” relationship with the forest that has sustained them for generations, as it is part of their cultural identity. These communities maintain a certain degree of self-sufficiency by meeting many of their own needs through self, family and friends. Sustainability of the land and its resources is a common need.

A common thread woven through these communities is a sense of place. Few want to leave the area. For some, property has been handed down from one generation to another for centuries. Also they regard the national forest as communal land once belonging to their ancestors (deBuys 1985). For most special forest products and small commercial products there is little investment required to participate in the action. Thus activities such as firewood and latilla gathering have become important recreational and subsistence activities in these communities (Eastman and Gray 1987). Additionally, their relationship with the land takes on an intrinsic spiritual value that is passed on to succeeding generations.

The primary influences on the local economy are recreation and tourism (service sector), and agriculture (ranching, small produce farming and miscellaneous forest products). Many of the residents commute to larger commercial centers for employment opportunities in manufacturing, construction, retail and government sectors. The per capita income for Taos County in 2000 (\$16,103) was 93.2 percent of the state average. Rio Arriba County per capita income in 2000 (\$14,268) was only 82.6 percent of the average and one of the lowest in the state. The Mesa Vista Consolidated Schools covers almost all the service area. In 1997, 37 percent of school age children in the district were living below the poverty threshold (Census Bureau 1997).

Environmental Consequences

As discussed previously, the primary social and economic issues of public concern as identified during scoping are potential effects of the proposal on visual quality and property values, the impact on public health from electronic magnetic fields, and impacts on electrical users, low income and minority populations. This assessment focuses on these issues as they help determine the scope of analysis required.

Private Property and State Lands

The evaluation of potential impacts to social and economic variables considered changes in the existing characteristic that could result from the proposed project. To evaluate potential impacts

to social and economic variables in the study area, the following evaluation criteria were developed. Potential project impacts considered include:

- The number of private or state parcels crossed by alternative (land sections or parts of sections crossed).
- The proximity of residences to the centerline of the transmission line.
- The juxtaposition of the transmission line to minority and/or low-income populations.

Geographic Information Systems (GIS) maps of the route, along with digital ortho photographs, and field visits were used to help determine the extent of the impacts. Tables 28 and 29 highlight this geographic reference analysis.

Table 28. Number of non-Federal sections or partial sections crossed by alternative and the option.

Land Status	Alternative				Option
	A	B	C	D	
Private	5	0	5	0	2
State	1	0	1	0	0

Private lands counted as sections or portions of sections crossed. These sections may be further subdivided increasing the actual number of landowners.

Table 29. Number of homes within proposed 115 kV centerline by alternative and the option.

Land Status	Alternative				Option
	A	B	C	D	
Private residences within 50 feet of centerline	8	0	8	0	0
Private residences within 50-300 feet of centerline	0	0	0	0	0

Property Values

There is a potential impact of the proposed project on the value of real estate near the route. There is no generally accepted methodology or standard analytical technique for identifying electrical transmission line property value impacts, nor is there consensus on whether such impacts occur. While no specific studies were conducted for this project, studies have been conducted since the 1950s on the effects of power lines on property values. Until recently most studies have focused on visual effects¹¹ and associated value loss. More recent research has included Electric and Magnetic Fields (EMF) and its role on property values. Research on effects of overhead transmission lines on property values have expanded over the past 20 years to include appraisal studies, attitudinal studies, and statistical analysis. Conclusion of these studies has varied widely, with some reporting no effects, others finding small effects and still others reporting substantial effects.

The available literature summarizes two types of potential adverse economic effects on property values when loss actually occurs: (1) a possible decrease in value of the property; and (2) an increase in the time required to sell property thus causing an economic loss associated with increased marketing time. Past studies have range widely from those focused on 65 kV to high voltage transmission lines, from rural agriculture lands to urban residential areas. Kroll and

Priestly (1992) note existing studies provide little evidence that the level of impact is directly related to line voltage, but state the relationship between line characteristics such as voltage, height, material of pole, etc. and the impact on property values has yet to be systematically researched.

In general, the following findings emerge from literature:

- Transmission lines have a greater potential to reduce the value of urban or residential properties over other types of properties. Many open space properties are not affected at all.
- The overall property value impact for single-family residential properties is generally cited as less than 10 percent, but in some cases has been 15 percent or more.
- Other factors (e.g., neighborhood, square footage, size, view and shape of lot) are much more likely to be major determinants of the sales price of the property.
- Effects are most likely to occur for properties crossed by or immediately adjacent to the line.
- Effects are generally greater for smaller parcels than for larger parcels.
- Effects are greatest immediately after construction but decrease over time.
- Although there is no clear consensus about impacts of EMF on humans, there is enough concern over the issue that attitudes toward this effect may impact property values.

Alternative B (Black Mesa-Cerro Azul Tap) and Alternative D (285P Tap) do not cross private lands. Alternatives A (No Action) and C (Existing Corridor) both cross private lands. Each of these alternatives is located partially in the Carson community. The Tres Piedras Connection Option crosses some undeveloped private lands.

The majority of studies on property values and transmission lines have been in urban or suburban areas. It is anticipated that the construction of a 115 kV transmission line near or crossing private property would result in a small decrease in single-family residential property values. The more important factors are the location and shape of the property and the neighborhood. The largest impact is during and after construction, but this effect is mitigated by time.

Project Costs and Employment

On a county scale, the effects of power lines and substations on existing social structures and economic activities are relatively small. Impacts to social variables related to the construction are typically minimal due to the relatively small size and short-term workforce characteristics of power line and substation construction. Table 30 illustrates the different costs and jobs associated with the alternatives. The demand for temporary housing and accommodations during construction would depend upon the workers place of residence. Given the relatively small size of the workforce and the close proximity of Taos and Espanola, it is expected that existing facilities should be able to adequately provide for temporary accommodations.

Table 30. Comparison of construction and maintenance costs by alternative and the option (SGS Witter 1999)

	Alternative				Option
	A	B	C	D	
Construction Costs					
Labor	0	658,300	1,062,800	857,100	100,000

	Alternative				Option
	A	B	C	D	
Equipment	0	167,900	271,200	218,700	25,500
Material	0	248,400	401,100	323,500	38,000
Substation	0	1,425,400	1,425,400	1,425,400	N/A
Total	0	2,500,100	3,161,400	2,825,400	163,500
Other Costs					
Estimated annual line loss	27,575	8,380	13,500	10,900	2,600
Annual maintenance	12,015	6,254	6,395	6,320	1,900

Table 31. Comparison of associated employment by alternative and the option

Jobs	Alternative				Option
	A	B	C	D	
Direct	0	30	25	28	0
Indirect	0	6	5	6	0
Induced	0	7	6	7	0
Total	0	43	36	41	0

Jobs were rounded to nearest whole position and calculated using multiplier provided by IMPLAN.

The IMPLAN model uses the county level as the smallest impact area. In this analysis, Taos County is the impact area. This is not to discount Rio Arriba County. Sources of data for this model include university research, local chambers of commerce, Department of Labor and county records. These records are collected by the IMPLAN group and distributed to the Forest Service.

The numbers generated by the IMPLAN model give an indication of the effects of an action or no action. Direct jobs are jobs related directly to the action, in this case construction of a 115 kV electrical transmission line. Indirect jobs are those jobs related indirectly to the construction and maintenance of the 115 kV line. These jobs would be a worker added in the county to help support the direct jobs. An example is a store clerk. Induced jobs are job positions that would result from the action of having the 115 kV line to Ojo Caliente in place. These are the estimated long-term jobs.

Alternative A is the status quo. There would be no change in the job market. The continued power fluctuations could contribute to a loss of positions. The IMPLAN model does not estimate the potential losses.

Alternatives B, C and D are the action alternatives. A 115 kV transmission line is constructed. The IMPLAN model estimates each of these alternatives would create within the county several jobs. Alternative B would create the most jobs, Alternative D the second highest number of jobs and Alternative C the fewest. If the Option were to be constructed, it would not generate any additional jobs. Construction would be added to whatever action alternative is chosen.

These employment numbers are estimates. It would be reasonable to assume that a portion of these jobs would be in and near the service area. However, a limited land base, low employment levels, and a majority of residents working outside their communities are all factors that limit the

number of jobs that would be created in local communities by the construction of a new 115 kV transmission line.

Dependability and Reliability

Table 32 gives information related to outages, brownouts, blinks and voltage drops all of which impact the dependability and reliability of electric power.

Table 32. Existing condition of power in the Ojo Caliente/El Rito/La Madera vicinity

Incident	Year		
	2001	2002	2003 (projected)
Outage	320	366	343
Brownouts	12	9	11
Blinks	16	10	13
Voltage Drops	14	7	11
Total power changes per year	362	392	378

Data obtained from Kit Carson Electric Cooperative, May 2003.

The current and recent past power fluctuations show some kind of change averaging at least once a day. This indicates the electric power is not dependable or reliable. Power fluctuations and even outages are the norm.

Alternative A - No Action

Alternative A would leave the landscape in its present condition. Currently the line passes within 50 feet of eight homes in the Carson area. These are the only homes within 100 feet of the existing power line. The majority of the houses along the existing distribution line were built after the line was established in the late 1940s. Homes were generally established in relationship to available private property, access to property via highway and county roads, proximity of family, and availability of resources (water, pasture lands and electricity). The No Action Alternative would require maintenance of the existing distribution line, thus residents near the current line would experience infrequent disruptions to their privacy due to maintenance crew activities. Property values, particularly residential properties, would not be altered from their current trend of increasing in value.

Under Alternative A, anticipated problems associated with reliability and marginal voltage levels for approximately 1,700 service accounts served by the existing line would continue. It would be expected that outages would occur more frequently as the system is placed under additional stress due to increases in power demands. This would be a particular problem during times of the year when electricity use peaks. The reliability of electric service would continue to deteriorate, voltage levels would become unacceptable, and curtailment of electricity to some customers may become necessary during peak loading periods. Over the past 2 years, the service area has experienced 366 outages, of which 26 outages had an average length of power disruption of over 3 hours. These disruptions have affected an average of 1,700 consumers (accounts). The costs associated with increased energy line losses would be absorbed in higher billing rates to the consumers, even though a lesser quality of service would occur. A lower quality of service would result in

possible damage to computers, electrical appliances and devices, and an increase in complaints about low voltage.

Alternative B - Black Mesa-Cerro Azul Tap

This alternative would originate from the existing 115 kV line, about 1.5 miles northeast of Black Mesa and 3 miles southwest of Cerro Azul. Over the entire length (9.6 miles) of this alternative, no homes are within 15 meters or 100 meters of the proposed location. The existing distribution line would still be needed to serve the Carson area and to provide a backup loop. Thus eight buildings in the Carson area would still be within 100 meters of the 25 kV distribution line.

As with the other action alternatives, this alternative does improve the overall delivery of electrical service to the service area. The substation in Ojo Caliente would “route” the electricity out over several circuits and distribution lines throughout the service area to increase reliability. Property values would be unlikely to be affected. This route was selected to maximize the use of existing roads. This alternative would access the Ojo Caliente substation. The existing 25 kV distribution line would be retained.

Alternative C - Existing Corridor

This alternative would originate at the existing 115 kV Hernandez to Taos transmission line on private land in the vicinity of where it crosses NM 567 near Carson. The transmission line proposed under Alternative C would pass within 50 feet of eight homes, nearly all in the Carson area. All these homes are located along the existing 25 kV line corridor. The existing 25 kV line would still be needed to serve as a distribution to homes within the Carson to Ojo Caliente areas. It would be strung under the 115 kV line as an underbuild. This transmission/distribution line would be within 50 feet of eight homes.

The majority of the houses along the existing distribution line were built after the line was established in the late 1940s. Homes were generally established in relationship to available private property, access to property via highway and county roads, proximity of family and availability of resources (water, pasture lands and electricity). The existing corridor alternative would require maintenance, thus residents near the line would experience infrequent disruptions to their privacy due to maintenance crew activities. Property values, particularly residential properties, would not be altered from their current trend of increasing in value.

The existing corridor alternative, as with all action alternatives, does improve the overall delivery of electrical service to the service area, including the Carson community. As mentioned previously, the existing distribution line would also be used to provide service to homes through the Carson to Ojo Caliente area. Demand on this line would be reduced, as the transmission line, which runs over the same route, would be used to serve a new substation in Ojo Caliente, which would “route” the electricity out over several circuits and distribution lines throughout the service area to increase reliability.

Alternative D - 285P Tap

This alternative would originate at the existing 115 kV Hernandez to Taos transmission line on National Forest System lands where it intersects Forest Road 285P. Alternative 285P Tap would consist of a 115 kV transmission line with a 25 kV distribution line underbuild on the same poles for a portion of the route. The portion would be on and near the Bureau of Land Management administered lands to the intersection of the existing line at the top of Comanche Rim. The re-

mainder of the route to the existing power line corridor to the south would consist of a 115 kV transmission line on single poles.

The Alternative D route would not be readily visible from private lands. In fact, the line would be hidden from view behind ridges and in gentle valley bottoms, except where it would cross U.S. 285 and a portion through BLM lands near Ojo Caliente. The line would only be visible on lands administered by Federal agencies, therefore, property values would unlikely be affected.

Alternative D also includes removing about 5 miles of the existing distribution line that runs along U.S. 285. Portions of the existing line that accesses private property would remain. The existing distribution line that immediately serves their property would continue to be seen from private residences.

As with all action alternatives, this alternative does improve the overall delivery of electrical service to the service area. As mentioned previously, the existing distribution line would be removed and a new 25 kV distribution line would be underbuilt on the same poles as the transmission line and would serve as a backup loop for the Ojo Caliente substation. The substation in Ojo Caliente would “route” the electricity out over several circuits and distribution lines throughout the service area to increase reliability.

Option - Tres Piedras Connection

This connection between two existing distribution lines, the 25 kV line near the junction of NM 567 and U.S. 285 and the 12.5 kV line coming south from Tres Piedras to a block of private land, would be located inside the highway right-of-way. The line would use single poles and pass along the west side of the highway for approximately 9.1 miles. This route would use a cleared and revegetated area readily accessible from the highway. There are no homes adjacent to this route; private land does exist near and under the proposed corridor. This connection would provide a power source, possibly increasing the values of private lands.

This Option would provide service through a new distribution line to residents living south of Tres Piedras along U.S. 285 who are not currently on the electrical grid. The Tres Piedras Connection would tap into the existing 25 kV distribution line in the vicinity of the microwave station just north of the intersection of NM 567 and U.S. 285. It would cross the highway to the west side and proceed north along U.S. 285 where it would cross back east of the highway to connect into the existing line that comes south from Tres Piedras along U.S. 285. This route would total 7.5 miles. With the exception of 1.5 miles through private land, this option would be on National Forest System lands.

This connection does improve the overall delivery of electrical service to the service area, Tres Piedras and points north. It also provides a link into the power grid for those who currently are not on it.

Cumulative Effects

Cumulative effects of social and economic effects for any of the alternatives and the Tres Piedras Connection are relatively small. While a reliable source of electricity makes a location, such as Ojo Caliente, attractive for business opportunities, available literature suggests reliable electricity alone does not attract new jobs to an area. However, combined with other improvements to infrastructure such as new and/or improved highways, reliable gas supply, available skilled workforce,

affordable housing and other factors, an increase in potential employment growth could occur in the area.

Property values in northern New Mexico continue to escalate at remarkable rates due to sustained economic growth at regional and national scales. Large undeveloped parcels are highly desirable as private getaways, while smaller parcels are harder to find at affordable prices due to population growth and in-migration of new residents. A large-scale recession would probably curtail some of the property value increases especially in the more rural parts of the county. Because of this trend, there is a strong likelihood certain areas in and around the service area will continue to see limited population growth.

Although the exact nature of development is impossible to determine at this time, alternatives, which create utility corridors into this area, may impact property values on developed lands while providing easier access to services such as electricity. Growth along the transmission line is more likely to be limited to “infill” as there are no large undeveloped tracts along the proposed transmission line locations. Undeveloped tracts are committed to agriculture practices or are owned by the Federal Government. The communities in the service area are landlocked. The lands surrounding the communities are mostly owned and administered by either the Forest Service or the Bureau of Land Management.