

3.7 SOCIOECONOMICS

This section describes reasonably foreseeable changes in the social or economic elements of the environment likely to materialize, directly or indirectly, via the proposed project's interrelated impacts on the natural or physical elements of the environment.

3.7.1 Environmental Setting

Analysis of socioeconomic impacts requires comparison of two scenarios of the future: one without the project and one with it, with the proposed project's impacts being the difference between the two. The scenario without the project is commonly called the expected baseline. This baseline also serves as the no action alternative as required under NEPA. This section describes the current socioeconomic conditions in the study area and the expected future conditions without the proposed project, which together constitute the baseline.

Where possible, the discussion of socioeconomic variables is tied to the six analysis zones established in this EIS over the proposed project's route. The available socioeconomic data, however, are not usually organized in a way that allows analyzing each variable by zone. Instead, the analysis is based on geopolitical boundaries for which socioeconomic data are available. In general, the potential socioeconomic impacts of the proposed project would occur proximate to its location; therefore, the study area includes the political jurisdictions—especially the counties—in which the proposed project would be located (Table 3.7-1). This is referred to as the *core study area* throughout this analysis. Variables analyzed for the core study area include population, housing, government revenue, public services and infrastructure, property values, public health and safety, and ecosystem goods and services provided by the region's natural resources.

Some impacts, however, likely would occur more broadly. To capture them, the socioeconomic study area is expanded to include the Economic Areas (EA) that represent the relevant regional markets for labor, products, and information (Johnson and Kort 2004). Each consists of an urbanized node and the economically related, surrounding counties. The proposed project traverses three EAs: in Montana, the Helena EA; and in Idaho, the Idaho Falls-Blackfoot EA and the Twin Falls EA. The counties included in the EAs in Montana and Idaho make up the *regional study area* in each state (Table 3.7-1). Variables analyzed for the regional study areas include income and employment.

Socioeconomic impacts also could materialize outside the immediate vicinity of the proposed project, defined by the core and regional study areas, to the extent that it would affect markets related to the generation, transmission, and consumption of electricity, which extend throughout the western United States.

3.7.1.1 Current Socioeconomic Setting

The socioeconomic analysis focuses on how the proposed project might affect population, income, employment, housing, public services and infrastructure, government revenues, public health and safety, ecosystem goods and services provided by the region's natural resources (including agricultural production, aesthetic resources, recreation opportunities, and quality of life), and the transmission system and electricity prices. Appendix C.7 provides more information about these variables. Unless otherwise specified, the socioeconomic data contained in this section are based on information provided in the *Socioeconomic Analysis for the Mountain States Transmission Intertie 500kV Project* (Clark 2008), which was submitted as part of *Volume II—Technical Reports, MSTI MFSA Application and Support Documents* (NorthWestern 2008a).

Table 3.7-1. Counties Included in Core and Regional Study Areas

Montana		Idaho	
Core Study Area ¹	Regional Study Area ²	Core Study Area ¹	Regional Study Area ³
Beaverhead	Core study area counties +	Bingham	Core study area counties +
Broadwater	Lewis and Clark	Blaine	Bannock
Deer Lodge	Powell	Bonneville	Bear Lake
Jefferson	Granite	Butte	Camas
Madison	Meagher	Clark	Caribou
Silver Bow	Gallatin	Jefferson	Cassia
	Park	Jerome	Custer
	Wheatland	Lincoln	Fremont
		Minidoka	Gooding
		Power	Lemhi
			Madison
			Teton
			Twin Falls

Source: ECONorthwest

1 Counties directly crossed by the alternative proposed project routes.

2 Counties included, with the core counties, in the Helena EA.

3 Counties included, with the core counties, in Idaho Falls-Blackfoot and Twin Falls EAs.

3.7.1.1.1 Population

The core study area has a total population of about 318,000 (U.S. Census Bureau, Population Division 2009). The regional study area population was almost 765,000 persons (Appendix C.7). For the period 1970 to 2008, the population of this core study area grew by almost 50 percent. Some counties within the core study area have grown rapidly, while others have grown more slowly or declined. The region's major population centers are Helena and Butte in Montana, and Idaho Falls, Pocatello, and Twin Falls in Idaho. Appendix C.7 contains information regarding recent trends in total population, population of the counties, cities, and towns in the core study area, the age distribution, and the racial and ethnic breakdown of the population in the core and regional study areas.

3.7.1.1.2 Income

Average per capita personal income in the core study area in 2006, the last year for which data are available, was almost \$30,000 (U.S. Department of Commerce, Bureau of Economic Analysis 2009). Per capita income in the regional study area in Montana, centered on Helena, was about \$32,000; in the regional study area in Idaho, centered around Idaho Falls and Twin Falls, it was about \$28,000 (U.S. Department of Commerce, Bureau of Economic Analysis 2009). Appendix C.7 contains data on recent trends in personal income and poverty levels for the core and regional study areas. It also shows the recent pattern of annual wages in the occupations that the proposed project most likely would employ directly: construction and extraction occupations, construction laborers, construction equipment operators, electricians, and cement masons and concrete finishers.

3.7.1.1.3 Employment

About 382,000 people age 16 and over were employed in some capacity in the combined Idaho and Montana regional study area in 2008, the last year for which data are available (U.S. Department of Labor, Bureau of Labor Statistics 2009a).¹ The number of employed persons increased in the area from 1990 to 2008 at an average annual rate of about 1.7 percent. The unemployment rate in the regional study area ranged from a high of 6.2 in 1992 to a low of 2.5 percent in 2007 (U.S. Department of Labor, Bureau of Labor Statistics 2009b). Since 2007, the unemployment rate has risen. Preliminary estimates for February 2010 show the unemployment rate in the regional study area has risen to 8.1 percent (U.S. Department of Labor, Bureau of Labor Statistics 2009b). Appendix C.7 provides data regarding the number of employed and unemployed persons, and the trend in the unemployment rate in the regional study area since 1990. It also shows the distribution of total employment among different industries for the regional study area.

3.7.1.1.4 Housing

The most recent, detailed data on housing for the core study area come from the 2000 Census (U.S. Census Bureau 2000d). The data show that the overall housing unit vacancy rate in the core study area was about 14 percent. Vacancy rates in rental housing were higher than in housing for sale, and varied considerably from county to county. In the Montana portion of the core study area, rental vacancy rates ranged from about 9 percent in Beaverhead and Broadwater counties to 17 percent in Deer Lodge County. In the Idaho portion, rental vacancy rates ranged from about 6 percent in Bonneville, Jerome, Jefferson, and Power counties, to almost 15 percent in Butte County.

Housing unit estimates available from the U.S. Census Bureau's Population Division (2008a) from 2000 to 2007 indicate that the overall number of housing units has grown more in the Idaho portion of the core study area than in the Montana portion. In the Montana portion, housing units have increased by only 287 units, or less than 1 percent, while in the Idaho portion, they have increased by 12,684 units, or about 15 percent. Additional data on housing vacancy rates from the U.S. Census Bureau's 2005–2007 American Community Survey (U.S. Census Bureau 2007b), which are available only statewide and for a few counties in the study area, suggest that the rental market tightened somewhat during that period throughout most of the core study area, as vacancies decreased in rental properties. Recent and ongoing weakness in the economy has generally reduced the demand for housing and curtailed housing construction, but its specific impacts on the number of units and vacancies in the core study area are not known. Appendix C.7 contains data on housing counts and vacancy rates for different types of housing for each county in the core study area.

3.7.1.1.5 Public Services and Infrastructure

Local governments and other entities provide public services, such as schools, law enforcement, fire protection, health care, municipal water infrastructure, and wastewater treatment. To assess the current availability of public services and infrastructure in the core study area, interviews were conducted with authorities in each county. The purpose of these interviews was twofold: to describe the current capacity of different organizations to provide public services, and to identify these services' ability to meet

¹ The Bureau of Labor Statistics (U.S. Department of Labor, Bureau of Labor Statistics 2008) defines employed persons as “persons 16 years and over in the civilian population who, during the reference week, did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, whether or not they were paid for the time off or were seeking other jobs.”

possible increases in demand, such as those that might accompany implementation of the proposed project, in the near future within the constraints of current capacity. The following discussion describes the general results of the interviews; Appendix C.7 provides a more detailed description.

Schools. All counties have at least one option for public education at each class level. With a couple of exceptions (in Clark and Lincoln counties in Idaho), all school districts have capacity to accommodate future population growth. Some school districts, especially those that have recently experienced declining enrollments, such as Jefferson County in Montana, have considerable capacity to provide education services in response to an increase in demand. Data were unavailable for Madison and Silver Bow counties in Montana and Blaine, Bonneville, and Minidoka counties in Idaho.

Law Enforcement. Most of the counties have sufficient capacity in their law-enforcement systems to handle increases in population in the near future. Law-enforcement departments in Silver Bow and Beaverhead counties in Montana, and in Jerome, Lincoln, and Minidoka counties in Idaho, however, are either currently understaffed or capacity for growth is limited. Data were unavailable for Jefferson and Madison counties in Montana and Bonneville County in Idaho.

Fire Protection. The responsibility for fire protection is divided among municipal fire departments, rural fire districts, and state and federal agencies. Municipal fire departments and rural fire districts are the primary responders for incidents on private land. Most of the counties rely on volunteers for fire protection, even when there are some paid firefighters on their staff. About half of the counties reported that their fire protection services would be able to accommodate future increases in population. The others estimated that they would have to increase the number of staff and vehicles to respond to an increase in the number of fire incidents. Federal agencies generally bear the costs of fire suppression efforts on federal lands, as do state agencies for state lands. The agency with jurisdiction over the area of origin for a fire tends to bear all or a share of the costs for suppression after it has spread to differing jurisdictions, based on cost-sharing agreements. While state, and particularly federal, fire suppression crews and equipment can be called upon from areas beyond the immediate region, in the short term, suppression resources can be limited. Calling upon resources that must travel long distances can have substantially higher costs.

Health Care. Most counties are served by at least one hospital, although the level of services available varies. Three counties, Jefferson in Montana and Clark and Jefferson in Idaho, do not have hospital services. Most hospitals in the core study area do not provide life-flight services but collaborate with hospitals in larger population centers to offer them when necessary. With one exception, Bingham County in Idaho, health care authorities indicated that the existing hospitals and medical centers would be able to serve an increase in population in the near future at current capacity levels. Data indicating capacity for growth were unavailable for Jefferson County in Montana and Blaine, Bonneville, and Jefferson counties in Idaho.

Municipal Water Infrastructure. Some urban areas in the core study area rely on water supplied by municipal utilities, while the majority of rural households rely on private wells for their water supply. Local officials indicated that all the Montana counties in the core study area would be able to absorb additional demands for water supply from increased population, with the exception of Jefferson County, where no data were available. The capacity to meet additional demand for water supply may be limited in Blaine and Lincoln counties in Idaho, and no data were available for Bonneville, Jefferson, and Jerome counties.

Wastewater Treatment. Some municipalities in the core study area use centralized wastewater treatment facilities, while others employ a system of sewage lagoons. Rural areas rely on individual septic tanks. All counties for which information was available indicated they would be able to accommodate an

increase in population in the near future. Data indicating capacity for growth were unavailable for Beaverhead and Jefferson counties in Montana and Bonneville, Butte, Jefferson, and Jerome counties in Idaho.

3.7.1.1.6 Government Revenues

In the Montana portion of the core study area, government revenues ranged from about \$5 million in Broadwater County to about \$60 million in Silver Bow County in 2008 (Erickson 2009). In the Idaho portion of the core study area, they ranged from less than \$1 million in Clark County to \$64 million in Bonneville County in 2006 (Idaho Department of Commerce 2008). Appendix C.7 presents the most recent information available on county revenues and expenditures for counties in the core study area.

3.7.1.1.7 Public Health and Safety

Section 3.7.1.1.5 presents an inventory of the fire protection services, law enforcement services, and the health care facilities available in the core study area, by county. Together, this information provides an indication of the overall level of capacity available to respond to medical emergencies and other health care issues throughout the core study area.

3.7.1.1.8 Ecosystem Goods and Services Provided by the Region's Natural Resources

Other sections in this EIS provide detailed information about the natural resources that the proposed project could affect, including wildlife (3.3), land use (3.6), and water and wetlands (3.12). This section is not concerned with the natural resources, per se, but with the goods and services that the resources, as elements of ecosystems, produce, thereby generating socioeconomic benefits, costs, or both. Some ecosystem goods and services have economic value when they are extracted, as when water is diverted from a stream to irrigate crops. Others have value in situ within the ecosystem, as when homeowners enjoy scenic views from their property. Appendix C.7 provides more examples of ecosystem goods and services and discusses the ways in which they provide economic value.

The discussion in this section focuses on the current status of the ecosystem's supply of a subset of goods and services most affected by the proposed project: those associated with fish and wildlife habitat, including habitat for sensitive species; the production of food for humans, as it relates to agricultural production; the production of aesthetic resources and production of spiritual, cultural, and historic resources, as they relate to the amenities that enhance recreational opportunities, contribute to property values, and improve quality of life; and the production of recreational resources.

Species and Habitat. The proposed project crosses a diverse range of habitats in Montana and Idaho, including forests, grasslands, sagebrush, shrublands, and riparian areas. An inventory of these habitats is in Section 3.10. These ecosystems support a wide range of wildlife and plants that contribute to people's economic well-being, either because they know it exists, have the option to enjoy it or see that their children enjoy it in the future, or engage in wildlife-related recreation, hunting, sightseeing, or some other direct use.

Some of the species found in the study area have received federal threatened or endangered status. Because of their scarcity, these species have a potentially greater level of economic importance than more abundant species, and their presence signals a potentially higher level of socioeconomic consequences, should they experience disturbance. Economic research has shown that people place a considerable value on the continued survival of endangered and threatened species (Richardson and Loomis 2008). Visitors to Yellowstone National Park who were surveyed in 2005 were willing to pay approximately \$20 to \$40 to support wolf reintroduction (Duffield et al. 2006). Data are not available for the other species in

the study area; however, economic research on other threatened and endangered species suggests the value is greater than zero. In addition, special management actions to protect sensitive species often create additional costs for governments, firms, and households (Wilcove and Chen 1998).

Agricultural Production. The 2007 Census of Agriculture found that about 39 percent of the land in the Montana portion of core study area is used for agriculture, as is about 31 percent in the Idaho portion (USDA NASS 2009a and 2009b). The number of farms, market value of production, and average net income per farm, however, are all considerably higher in the Idaho portion of the core study area. The 2007 Census of Agriculture also found that the average net income per farm in both the Idaho and Montana core study areas was positive in 2007, and four times higher in Idaho than in Montana. Not all farms, however, realized a positive net income. In Montana, almost two thirds of all farms had expenditures that exceeded their incomes. In Idaho, just under half of all farms had expenditures that exceeded their incomes.

The value of livestock and related products sold in 2007 exceeded the value of crops in the Montana portion of the core study area, while the reverse was true in Idaho, with the exception of Jerome and Lincoln counties. The top crop grown in each of the Montana counties in the core study area was forage to support the livestock industry. Cattle and calves are the primary livestock produced, and a great deal of the land in farms is dedicated to pasture and range. In the counties within Idaho's core study area, farmers produce a greater variety of crops, ranging from dryland forage and grain crops to higher-value irrigated crops, such as silage corn, potatoes, vegetables, and sugar beets. The primary livestock raised are cattle and calves, and the core study area contains Idaho's largest dairy production centers.

Farm acreage increased in most counties in recent years. This pattern is consistent with the establishment of hobby farms, ranchettes, and other residential housing (Swanson 2006).

Appendix C.7 contains additional information on the value of agriculture in the core study area by county, including the market value of production for crops and livestock and the average net income per farm in 2007.

Aesthetic Resources. The region is widely acclaimed for its attractive scenery, which benefits residents and tourists alike (Montana's Gold West Country 2007, Idaho Department of Commerce 2009). These aesthetic resources drive much of the recreation and tourism activity in the study area and influence the value of property (Waltert and Schlapfer 2007). They also provide benefits to residents and visitors by improving their day-to-day lives, positively contributing to their overall quality of life (Deller et al. 2001).

Recreation and Tourism. Recreation, along with travel and tourism, is an important sector of the economies of southwestern Montana and southeastern Idaho. Nonresident travelers spent about \$310 million in the Montana portion of the core study area in 2005, with the highest percentages in Beaverhead and Silver Bow counties (ITRR 2007).² Nonresident travelers spent about \$490 million in the Idaho portion of the core study area in 2004, with the highest percentages in Bonneville and Blaine counties (Global Insight and D.K. Shifflet & Associates, Ltd. 2005). The contribution of travel and tourism to the region's economy has been increasing since at least the 1980s (Grau and Bruns-Dubois 2008).

The proposed project would pass through an important corridor for recreation and tourism activities. Much of the route is widely regarded as a scenic corridor (Rand McNally 2005). The area's natural

² Nonresident expenditure totals include gas and oil; restaurants and bars; hotel, motel, and B&B; groceries and snacks; auto rental and repairs; outfitters and guides; transportation fares; licenses and entrance fees; miscellaneous services; campground and RV parks; and gambling (Institute for Tourism and Recreation Research 2007).

attractions and opportunities for outdoor recreation generate much of the visitation traffic. Outfitting and guided recreation, in particular, are important sources of revenue for some of the businesses in the study area. Recreational experiences that people enjoy within the study area—including hiking, camping, fishing, hunting, off-road vehicle driving, pleasure driving, and wildlife viewing—also contribute to individuals' economic well-being. Section 3.6 and Appendix C.7 contain additional information regarding the levels and types of recreation activity within the study area and the economic value associated with them.

Quality of Life. Many of the goods and services produced by the natural resources found in the study area contribute to the quality of life enjoyed by residents and visitors. Economists often refer to these as consumption amenities because they directly improve the well-being of people who consume them as they live, work, and visit nearby. Thus, residents are able to enjoy some of Montana's and Idaho's scenery and recreational opportunities without having to incur travel and other costs to do so. Or, if they do incur some cost—to drive to a nearby fishing spot, for example—they incur costs that are less than what they would be if they lived outside Montana. To the extent that residents derive a net economic benefit, or what economists refer to as consumer surplus, from their proximity to these amenities, this net benefit increases their overall economic well-being.

It is useful to think of the net benefit residents enjoy from living in the region as a second paycheck (Hand et al. 2008, Niemi et al. 1999). The sum of the second paycheck a family derives from living in Idaho or Montana plus the first paycheck it earns from employment serves as a good indicator of the family's overall economic well-being. Natural-resource-related amenities are important components of the region's quality of life, but not the only ones. Also important are the character of the region's communities, the strength of its schools, the feelings of neighborliness, and so forth.

The second paycheck has special economic significance whenever it is large enough to influence the location decisions of households. The contributions that scenic amenities make to the second paycheck seem especially important in the region, insofar as many residents openly say that these aspects of the quality of life in Montana are the primary reasons they live here (PPL Montana 2005). Moreover, many say that preserving these aspects of the quality of life for enjoyment by future generations is a particularly important goal.

Greenwood et al. (1991) estimated the extent to which households were willing to accept a lower income (first paycheck) to live in states with above-average levels of amenities. They found that the overall amenities of living in Montana equaled about 14 percent of residents' earnings, and in Idaho it was about 17 percent of residents' earnings.

To a considerable extent, the quality of life in Montana and Idaho is influenced by the region's landscapes. A recent national study surveyed Americans to determine their preferences regarding the protection of open space. More than 60 percent of respondents indicated that contributions to quality of life, protection of farmland, and provision of environmental benefits were important or somewhat important reasons for protecting open space (Mumford and Myszewski 2004). Many residents of Idaho and Montana have indicated strong preferences for being surrounded by open space. Between 1995 and 2006, voters in Montana approved more than \$50 million in funding for acquisition of open space and farmland (The Trust for Public Land 2009). In 2008, voters in Blaine County, Idaho, approved the expenditure of \$3.5 million on open space preservation.

3.7.1.2 Expected Future Socioeconomic Setting without the Proposed Project

This section describes expected socioeconomic conditions in the study region, absent the proposed project. It concludes with a discussion of uncertainties inherent in these expectations.

Trends and Forces Affecting Future Settings. Socioeconomic forces and trends observable in the region in recent years will generally continue for the foreseeable future. They probably will not do so monotonically, however, but in an evolutionary manner, subject to the influence of various forces and trends outside the region. Changes in population, economic activity, employment, and incomes in this region likely will occur in parallel with anticipated changes nationwide. It is also likely that socioeconomic activity in the region will become more diverse, reflecting both the diversification occurring nationally and the region's shift away from a concentration on a few industries, such as farming, mining, and tourism to a broader set of activities (Swanson 2007). The forces and trends driving this shift will include changes in consumers' preferences for more diverse goods and services and technology that allows goods and services to be developed economically in this region. Additional diversification pressure will materialize as more households choose to locate in this region to take advantage of its natural resource amenities and quality of life (Johnson and Rasker 1995).

The demands for natural resource amenities, such as aesthetically pleasing scenic vistas and outdoor recreational opportunities, will continue to increase, as these demands are sensitive to increases in household income and awareness of environmental conditions (Monchuk et al. 2005). Across the western states, areas with higher levels of natural resource amenities, such as those present in most of the study region, generally have experienced higher growth in populations and jobs, and their populations exhibit greater levels of education, income, and entrepreneurial activity (Deller et al. 2001).

Trends and forces more local in nature also may affect future socioeconomic conditions. Potential improvements in local services might make the study region more attractive relative to others and stimulate an additional influx of households. Improvements in general urban amenities, for example, might make the area more attractive to young, highly skilled workers (Florida 2000); expanded service for air transportation, for example, likely would attract more entrepreneurs to the region (Rasker and Hansen 2000). Enhanced opportunities for outdoor recreation might stimulate higher levels of tourism, and improvements in health services might increase the region's attractiveness to retirees (Doeksen et al. 1997). Conversely, perceived reductions in the area's services might have the opposite effect. Major industrial or commercial investments in or near the area might generate economic growth above what recent trends would predict; industrial closures would have the opposite effect.

Weakness in the national economy is affecting economic activity within the study region, with unemployment rising and business earnings and household incomes slowing or declining. Local economic reports suggest that the recession has been less severe and the recovery more rapid in Montana, relative to the rest of the nation (Barkey 2009). The Federal Reserve Bank of Minneapolis indicates that the economy of the region that includes Montana continued to contract through 2009, but employment is expected to increase in Montana in 2010 (Grunewald and Madden 2010). Overall, Montana is expected to weather the national recession better than rest of the nation, due, in part, to relatively strong natural resource and mining sectors (Chung and Grunewald 2009).

3.7.1.2.1 Expected Future Status of Socioeconomic Variables

Population. The populations of the core and regional study areas are expected to rise over the next few decades. Consistent with recent historical trends, Idaho's population is expected to increase more rapidly than Montana's, at an average rate of about 2 percent per year through 2030, compared to about 1 percent per year for Montana. The counties included in the core study area in both Montana and Idaho are expected to grow less rapidly than the states of Montana and Idaho as a whole.

Income. In the short term, it is unclear how the recession will affect personal income levels in the study area. The Federal Reserve Bank of Minneapolis suggests that 2009 personal income will grow modestly over 2008 levels in Montana (Grunewald and Madden 2009). The Idaho Division of Financial

Management (2009a) forecasts that personal income is expected to grow between 0.5 and 4 percent in real terms from 2010 to 2012, which is below the average pace experienced during the first part of the decade. The long-term trend in employment is expected to follow the historical trend of recent decades.

Employment. The Idaho Division of Financial Management (2009a) predicts that Idaho's unemployment rate will continue to climb after the recession ends and fall slowly; by 2011, it predicts it will still be twice what it was in 2007. Modeling conducted by the Federal Reserve Bank of Minneapolis shows that, in the region that includes Montana, employment in construction, manufacturing, and professional and business services will be hit hardest, while employment may increase modestly in education, health services, natural resources and mining, and government (Madden 2009). Similar trends are apparent in Idaho (Idaho Division of Financial Management 2009b). The long-term trend in employment is expected to follow the historical trend of recent decades.

Housing. Nationally, the decline in the housing market has been one of the driving forces of the recession. Housing prices and housing starts have fallen substantially across the country, including in Idaho and Montana, although to a lesser degree here than in many other states (Montana Building Industry Association 2008). In the short term, the number of new homes being constructed is likely to remain low, while the inventory of unsold homes is likely to remain high (Congressional Budget Office 2009). In the long term, the Idaho and Montana housing markets are both expected to recover. The Montana Building Industry Association (2008) expects Montana's housing market to begin to pick up in 2010, though it may take some time to reach the level of growth seen between 2004 and 2007. Analyses by Idaho's Division of Financial Management (2010) shows that Idaho's housing starts recovered modestly in the third quarter of 2009, and are expected to continue to grow in 2010 and 2011. Growth is expected to remain below the 2005 peak for the foreseeable future.

Public Services and Infrastructure and Government Revenues. State and local government revenues are declining because of the effects of weakness in the national economy and the housing market. In the short term, the declines likely will affect investments in public services, although federal stimulus expenditures may counteract some of these shortfalls. The Idaho Division of Financial Management (2009a) forecasts that the state's population growth is expected to slow compared to recent years, which may reduce the demand for public services in the short run. Expected growth in the population over the next several decades likely will put pressure on local governments to continue to sustain an adequate level of public services. Authorities were interviewed in the counties included in the core study area to assess the ability of existing public-service providers to meet demands of possible population growth in the near future. In general, Montana counties were better prepared than counties in Idaho to accommodate future increases in the demand of their public services. Because of the current economic conditions, short-run improvement in the capacity of these services is not likely.

Ecosystem Goods and Services

Ecosystem goods and services relate to the values provided by natural resources. They are discussed in terms of species and habitat, aesthetic amenities, recreation, quality of life, and agricultural production.

Species and Habitat, Aesthetic Amenities, Recreation, and Quality of Life. Demand for natural scenery, recreational opportunities, and similar amenities is likely to expand, as the nation's population grows and becomes wealthier, as the number of tourists rises, and as people and firms become more mobile and focused on experiencing improvements in their quality of life. Unless there is a dramatic improvement in ecological conditions or change in people's preferences, the future also will see growing demand for the protection of species and special landscapes. Better understanding of the goods and services ecosystems provide and their economic value is likely to lead to increased recognition that relying on ecosystems for these goods and services is cheaper than relying on engineered substitutes, further increasing demand for natural resource protection.

Consistent with these trends, prior to the onset of the recent economic downturn, Montana experienced moderate increases in nonresident travel of about 2 percent per year (Polzin 2008). This pattern was prevalent despite the rise in gas prices of the last few years. It is unclear whether the economic downturn and recovery will adversely affect resident or nonresident travel, although it is possible as households tighten their budgets; it is also possible that, while nonresident travel may decrease, local travel by residents may increase as people choose to recreate closer to home. Overall demand for recreation in Idaho and Montana likely will continue to increase with population, and, while demand has fallen slightly in recent years in both states for some kinds of recreation, such as hunting and fishing, demand has increased for other kinds of recreation, such as wildlife watching (U.S. Department of the Interior, Fish and Wildlife Service and U.S. Census Bureau 2008a, 2008b).

Several studies suggest that increases in temperature and a longer summer season associated with climate change are likely to increase demand for some summer recreation activities, including water sports, fishing, hiking, and camping (Richardson and Loomis 2004, Loomis and Crespi 1999). Temperature increases are also expected to shift tourism patterns toward higher latitudes and altitudes (Bigano et al. 2005).

Agricultural Production. The inflation-adjusted market value of agricultural commodities during 2007 was at or near its 30-year peak (Morehart 2009). Forecasters expect farm incomes will decline in the short term because of the recession but largely recover over the next decade. As agricultural prices were rising, the value of agricultural land also increased rapidly. In Montana, for example, the average value for an acre of agricultural land has increased by 400 percent since 1990 (USDA 2008). Nationally, after a brief stagnation, farm real estate values are expected to continue increasing at about 5 percent per year in nominal terms after 2010 (Morehart 2009) and similar increases should occur in the regional study area.

3.7.1.2.2 Uncertainties in the Expected Future Setting

To the extent that past conditions are similar to future conditions, historical trends in socioeconomic variables are likely to indicate their future state. These are unusually uncertain times, however, caused by the largest recession since the Great Depression and predicted changes in global climate that are unprecedented in recent history. The heightened uncertainty makes it far more difficult to predict future socioeconomic conditions in the study area, with or without the proposed project. Recognizing and understanding the implications of this uncertainty is essential. Moreover, the additional uncertainty itself has socioeconomic significance, insofar as most Americans prefer situations with less uncertainty over those with more. As a consequence, under current circumstances, actions that diminish uncertainty now will generate more economic benefits than they would under more certain circumstances, and those that increase uncertainty will generate additional economic costs.

Much of the uncertainty stems from the emissions of greenhouse gases and their potential effects on climate, ecosystems, and socioeconomic systems. Climate change is expected to raise temperatures and change precipitation regimes around the world, with specific changes expected within the study area (Karl, Melillo, and Peterson 2009). The prospect of climate change has prompted many proposals for changes in socioeconomic and political structures to reduce the emissions of greenhouse gases and to prepare for changes in climate that cannot be avoided. Some of the most prominent proposed changes entail imposing a tax (or something equivalent to a tax) on activities that burn coal, petroleum, or other fossil fuels. Others seek to improve the energy efficiency of household, commercial, and industrial activities, and to promote the development of technologies that generate electricity from wind and other renewable sources of energy. How these and other proposals, if enacted, would affect the local and regional economies remains unknown, but the impacts potentially could lead to substantial changes in consumer expenditure patterns and business practices (DOE, Office of Integrated Analysis and Forecasting, Energy Information Administration 2009).

Another major source of uncertainty arises from the recent economic downturn and financial crisis. Economists generally agree that the U.S. economy entered recession in December 2007, although it took a sudden turn for the worse during the last quarter of 2008 (Kaiser 2008). Some elements of the economy are no longer contracting, but others continue to do so. Forecasts vary on how long recessionary impacts will persist, and on how evenly the impacts will be spread among different regions, industries, and groups. Recent analysis by the Federal Reserve System anticipates that the nation's gross domestic product (GDP), a primary indicator of overall economic activity, will continue to grow through the next few years and eventually settle at an annual rate of 2.5 to 2.8 percent (Federal Open Market Committee 2009). The analysis also predicted the nation's unemployment rate likely would continue to rise during 2009 and then decline slowly, remaining above 9 percent in 2010, above 8 percent in 2011, and about 7 percent in 2012. In the longer term, it anticipates the unemployment rate will be about 5 percent. Although employment would recover more slowly, the analysis projects that expected growth in GDP will be accompanied by a gradual improvement in household finances and recovery in the housing sector.

3.7.2 Regulatory Setting

This section summarizes the federal and state laws and regulations that have bearing on the socioeconomic analysis. Federal management plans that guide management decisions to consider socioeconomic factors on BLM and Forest Service land are discussed in Chapter 5.

3.7.2.1 Federal Laws, Regulations, and Plans

Energy Policy Act of 2005. The Energy Policy Act, enacted by Congress in 2005, took steps to strengthen the nation's electric power grid. Congress also authorized mandatory reliability and interconnection standards, and directed the Department of Energy to conduct a nationwide study of electric transmission congestion of current systems, which was completed in August 2006. The study identified a broad range of critical geographic areas that face potentially serious challenges for ensuring reliable and cost-effective delivery of electricity. One of the congestion areas identified in the study was the Montana, Idaho, and Northwest Region (DOE 2006).

NEPA. The Council on Environmental Quality's (CEQ) regulations on implementing NEPA do not specifically dictate the provisions of an evaluation of the socioeconomic impacts of a proposed project. The regulations do state, however, that, while "the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis...an environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision" (40 CFR 1502.23).

3.7.2.2 State of Montana Laws and Regulations

MFSA. The Montana Legislature enacted the MFSA to "provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources" (75-20-102 MCA). All electrical transmission lines of 230-kV or more, and more than 10 miles in length, are regulated under MFSA. They must be reviewed and approved by the Montana DEQ before construction begins. One of the purposes of MFSA is to "ensure consideration of socioeconomic impacts" (75-20-102[5] MCA). Circular MFSA-2, which lays out the application requirements for linear facilities, specifically identifies these socioeconomic variables for inclusion in the application (MDEQ 2004b, p. 16):

1. The relationship of current land uses to economic and social activities in the area
2. Existing federal, state, and local government land use plans and other local legal restrictions affecting land uses

3. Population and demographic characteristics
4. Social structures, values, and lifestyles that may be affected by the construction and operation of the facility and identification of any sub-groups that may be differentially affected by the proposed project
5. The local economy, income characteristics, labor force participation characteristics, the availability of skilled and semi-skilled labor, prevailing wage levels, and employment and unemployment rates
6. The availability, adequacy, capacity and cost of public services, including roads, education, health, social, public safety, and sanitary services
7. Fiscal characteristics of local government and school districts, including descriptions of revenue and expenditures
8. The availability, adequacy, and capacity of housing and private sector health services

MEPA. The purpose of MEPA is to create a process to identify impacts of government decisions that could have significant effects on Montana’s human environment, which includes biological, physical, social, economic, cultural, and aesthetic resources. It provides an opportunity to inform the public of potential government decisions and allows the public an opportunity to engage in the decision-making process (Montana Legislature 2009). The law is patterned after the federal NEPA.

3.7.2.3 State of Idaho

No legislation requiring environmental review of socioeconomic impacts exists in Idaho.

3.7.3 Public Attitudes and Concerns

Expressions of the public’s attitudes toward and concerns about the socioeconomic impacts of the proposed project generally follow the pattern of those described in the professional literature and in the comments reported in the EISs for other western transmission lines (Appendix C.7 describes these general attitudes and concerns regarding transmission lines). Specifically, attitudes and concerns generally fell into two categories: expressions related to the transmission line itself and expressions related to the process public agencies and proponents use to disseminate information, respond to citizens’ concerns, and make decisions about the proposed project.

Some comments raise concerns about issues directly connected to the socioeconomic consequences of the proposed project: its impact on jobs and income, government revenues, and property values. Other comments express concern about issues related to the biophysical resources in the region and to the health of residents living near the proposed project. Some commenters raised issues related to the fairness of the process and the lack of project-related information available. All of these comments have socioeconomic importance, as they reflect commenters’ preferences and indicate that they value certain resources, outcomes of the proposed project, and/or would prefer to avoid the risk and uncertainty associated with the proposed project’s potential impacts on those resources.

Appendix C.7 contains information on public attitudes and concerns regarding potential impacts on income and employment, public services and infrastructure, government revenue, public health and safety, species and habitat, agricultural production, aesthetic resources, property values, recreation and tourism, quality of life, and the transmission system. It also contains information regarding concerns about the cumulative impacts of the proposed project and other foreseeable projects and actions, as well as concerns about the fairness of the process used to make decisions regarding the proposed project.

3.7.4 Analysis Methods

The analysis of socioeconomic impacts focuses on the variables shown in Table 3.7-2. Determining the potential impacts from the proposed project entails describing expected conditions for each variable with and without the proposed project and identifying the difference as the potential impacts reasonably attributable to it.

Table 3.7-2. Analyzed Socioeconomic Variables

Variables	
Population	Ecosystem Goods and Services
Income	Species and Habitat
Employment	Agricultural Production
Housing	Aesthetic Resources
Public Services and Infrastructure	Property Values
Government Revenue	Recreation and Tourism
Public Health and Safety	Quality of Life
Transmission System	

Source: ECONorthwest

For the purposes of this analysis, the proposed project would have a significant impact if it imposed highly uncertain or controversial effects, or unique or unknown risks, in the short term or long term, on a socioeconomic variable. The context for this analysis could be large (a regional market) or small (an individual or firm) in scale. For example, the proposed project could produce significant socioeconomic impacts if it would:

1. Induce increases or decreases in population growth or housing demand in an area, either directly or indirectly
2. Displace people or existing housing
3. Generate demand for temporary housing of construction workers that exceeds the supply of local housing, temporary lodging, or camping facilities
4. Cause a change in revenue or expenditures for local businesses, government agencies, or Indian tribes
5. Disproportionately affect minority and/or low-income populations
6. Impose disproportionate costs, risks, and uncertainties on, or have disproportionate negative impacts on, jobs, income, and related variables affecting minority or low-income groups
7. Alter the contribution of the natural environment to the social and economic requirements of present and future generations of Americans
8. Alter the economic value of use and enjoyment the American public derives from public lands
9. Alter the value of economically important goods and services society derives from the natural environment
10. Alter the level of economically important risk and uncertainty regarding future changes in the natural environment or the economy

11. Generate socioeconomic impacts or distribute them in a manner that may divide communities, cause individual resentment, and result in public debate
12. Cause wear-and-tear on public infrastructure
13. Cause a change in the type or level of service demanded of a public agency or non-governmental organization that provides fire protection, police, water, solid-waste disposal, wastewater treatment, roads, schools, or other service
14. Disrupt existing utility systems
15. Conflict with applicable land use plans and policies associated with socioeconomics, public services, or utilities
16. Alter the economic benefits or costs associated with the regional transmission system
17. Induce or deter development of other projects such as electricity generation projects and other transmission lines
18. Alter employment opportunities
19. Change the value of property near or on the right-of-way of the proposed project
20. Alter the economic benefits or costs associated with land ownership
21. Alter business activity in the regional economy
22. Alter the economic benefits or costs associated with the operations of a farm, ranch, or other business
23. Alter the demand for or supply of governmental services associated with the proposed project
24. Alter electricity prices

The impact analysis seeks to determine whether significant socioeconomic impacts likely would occur and, if so, to describe, within the limits of available information, the direction, magnitude, and timing of the impact, the group(s) affected, and risks and uncertainties associated with it. A more detailed discussion of the methods used to conduct the socioeconomic impact analysis is in Appendix C.7.

3.7.5 Impact Analysis

This section describes the proposed project's potential impacts on socioeconomic conditions and the distributional issues (i.e., the way impacts manifest across different groups, space, and time) surrounding those impacts. Unless otherwise specified, the socioeconomic data included in this section are based on information provided by Clark (2008).

3.7.5.1 Expected Cost of the Proposed Project

In 2008 NorthWestern estimated that the cost of the proposed project would total \$869.7 million. Taxes, allowances for overrun, and inflation and escalation would increase the total costs to \$1.154 billion (NorthWestern 2008). It also estimated that the initial annual costs of operation and maintenance associated with the proposed project would represent approximately 3.5 percent of the final construction capital, and escalate by 3 percent annually after the first year. NorthWestern has not updated information on construction or operation and maintenance costs that reflects the current set of alternatives or changes in the cost of construction materials or labor since 2008 (Dean 2010).

3.7.5.2 Impacts on Income and Employment

The proposed project's impacts on income and employment in the regional study area would materialize directly from the demand for workers who would be employed to work on the proposed project and indirectly from the demand for workers stemming from the project-related influx of cash spent on local goods and services. The direct and indirect³ impacts would occur during both phases of the proposed project (construction, operation, and maintenance) although the magnitude of the impacts would likely be substantially different, insofar as the project owner estimates that its operation and maintenance costs represent only 3 percent of the construction costs (Clark 2008).

The potential impacts presented here were originally modeled and described by Clark (2008) using an input-output model called IMPLAN. The data presented below were produced using cost and labor inputs required to construct a preferred route that closely corresponds to Alternatives 1B, 2B, 3B, 4A, 5A, and 6A combined. The findings would also apply to the remaining alternatives, local routing options, and different route combinations thereof because the different alternatives would have similar overall costs and labor requirements. The impacts are analyzed for study areas in Montana and Idaho that closely correspond to the regional study areas defined in Section 3.7.1. Although there are slight differences between the regional study areas used in this analysis and the study areas Clark (2008) used to model the impacts, the differences are unlikely to meaningfully affect the analysis results.

Clark (2008) predicted that employment and income impacts during the operation and maintenance phase associated with the proposed project would be minimal; therefore, they are not addressed in this EIS.

Direct Impacts on Employment. At its peak level of construction activity, the proposed project would employ approximately 303 workers. Construction activities in Montana would require 205 workers at the peak of construction, with about half of the workers employed to build the two substations at Townsend and Mill Creek and the remainder employed to build the proposed project. Construction activities in Idaho would require an estimated 98 workers at the peak of construction. Clark (2008) assumed that only 25 percent of the workforce, or 51 workers in Montana and 24 workers in Idaho, would be workers hired from the regional study area. Most of these locally hired workers would not have the specialized skills required for transmission line construction. Much of the work related to the construction of proposed project is highly specialized and workers with the required skills are not likely available in labor markets near the construction sites. Because of this, the companies that undertake this work would hire skilled personnel from throughout the U.S. or even overseas. Clark (2008) assumed that the specialized workers would comprise 75 percent of the workforce, or about 154 workers in Montana and 74 workers in Idaho, and would likely come from outside the regional study area.

The increase in employment opportunities from the proposed project likely would have an indistinguishable impact on the overall labor market in the regional study area because the number of jobs associated with the proposed project equals about one tenth of 1 percent of the total jobs in the regional study area (U.S. Department of Labor, Bureau of Labor Statistics 2009a). This region typically exhibits low unemployment rates, which indicates the regional labor market generally operates with little or no surplus labor supply.⁴ If similar conditions exist when construction is underway, the regional labor market would be able to provide few, if any, workers to fill project-related jobs without drawing the workers

³ The terms *direct* and *indirect* as used here do not refer to direct and indirect effects as defined under NEPA. Instead, this is the accepted economic terminology used in input-output analysis to describe impacts directly related to project spending and indirectly related as these amounts are re-spent throughout the economy.

⁴ Full employment, or conversely, natural rate of unemployment, is defined as the rate at which there is no excess demand or excess supply in the labor market. Currently, the natural rate of unemployment is considered to be between 4 and 5 percent (McConnell et al. 2003).

from other local jobs. The current economic downturn has increased unemployment in the region, indicating that more local workers would be available to fill project-related jobs if construction were initiated before the economy has recovered. Unemployment also has increased elsewhere, however, so the prospect of project-related jobs might attract even more workers from outside the regional labor market. Although there is some uncertainty, it is assumed that construction activities on the proposed project would employ about 75 workers from the regional study area: 51 workers on the Montana portion of proposed project and 24 workers on the Idaho portion of the proposed project (Clark 2008). The remaining 228 workers likely would come from outside the regional study area.

Direct Impacts on Income. Different wages would reflect the different skills and levels of expertise expected from local and non-local workers. Non-local workers with specialized skills are expected to earn approximately \$42 hourly, while the local workers without specialized skills are expected to receive about \$35 hourly. Appendix C.7 presents additional details on the compensation levels the local and non-local workers would receive and the total income and monetized benefits workers would receive during each year of construction. Specifically, up to 51 workers from Montana would be needed over about 32 months and would earn up to \$8.25 million in income (Appendix C.7).

The socioeconomic impacts of the wages earned by the project workers would differ based on the employees' place of residence because local and non-local workers likely would have different expenditure patterns. Clark (2008) predicted that a worker from outside of the study area would spend approximately \$120 per day in the regional study area, which would provide about \$10.8 million of total spending from workers assigned to the Montana portion of the proposed project and about \$6 million of total spending from workers assigned to the Idaho portion of the proposed project. The remaining income likely would be saved or spent outside of the regional study area. In contrast, local workers likely would spend most of their income on goods and services sold in the regional study area, which would provide about \$6.9 million from local workers assigned to the Montana portion of the proposed project and about \$3.8 million from local workers assigned to the Idaho portion of the proposed project.

Indirect Impacts on Income and Employment. Expenditures on project-related construction activities would have ripple effects on the regional economy, as workers and businesses receiving the expenditures would re-spend some of the money locally, the workers and businesses who receive that money would also re-spend some locally, and so on. It is expected that this process of spending and re-spending would not significantly alter the regional economy.

Clark (2008) estimated that, of the costs allocated for the construction of the proposed project in Montana, totaling \$550.9 million, only 6 percent, or \$33 million, would be spent in the regional study area. Of the costs allocated for the construction of the proposed project in Idaho, totaling \$283.1 million, only 7 percent, or \$18.9 million, would be spent in the study area.⁵

To estimate the overall effect from the initial expenditures and the re-spending process, Clark (2008) employed the IMPLAN model and found that project-related spending would support 248 worker-years of employment, while the re-spending of income would create another 128 worker-years in Montana. In Idaho, Clark (2008) found that project-related spending would support 183 worker-years, while the re-spending of income would create another 87 worker-years. Adjusting for the fact that many of these worker-years would be filled by extending the hours of existing workers, rather than by hiring new

⁵ These costs include construction costs and costs associated with environmental permitting, engineering, procurement, project management, and construction management. They exclude costs associated with the purchase of the right-of-way, taxes, allowances for overrun, and inflation (Clark 2008). Consequently, they differ from the costs reported in Section 3.7.5.1.

employees, Clark (2008) found that the spending related to the proposed project likely would create only 208 additional jobs at the peak of construction: 140 in Montana and 68 in Idaho.

These estimates probably overstate the impacts on the regional economy, however, because they fail to account for adjustments in the economy that would tend to lessen the proposed project's overall impact. These adjustments might materialize, for example, if work on this proposed project were to displace work that otherwise would have occurred on another project in Montana. Such adjustments probably would occur more often if the economy were operating at full employment; they are less likely to materialize if construction of the proposed project were to occur before the economy recovers fully from the current recession. There is a potential that local workers in Montana could be lured from their existing jobs toward higher paying transmission line construction jobs on the proposed project, affecting the job mix in the area, but any effect would be small. LROs and route alternatives are unlikely to produce meaningful differences in impacts on income and employment associated with the proposed project. To the extent that a final route chosen is longer or shorter in mileage than NorthWestern's proposed action, total direct and indirect income could be slightly affected, but not total employment.

3.7.5.3 Impact on Population

The proposed project may potentially impact the population in the regional study area in three ways:

- The influx of non-local workers working on project-related construction activities may temporarily increase the population of the communities where they would reside for the duration of the construction phase of the proposed project.
- Jobs created by initial local expenditures on the proposed project plus local re-spending of income derived from the expenditures may draw workers to the regional study area from elsewhere.
- Changes in the flow of ecosystem goods and services resulting from the proposed project may influence the housing location decisions of some households inside and outside of the regional study area.

The first two potential impacts, which would materialize primarily in the short term, would occur throughout the regional study area, reflecting the regional nature of the affected labor and retail markets. The third potential impact, which might materialize in both the short and long term, would have more localized effects on population: the proposed project could, for example, have site-specific impacts on the locational decisions of some households.

At their peak, construction activities are expected to attract 228 non-local workers to the region, about 154 to work on the Montana portion of the proposed project and 74 to work on the Idaho portion. The number of new workers attracted to the region could be greater than this if some of the positions Clark (2008) assumed would go to local workers are filled with non-local workers instead. Should any of these workers bring dependents with them, the short-term increase in population would be somewhat greater. These population impacts would be temporary and localized to the communities immediately surrounding the proposed project construction activities.

Additional population increases may occur in response to the demand for labor that the proposed project would generate as workers and businesses spend and re-spend income derived from project-related expenditures. Clark (2008) found that project-related spending and re-spending may create up to an additional 208 jobs at peak of the construction phase: 140 in Montana and 68 in Idaho. These job openings likely would attract some workers and, perhaps, their families, to the area. These population impacts would be dispersed throughout the regional study area coinciding with the construction activities of the proposed project but likely to remain after the proposed project ends. Clark (2008) assumed, based

on historical trends, that the average household of non-local workers relocating to Montana would have 1.5 members and the average household relocating to Idaho would have two members. If these assumptions prove correct, then the spending and re-spending of project-related income could induce up to about 210 people to move to the Montana regional study area and 136 to the Idaho regional study area. The actual permanent population impact is likely to be much smaller, as some households that initially relocate to the region decide to leave after construction of the proposed project ends.

Clark (2008) predicted that during the operation phase, the proposed project-related employment levels and expenditures would not generate distinguishable changes in the population of the study area; accordingly, they receive no further attention.

The proposed project's potential impact on ecosystem goods and services could have a negative effect on the population of the regional study area because it could make the area less attractive to households seeking amenities unimpeded by transmission lines. Such an effect could arise if, for example, households decided that they do not want to reside on properties where they perceive that the proposed project has a negative impact on visual aesthetics or creates a health hazard. Negative impacts on population also could occur, for example, if the proposed project were to interfere with business profitability, such as agricultural operations, sufficient to induce the operator to relocate. Some of these households may relocate to other residences within the regional study area, minimizing the offsetting impact on the regional population, while others may relocate outside the area. LROs and route alternatives are unlikely to produce meaningful differences in impacts on population associated with the proposed project.

3.7.5.4 Impact on Housing

Changes the proposed project would marginally increase the demand for housing in the regional study area in the long term. Some workers undoubtedly would settle in the region's larger population centers, which are part of the regional study area, but their potential impact on housing in those areas likely would be indistinguishable from other factors that influence the housing market. The total number of non-local workers plus the number of people expected to relocate to the regional study area for jobs created through project-related expenditures represents less than one tenth of 1 percent of the population in the regional study area. Therefore, the regional impact on housing in the long term likely is insignificant.

During the construction phase, workers who come to the area to work on the proposed project would increase demand for temporary housing, such as rental housing, hotel/motel, or RV parking. These demands would be greatest in the population centers closest to the proposed project route, and likely would rise during periods of higher demand, such as during the summer travel season, when workers may displace customary users of temporary housing.

Housing demands would differ between those working to construct substations and those working to construct the proposed project. Those working on the proposed project's substations would be stationary for the duration of construction activities, while those working on the transmission line likely would move as the project advances. Thus, non-local workers assigned to substations may opt for rental housing, while non-local workers assigned to the transmission line itself might opt for the most temporary housing options, such as an RV, that would allow them to move with the construction activities. Demand for temporary lodging options may also come from local workers who reside in the regional study area, but who live too far away from the work site to commute every day. During the operation and maintenance phase, the proposed project's low level of employment and limited impact on population is anticipated to have insubstantial impacts on housing.

The impacts on housing described below are analyzed in the core study area for each zone. Although impacts may vary somewhat depending on the combination of alternatives selected, local routing options

are unlikely to produce meaningful differences in impacts. The assumptions in the following paragraphs related to the types of demand (i.e., for rental housing, hotel/motel, or RV parking) come from Clark (2008).

Zone 1. Construction activities in Zone 1 would involve work on the transmission line and two substations. They would have different schedules and demands for workers, which would translate into different demands for housing. Workers employed to build the two substations would be stationary for far longer than workers employed to install the transmission towers and lines and likely would demand more permanent housing options, such as apartments.

Clark (2008) estimated that 103 workers would be employed at the peak of the construction phase for the substations in Townsend and Mill Creek. Given the evidence indicating that about 75 percent of the workers would be non-local, approximately 77 construction workers may seek rental housing near the substation sites. The two proposed substations in Zone 1 would be built in Broadwater County, near Townsend, and in Deer Lodge County, near Anaconda. The vacancy rates for rental housing units in the four counties included in Zone 1 exceed the statewide average. The 2000 Census found that Broadwater County had about 1,420 rental housing units and 9 percent of rental units were vacant, and Deer Lodge County had about 3,060 units and a rental vacancy rate of approximately 17 percent. The corresponding numbers for the neighboring counties were 3,160 rental units and a vacancy rate of 12.5 percent in Jefferson County, and 10,480 units and 12.6 percent vacancy in Silver Bow County (U.S. Census Bureau 2000d). Assuming the rental availability has not changed significantly since these data were collected, construction activities on the substations would be unlikely to produce significant impacts on housing in Zone 1.

Workers employed to construct the proposed project likely would seek more temporary housing options, such as hotels/motels, weekly rentals, or RV parking. Clark (2008) found that, for work locations within a reasonable commuting distance from Butte, substantial hotel/motel accommodations would be available. Several hotels/motels in or near Anaconda may also have capacity. South of Townsend, there are fewer options, possibly requiring non-local workers to commute from the Helena area, about 50 miles to the north. Demand for temporary accommodations in Zone 1 may displace customary users of some hotels/motels, RV parks, and campgrounds near the proposed project work sites in Zone 1, especially during the peak summer recreation season.

Zone 2. The non-local workers employed to construct the transmission line in Zone 2 would need temporary housing, such as hotels/motels or RV parking, rather than rental units. Few lodging options appear to be available for non-local workers. Some workers engaged in the construction of Alternatives 2A, 2B, or 2D may find accommodations near Melrose, where at least nine RV sites are available. Workers employed to work on Alternatives 2C and 2E may find lodging in Silver Star, where one campground has 13 sites available from April through October, or in Twin Bridges, where one motel has 12 rooms with one to five beds in each room. Alternatively, non-local workers involved in construction on Alternatives 2A, 2B, or 2D may find more lodging available within commuting distance in Butte or Anaconda, to the north, or in Dillon, to the south, while non-local employees working on Alternatives 2C or 2E may have to commute north to Whitehall or south to Dillon for more accommodation options. Demand for temporary accommodations in Zone 2 may displace customary users of some hotels/motels, RV parks, and campgrounds near the proposed project work sites in Zone 2, especially during the peak summer recreation season.

Zone 3. The non-local workers employed to construct the transmission line in Zone 3 would have a few choices in hotels/motels or RV parks. These are mainly around Dillon, in Beaverhead County. The same lodging opportunities may also attract workers who reside in the study area but who live too far to commute to the work site every day. As is the case in Zone 2, because the work on the proposed project in

this zone is related to the transmission line construction, the likelihood that the incoming workers would seek housing other than at a hotel/motel or RV park is small.

Clark (2008) found that the Dillon area may have to support approximately 70 workers at the peak of construction. Dillon and surrounding areas may not have enough excess capacity to support all of these workers. As a result, workers may have to double up in hotel or motel rooms, find temporary housing in rooms offered for rent on residential properties, or make the 65-mile commute to and from Butte. In addition, demand for temporary accommodations in Zone 3 may displace customary users of some hotels/motels, RV parks, and campgrounds near the proposed project work sites, especially during the peak summer recreation season.

Zone 4. The non-local workers employed to construct the transmission line in Zone 4 would have a few choices in hotels/motels and RV parks. Spencer, Idaho, one of the few populated areas in Zone 4, has 12 RV sites and camping spaces and no hotels/motels. It is unlikely that these camping spaces would be sufficient to accommodate the 74 non-local workers and any additional local workers from elsewhere in the study area for whom the work site would be out of commuting range. These lodging options would be insufficient, even if the workers would be dispersed along the transmission line route. Thus, most of the workers involved in the construction of this alternative would probably have to commute to other areas with more amenities. Dubois, in Clark County is a 20-minute commute to the Montana-Idaho border on I-15 and likely would accommodate many workers. Clark (2008) found that Dubois and its surrounding area have an excess capacity of 270 housing units, including 65 RV sites and campsites. Idaho Falls, in Bonneville County, is a little more than an hour south of the Montana-Idaho border on I-15 and would also be an option should the accommodations available in Dubois reach full occupancy. Demand for temporary accommodations in Zone 4 may displace customary users of some hotels/motels, RV parks, and campgrounds near the proposed project work sites, especially during the peak summer recreation season.

Zone 5. The non-local workers employed to construct the transmission line in Zone 5 would have a variety of choices for lodging. The main cities are Dubois, in Clark County, and Idaho Falls, in Bonneville County. Clark (2008) found that Dubois and its surrounding area have an excess capacity of 270 housing units, including 65 RV sites and campsites. During the peak of the summer season, however, this excess capacity may diminish and workers may have to double up on hotel rooms or campers, or find other accommodations. Idaho Falls has more capacity to meet increased demand of temporary housing. The city has more than 20 hotels/motels, with at least 10 offering rates under \$100 per night. This capacity may diminish during the peak summer season, but it is unlikely to fill up completely over an extended period.

Zone 6. The non-local workers employed to construct the transmission line in Zone 6 would have a variety of lodging opportunities, including 42 RV sites and campsites in Aberdeen, 116 RV campsites and 3 small hotels with a 55-unit capacity in American Falls, 4 hotels in Rupert, 37 RV campsites and at least one hotel with more than 200 rooms in Burley, and 25 RV campsites and 200 hotel/motel rooms in Jerome (Clark 2008). It is likely that the available capacity would decrease during the peak summer season, when hotels/motels and campgrounds are usually at or near full occupancy. In these cases, workers looking for lodging may have to look further for accommodations and increase their commute time. Alternatively, workers may displace customary users of the area's hotels/motels, RV parks, and campgrounds.

3.7.5.5 Impacts on Public Services and Infrastructure

The proposed project could increase the demand for some public services such as law enforcement, emergency response, and fire protection to the extent that it precipitates fire incidents, accidents and

injuries, spills of oil or other hazardous materials, theft of construction material, or vandalism. Impacts would primarily occur during the proposed project's construction phase, although some issues, such as increased risk of vandalism, accidents and injuries, and wildfire damage, may produce impacts to local law enforcement, emergency response, and fire protection services as long as the proposed project is present on the landscape. The MDEQ's Draft Environmental Specifications, the USFS's *Record of Decision (ROD) for the Designation of Section 368 Energy Corridors on National Forest System Land in 10 Western States* (USFS 2009), and BLM's *Approved Resource Management Plan Amendments/ROD for Designation of Energy Corridors on Bureau of Land Management Administered Lands in 11 Western States* (BLM 2009) require the project owner to notify agencies of construction activities and develop safety plans and plans for dealing with hazardous materials, spills, and wildfire (Appendix B.4). To the extent that the project owner implements these mitigation measures, it would minimize impacts to and demands on public services and infrastructure.

Accessibility to the proposed project would influence the degree to which public service providers would be able to respond to emergencies. Locations with lower quality access to the highway system may slow down the service providers' response time and, thus, increase the proposed project's impact on public services. Alternatives 1A, 1B, 1D, 2C, 2D, 2E, 3A, 3C, 5A, 5B, 5D, and 6A are located in areas that are not easily accessible by major highways and therefore would require longer response times and may produce greater impacts to public services because emergency services may be more limited in responding to other emergencies while addressing project-related issues.

The impacts on public fire protection services, in particular, are magnified when the proposed project crosses public land. When public lands are structure-free or bear only low-value structures, land managers have more options for controlling suppression costs and firefighter exposure than when high-value structures are in a wildfire's path. Point protection from wildfire for privately owned structures on public lands—such as radio and television antennae, cellular towers, and transmission lines—can demand large shares of suppression resources, particularly when suppression efforts to protect them require making a stand somewhere other than a naturally defensible position, such as a ridgeline (ECONorthwest 2009). The costs of fire suppression on public land can range to the tens or even hundreds of millions of dollars per fire, and federal suppression costs have grown over recent decades to more than \$2 billion in 2008 (ECONorthwest 2009). As existing trends and forecasts suggest fire prevalence will increase in Montana and Idaho, higher costs likely will be realized in the coming years (McKenzie et al. 2004). The alternative routes that have been proposed on public lands, where no other valuable structures already exist, likely would increase the federal costs of fire suppression if a fire were to occur in these areas.

Guidance for firefighters near transmission lines instructs them to take measures to protect the lines and warns of numerous additional hazards and constraints on suppression activities (Pacific Gas and Electric 2008). Hazards arise from the potential for smoke to conduct electrical charges to the ground, starting new fires, as well as to fighters, vehicles, or metal objects, causing risk of electrical shock (these effects are discussed in Section 3.5). Transmission lines make movement of vehicles and equipment difficult if it requires crossing under lines. Lines also discourage aerial drops of fire suppression chemicals suppression to prevent damage to transmission lines. Multiple fires in Southern California in 2007 were ignited by downed power lines from high winds, as well as a 1999 fire in Northern California ignited by a tree falling onto a transmission line that resulted in a \$15 million settlement from the utility (Boxall 2009).

NorthWestern has indicated that it prefers that its lines and structures are protected from fire and outages caused by fire. It does not have an in-house or private fire protection staff and relies on fire protection services from existing agencies and districts, but it has, in the past, worked with agencies to aid in fire management (Dean 2010). Fire managers in the project area expressed some expectation that transmission lines likely would not force them to alter suppression efforts, and access roads might even prove beneficial, by providing firebreaks and increasing access (Mallet 2009). It is unclear whether public fire

managers would actually be able to allow fires to burn near transmission lines. Past experience shows that political and commercial pressure can lead to diversion and use of fire resources in the event of a fire near valuable infrastructure (ECONorthwest 2009).

The proposed project is expected to have an insignificant impact on population, and thus, insignificant impacts on schools, water supply, and wastewater treatment in the communities in the core study area.

3.7.5.6 Impact on Government Revenue

The proposed project would potentially impact government revenue in several ways, some positive and some negative. The largest overall effect on government revenues would come from the property taxes assessed on the proposed project's built capital. In some cases, smaller changes in sales taxes (in Idaho, as Montana has no general sales tax) and income taxes would occur associated with the proposed project's local acquisitions and with in-state payrolls resulting from the project. These smaller changes are noted, but are not specifically calculated. The proposed project may also trigger some taxpayers to pay less. In Montana, for example, this may occur for some agricultural landowners who have project-related infrastructure and easements on their land. While it is also possible (though unlikely and not expected) that some landowners may experience a reduction in the value of their property that results in a reduction in their property taxes, these changes in government revenues are highly speculative and are not addressed in this EIS. The impact on government revenue is discussed separately for Montana and Idaho below.

Impacts on Government Revenue in Montana. The built capital associated with the proposed project would alter the basis for property taxes in the counties that it crosses. Based on the value of the infrastructure located within the taxing jurisdictions of each county, the owners of the proposed project would be responsible for paying property taxes on their real property and improvements. The amount of the property tax payments would depend on the extent to which the proposed project would be located on private lands and on the levies local governments impose on the properties in those areas. Depending on the combination of alternative routes selected, property tax payments on the new line and related infrastructure would amount to \$21.1 to \$40.4 million in the first full year of operation, and would remain at similar levels every year for the life of the proposed project (Table 3.7-3).⁶ Annual depreciation of the proposed project improvements could diminish these payments gradually, but factors, such as transmission rates, energy prices, interest rates, maintenance and upgrades, probably would contribute to the future taxable assessed value. This means that, in general, the transmission line would tend to retain its value close to that of the initial investment and decline more slowly than other forms of built capital (Dodds 2009). These revenues could provide substantial benefits to the counties along the route over the active life of the proposed project. Annual tax revenue would go in part to the state general fund, local school districts, local and county governments, potentially to tribal governments, and to special accounts. Appendix C.7 presents a detailed breakdown of costs, taxable value, and the mill rates used to calculate expected annual property taxes.

The potential property taxes calculated in this analysis rest on the assumption that the proposed project would be subject to the section of the Montana Code Annotated (MCA) that defines transmission lines as Class 9 property (15-6-141 MCA). The tax basis for Class 9 properties is 12 percent of their market value, to which each county applies its own mill levy rate. This taxable amount could be lower if the proposed project were to qualify for tax breaks the Montana legislature enacted in 2007 for transmission lines that

⁶ The property taxes in Table 3.7-3 are calculated based on estimates of the cost to construct the transmission line and substations. The actual property taxes will be based on the Montana Department of Revenue's annual determination of the project's current market value, which likely will differ somewhat from these values. (Dodds 2009).

carry energy produced from sources with zero or reduced carbon dioxide emissions. Under this law, the assessed value of the proposed project would be assessed at 3 percent rather than at 12 percent if certain rigorous conditions were met (15-6-157 MCA). Furthermore, should the proposed project also qualify for an abatement of property tax liability under Section 15-24-3111 MCA, the taxable value would be half of the assessed value for up to the first 19 years of its operation. These possible tax incentives offered to owners of transmission lines in Montana indicate that the actual property taxes for which the owners of the proposed project would be responsible may be significantly lower than those calculated here. An analysis of the financial implications for these tax breaks was not conducted because it is unclear at this time whether the proposed project would qualify for them.

In the counties included in the Montana core study area, the 2008 mill rates ranged from \$378.81 per \$1,000 of taxable value in Madison County to \$741.92 per \$1,000 of taxable value in Deer Lodge County (Montana Department of Revenue 2009). These mill rates represent the average rural taxes paid in the six counties and include taxes levied by the state, county, local and countywide schools, fire districts, and other jurisdictions. Rural mill levies were employed because the proposed alternatives of the proposed project traverse mostly rural and undeveloped areas (Dodds 2009). City mill levies would be charged in addition to the rural mill levies whenever the transmission line may cross an urban area. It is expected that these levies would be low compared to the rural levies because the proposed project crosses few urban zones and the city levies are considerably smaller than the rural taxes. These tax rates change annually and are influenced by total taxable value in a taxing jurisdiction. This would imply that the additional taxable value from the transmission line may result in lower levies for other taxpayers in the counties included in the study area.

Montana does not have a sales tax, except on limited tourist items, such as lodging. Any sales tax that counties would collect from the spending of wages on items covered by the sales tax, both during the construction phase and during the operation and maintenance phase of the proposed project, would have an unsubstantial effect on the governmental revenues of each county in the Montana portion of the core study area. Income from in-state employment on the proposed project or employment created in response to project-related expenditures would be subject to state income taxes. Other taxes may be paid by the owners of the proposed project, such as the Wholesale Electricity Tax, Corp tax and any other local taxes. All federal taxes resulting from the proposed project would go to the U.S. Treasury. The effects of these other taxes are not addressed in this EIS.

A portion of the increased government revenues from the proposed project may, if the proposed project meets certain requirements, be offset by tax exemptions for which some landowners may qualify under Section 15-6-229, MCA. An exemption from property taxes is allowed “for land that is within 660 feet on either side of the midpoint of a transmission line right-of-way or easement.” This exemption does not apply, however, to incorporated or unincorporated cities or towns; platted and filed subdivisions; or to land designated as residential, commercial, or industrial. In general, the tax exemption applies to non-developed agricultural land. This exemption would be available starting in 2014, the first full tax year after the proposed project is completed. Exemptions are directly proportional to the amount of agricultural land crossed and range from almost \$11,000 for Alternative 1C to just over \$5,000 for Alternatives 2D and 2E (Table 3.7-4).

Impacts on Government Revenue in Idaho. The fiscal impacts of the tax payments associated with the proposed project in Idaho would materialize primarily in the form of changes in property taxes. Depending on the alternative, the property tax payments would amount to \$3.5 to \$3.6 million in the first full year of operation and would remain at similar levels every year for the life of the proposed project

Table 3.7-3. Expected Annual Property Taxes (\$) Associated with the Proposed Project, by Alternative and County in Montana

Zone	Alternative	Core Study Area County						Expected Annual Property Taxes
		Beaverhead	Broadwater	Deer Lodge	Jefferson	Madison	Silver Bow	
1	1A	—	8,954,845	12,911,795	3,189,361	—	536,741	25,592,742
	1B	—	9,247,306	11,550,989	2,891,196	—	2,731,039	26,420,529
	1C	—	9,950,535	11,647,774	2,785,575	—	2,309,082	26,692,966
	1D	—	9,247,306	—	2,408,622	—	—	11,655,928
2	2A	2,010,643	—	555,734	—	—	3,148,167	5,714,544
	2B	1,981,118	—	555,734	—	—	3,148,167	5,685,019
	2C	1,194,023	—	555,734	1,316,264	1,530,752	3,056,849	7,653,622
	2D	2,153,846	—	1,038,307	—	—	3,167,367	6,359,521
	2E	1,194,023	—	—	833,690	1,530,752	325,810	3,884,275
3	3A	6,052,727	—	—	—	—	—	6,052,727
	3B	5,628,032	—	—	—	—	—	5,628,032
	3C	6,034,436	—	—	—	—	—	6,034,436

Source: ECONorthwest, with data from Appendix B.3 and Montana Department of Revenue (2009)

(Table 3.7-5).⁷ Appendix C.7 presents a detailed breakdown of costs, taxable value, and the tax rates used to calculate expected annual property taxes. These tax impacts were calculated by applying the individual county’s property tax rates to the estimated costs of construction per mile (Appendix B.3). During the operation and maintenance phase, these values would be subject to depreciation, which would likely lower the assessed value of the line, though at much slower rates than other built capital, because of the factors discussed above in the corresponding section for Montana. The Idaho State Tax Commission (2008) estimates annual property tax rates for each county by type of area, urban or rural. The calculations reflect tax rates estimated by the Tax Commission for 2008 in rural areas because the proposed project is not expected to cross any urban areas in Idaho (Table 3.7-5).

Table 3.7-4. Potential Property Tax Exemptions (\$) in 2014 Associated with the Proposed Project, by Alternative and County in Montana

Zone	Alternative	Core Study Area County						Expected Annual Property Taxes Waived
		Beaverhead	Broadwater	Deer Lodge	Jefferson	Madison	Silver Bow	
1	1A	0	2,726	3,396	3,609	0	190	9,920
	1B	0	2,972	784	3,103	0	966	7,825
	1C	0	4,207	1,661	4,042	0	827	10,737
	1D	0	2,972	0	2,616	0	0	5,588
2	2A	2,923	0	784	0	0	1,778	5,484
	2B	3,037	0	784	0	0	1,778	5,598
	2C	1,358	0	784	1,339	2,917	1,084	7,482
	2D	2,570	0	1,324	0	0	1,353	5,246
	2E	1,358	0	0	852	2,917	33	5,160
3	3A	7,905	0	0	0	0	0	7,905
	3B	7,136	0	0	0	0	0	7,136
	3C	6,934	0	0	0	0	0	6,934

Source: ECONorthwest, with data from Appendix B.3 and Montana Department of Revenue (2009)

The actual tax-related impacts of the proposed project on Idaho county revenues are not straightforward because the State of Idaho limits the amount by which annual revenues from property taxes can increase in each county. Thus, the expected annual property taxes estimated here (Table 3.7-5) may not indicate the actual amount of additional revenue a local county would receive from the proposed project, because the increased revenue from the proposed project could allow counties to reduce property tax rates overall.

Sales and use taxes would also increase in Idaho as a result of project-related expenditures in the counties included in the core study area. The counties would not be the sole beneficiary of these taxes, however, because the state would collect and redistribute them, under a complex formula, throughout the state. Income from in-state employment on the proposed project or employment created in response to project-

⁷ The property taxes in Table 3.7-5 are calculated based on estimates of the cost to construct the transmission line and substations. The actual property taxes will be based on the proposed project’s actual assessed value, which likely will differ somewhat from these values.

related expenditures would be subject to state income taxes. These revenues also would be directed to the state government, which would reallocate them to public services or projects throughout the state. These impacts on government revenue are not addressed in this EIS.

Table 3.7-5. Expected Annual Property Tax Impacts (\$) Associated with the Proposed Project by County and Alternative in Idaho

County	Alternative					
	4A	5A	5B	5C	5D	6A
Bingham	—	394,823	755,369	876,172	750,829	48,203
Blaine	—	—	—	—	—	116,396
Bonneville	—	—	124,679	188,485	124,679	—
Butte	—	729,286	43,341	—	—	—
Clark	204,974	407,181	174,201	174,201	174,201	—
Jefferson	—	34,389	514,077	423,794	514,077	—
Jerome	—	—	—	—	—	320,757
Lincoln	—	—	—	—	—	439,750
Minidoka	—	—	—	—	—	152,278
Power	—	—	—	—	—	630,010
Expected Annual Property Taxes	204,974	1,565,679	1,611,667	1,662,652	1,563,786	1,707,393

Source: ECONorthwest, with data from Appendix B.3 and Idaho State Tax Commission (2008)

3.7.5.7 Impacts on Public Health and Safety

The proposed project’s potential impacts on public health and safety would have socioeconomic consequences that materialize through two mechanisms: (1) by reducing the economic well-being⁸ of those who perceive risks associated with the exposure to electromagnetic fields (EMF), and (2) by imposing costs associated with actual bodily harm caused by the construction, operation, and maintenance of the proposed project. Although some variation in impact may occur from alternative to alternative, the impacts on public health and safety likely would be similar regardless of the combination of alternatives selected. Local routing options are unlikely to produce different impacts than those described below. A detailed analysis of potential health and human safety issues associated with the proposed project are in Section 3.5.

Impacts of Perceived Risk of Exposure to EMFs. Most people in the U.S. are continually exposed to EMFs because they are present wherever electricity flows: around appliances and other electric devices at home, in offices, and schools, and around power lines. Numerous health studies have tried to determine

⁸ The economic concept of well-being expressed here reflects the idea that the purpose of economic activity is to increase the well-being of the individuals who make up the society, and each individual is the best judge of how well off he or she is in a given situation. An individual’s economic well-being depends not only on his or her consumption of private goods and services, but also on the consumption of quantities and qualities of nonmarket goods and services, including those that flow from the ecosystem. Examples include health, visual amenities, and recreation opportunities. Changes in economic value derive from the changes in individual well-being (Freeman 2003). The terms *economic well-being* and *economic welfare* are used interchangeably throughout this section.

the health risks from exposure to these EMFs but few have yielded conclusive results (von Winterfeldt et al. 2004, Neutra et al. 2002, Florig 1992). The literature review presented in Section 3.5 finds that the association between electromagnetic fields and adverse health effects is weak and research is continuing; this creates uncertainty about a potential risk. Most people in the U.S. typically dislike uncertainty and risk—in economic terms, they are risk averse. For this reason, activities that increase uncertainties lead to diminished economic welfare; conversely, activities that reduce uncertainty lead to improvements in economic welfare (Samuelson and Nordhaus 2005, p. 209).

The magnitude of the reduction in economic welfare from perceived risks to human health associated with the proposed project is difficult to quantify. Slovic (1991) reports that people's expressed preferences on the willingness to accept a certain risk depend on the perceived benefits of the source of the risk, as well as on characteristics such as familiarity, control, catastrophic potential, equity, and level of knowledge of the risk. People generally see hazards that are voluntary and controllable as more acceptable than hazards that are more uncertain, uncontrollable, and unobservable. Slovic (1991) categorized specific sources of risk according to these factors. Exposure to electricmagnetic fields tended to be less observable and more unknown and more uncontrollable, involuntary, and inequitable to those exposed. This indicates that, when all other factors are equal, people would have a higher preference for avoiding the risks associated with the proposed project, relative to many other sources of risk. This impact may diminish over time as people become more familiar with the proposed project and knowledgeable of the scientific evidence about the risks associated with exposure to EMFs.

Impacts on Safety. Construction and maintenance workers employed on transmission lines face multiple sources of injury and death, from electrocutions, falling from elevation, and falling objects. The National Institute for Occupational Safety and Health named transmission line workers as a high-risk occupational group, based on the rate of workplace deaths (Bahr and Stallcup 2003). Data from the U.S. Bureau of Labor Statistics shows the rates and number of injury and illness for workers classified as Electric Powerline Installers and Repairers ranged from 4.4 to 5.2 injury cases per 100 full-time workers for 2003–2007 (Table 3.7-6).⁹

Between 2003 and 2007, the most common injuries for workers employed in the industrial sub-group that BLS classifies as Electric Power Transmission, Control, and Distribution, were sprains and strains (60 to 80 percent of the total injury and illness cases) and bruises and contusions (7 to 10 percent). The most common causes of injury or illness were overexertion (30 to 37 percent of the total injury and illness cases), contact with equipment and other objects (25 and 33 percent of the total cases), and falls (12 to 20 percent of the total cases) (U.S. Department of Labor, Bureau of Labor Statistics 2009e). At the peak employment for the proposed project there would be approximately 300 workers. If these national rates of injury and illness apply to these workers, they would experience about 13 to 16 injuries and 1 to 3 illnesses per year. The rate of injury and illness would be proportionately less for years when the proposed project would have fewer employees.

⁹ Electric Powerline Installers and Repairers (49-9051) is an occupational classification that includes workers in the following BLS-designated industries: Electric Power Generation, Transmission, and Distribution; Utility System Construction; Local Government; Building Equipment Contractors; and Natural Gas Distribution. In 2008, employment in Electric Power Generation, Transmission, and Distribution made up 46 percent of all employment in Electric Powerline Installers and Repairers (U.S. Department of Labor, Bureau of Labor Statistics 2009c).

Table 3.7-6. Rates and Incidence of Injury and Illness for Electric Power Line Installers and Repairers

Year	Rate of Injury Cases per 100 Full-Time Workers	Number of Injury Cases (thousands)	Rate of Illness Cases per 10,000 Full-Time Workers	Number of Illness Cases (thousands)
2003	4.5	7.3	44.4	0.7
2004	5.2	8.4	100.2	1.6
2005	4.6	7.4	51.4	0.8
2006	4.4	7.0	39.1	0.6
2007	4.5	7.3	39.6	0.6

Source: U.S. Department of Labor, Bureau of Labor Statistics (2009f)

Between 2003 and 2007, fatality rates among workers who installed and repaired electric power lines fluctuated between 11 and 20 per 100,000 workers (U.S. Department of Labor, Bureau of Labor Statistics 2009g). These rates, applied to the number of workers employed on the proposed project, indicate that there would be a 3 to 6 percent probability of a death on the job during the year of peak construction employment. Current estimates by the EPA indicate that the economic value of this fatality risk is approximately \$207,000 to \$414,000 (Borenstein 2008). The risk and value would be proportionately lower for years with lower employment. Values derived from the EPA's estimates may understate the value of fatality risk, as some researchers argue for higher values associated with risks of occupational fatalities (Guruia et al. 2005).

The lines and structures of the proposed project may contribute to other accidents. For instance, crop-duster aircraft and other types of planes may get entangled in the overhead lines, RV operators and automobiles may crash into the towers or guy wires. Data are unavailable on the casualty and fatality rates of these incidences, but they would likely be very low.

3.7.5.8 Impacts on the Value of Ecosystem Goods and Services

Appendix C.7 presents a framework for understanding how biophysical impacts of the proposed project that diminish the ecosystem's ability to provide goods and services can affect the socioeconomic well-being of the region's residents and visitors to the area. This section describes and, where sufficient data are available, provides information on the direction, magnitude, and timing of the proposed project's potential socioeconomic impacts related to its effects on ecosystem goods and services provided by the region's natural resources.

The main social costs from this line, unlike the benefits, would be concentrated along the proposed project's route and, thus, would be localized. Farmers would incur costs from the proposed project where it crosses farmland. There would likely be lesser costs per structure to rangeland than to farming because the productivity of the land is lower, but the proposed project would cross substantially more miles of rangeland. Values derived from wildlife species and their habitat, recreational opportunities, and aesthetic resources could also be adversely affected. Certain landowners have expressed strong concern over their personal uses of the land, destruction of the existing viewshed, and property values. Impacts to some affected landowners would likely be large in terms of stress, foregone use of land, potential property value reduction, and potential loss of income. The greatest impact would occur to landowners on the right-of-way, with lesser impacts to landowners adjacent to right-of-way.

Impacts on the Value Derived from Species and Habitat. Section 3.3 discusses the impacts of the proposed project on wildlife and their habitat. It found that adverse impacts to wildlife would include direct mortality, habitat loss and fragmentation, disturbance and displacement of individual animals, and interference with behavioral activities. For most wildlife, however, impacts would be limited to structural avoidance, loss of wintering areas, and disturbance from construction and increased human access along new access roads.

Adverse impacts to wildlife species impose socioeconomic costs on society through several mechanisms:

- Reduced economic well-being of people throughout Montana, Idaho, and the rest of the country, who care about the continued survival of the affected wildlife, including sensitive, threatened, and endangered species in the study area (a value economists refer to as existence value).
- Increased management costs for federal, state, and local agencies to monitor the effects of the proposed project on sensitive, threatened, and endangered species, which would impact the taxpayers of Montana, Idaho, and the nation as a whole.
- Reduced economic well-being of recreationists who engage in activities that depend on or are enhanced by the presence of certain species. Hunting, angling, and wildlife watching are most likely to be directly affected, while other activities such as hiking and scenic and pleasure driving may also be affected. These potential impacts are discussed in greater detail below.

The socioeconomic impact related to reductions in the economic well-being of people who care about the continued survival of existing threatened and endangered species within the study area is likely to be minimal, as it is understood that the proposed project's impact on threatened and endangered species would likely be insignificant (Section 3.3). Should the proposed project have unexpected impacts on the viability of populations of threatened and endangered species found in the study area, however, significant socioeconomic consequences could arise.

Impacts on the Value Derived from Greater Sage-grouse. The greater sage-grouse, a bird species that nests among sagebrush, is found in both the Montana and Idaho study areas of the proposed project. It is considered a species of concern by the U.S. Fish and Wildlife Service and is under consideration for federal listing under the Endangered Species Act.

Occupied sage-grouse habitat is in all project zones in varying amounts along most alternatives. There is considerable variation in impacts to sage-grouse between route alternatives; a discussion of these impacts is provided in Section 3.3. Determining the expected socioeconomic impact of lost sage-grouse habitat is not feasible with available data, but economic studies suggest that preservation of threatened and endangered species holds values equal to or greater than those associated with other land uses (Richardson and Loomis 2008).

Impacts on Agricultural Production. The proposed project would affect agricultural production in each of the six zones within the study area, although the magnitude and extent and socioeconomic importance of the impact would vary, with the greatest impacts occurring where the proposed project would interfere with the production of higher-value crops, such as potatoes and sugar beets.

Impact on Livestock Production. The proposed project could affect the economic value of livestock production in the study area by increasing producers' costs and reducing their profits. Livestock production and cropping activities that support livestock production are the primary agricultural uses of land throughout the Montana study area. The proposed project also could interfere with livestock production in Idaho, but the overall impact on agriculture probably would look different, because agricultural production in Idaho concentrates less on cattle and more on dairy production and crops

unrelated to livestock. The proposed project could reduce the net earnings from livestock production as follows:

- Increased management costs associated with controlling invasive species and weeds in rangeland and pastures, introduced through project-related construction activities and right-of-way corridors
- Decreased forage from land taken out of production
- Increased or decreased management costs associated livestock management, depending on whether structures and new roads impose barriers or improve access to grazing areas

The proposed project is expected to increase the forage available to livestock in some areas where timber is cleared from right-of-way corridors. To the extent that this allows livestock producers to increase herd sizes or reduce the amount of feed they must purchase, it could increase their net earnings or offset some of the other costs the proposed project could impose. For a detailed discussion of the effects of the proposed project on forage for livestock, see Section 3.10.

Section 3.10 reports the acres in public and private grazing land (grasslands, shrublands, and sagebrush) in Idaho and Montana that would be permanently impacted by the proposed project. In this case, permanent impacts represent land conversion or degradation of vegetation that would not recover within 50 years. The acres of grazing land permanently affected represents the conversion from grazing lands to roads and structure footprints (Table 3.7-7). The acres reflect the largest potential footprint of the structures that would be used for the proposed project and so likely represent an overestimate of the impact to grazing land (Section 3.10). Some of these acres may continue to provide some value to livestock production after the installation of the proposed project (though at somewhat reduced forage levels) because cows commonly occupy the area within the footprint of transmission tower structures. This would also contribute to overestimating the impact (Table 3.7-7). The data in Table 3.7-7 indicate that the extent of the proposed project's annual impact to livestock production in Montana and Idaho would be limited, but would be greatest for Alternatives 1A, 2C, 2E, 3B, 3C, 5A, 5B, 5D, and 6A. The actual value of the impact may differ somewhat from the values reported in Table 3.7-7, as that actual value would reflect the actual reduction in the market value of specific parcels of grazing land impacted, which would depend on the actual footprint of the towers on the grazing land and the quality and quantity of the forage lost.

Another category of potential impact on livestock production relates to the effects of EMFs on livestock, which was reported as a concern during scoping (PBS&J 2009). The Human Health and Safety discussion (Section 3.5) found no effect from EMFs on domestic animals grazing near transmission lines in the studies it reviewed. Although studies have found that impacts to livestock production are unlikely, some farmers and ranchers may still perceive a risk to their livestock's well-being, which may result in a reduction in their economic welfare. The magnitude of the reduction in economic welfare is difficult to quantify because each individual affected by the proposed project may ascribe a different value of avoiding the risk and uncertainty.

Impact on Apiary Production. Apiary operators and beekeepers may experience increased management costs and lost production from the proposed project's impacts on apiaries. Some research shows that transmission lines affect bees, causing them to leave their hives and engage in aggressive behavior (Bindokas et al. 1988). Up to seven apiaries are located within 1,000 feet of the proposed project alternatives in Montana and may be impacted by the project (Section 3.6). The MDEQ, in its environmental specifications, stipulates that the project owner must work with apiary owners to modify or move the apiaries to minimize the impacts on hives (Specification 1.1.10; Appendix B.4). This could offset some of the impacts of the proposed project on apiaries.

Table 3.7-7. Acres of Grazing Land Permanently Affected by the Proposed Project and Annual Value of Impact in Montana and Idaho

Zone	Alternative	Acres Permanently Impacted	Annual Value of Impact (\$2009)
1	1A	262	1,467
	1B	135	756
	1C	49	274
	1D	117	655
2	2A	41	230
	2B	38	213
	2C	173	969
	2D	141	790
	2E	164	918
3	3A	158	885
	3B	197	1,103
	3C	253	1,417
4	4A	47	423
5	5A	180	1,620
	5B	160	1,440
	5C	84	756
	5D	129	1,161
6	6A	349	3,141

Source: Section 3.10 of this EIS and USDA 2010

Impact on Agricultural Crop Production. The proposed project could affect the economic value of crop production in the study area by increasing farmers’ costs and reducing their profits. The proposed project could increase costs and reduce revenues for farm operators as follows:

- Remove land from agricultural production that is dedicated for transmission towers, access roads, and other proposed project-related uses
- Increase irrigation costs if the proposed project causes farmers to modify their irrigation systems to work around transmission towers or increase the amount of labor required to move irrigation equipment around transmission towers
- Reduce the net earnings from land converted from the production of irrigated crops to the production of dryland crops because of the proposed project’s interference with irrigation systems
- Decrease productivity and increase costs of labor and field machinery—thus reducing the efficiency of farming— because farmers must negotiate around transmission towers and deal with disruptions in GPS systems on farming equipment
- Increase the management costs and reduce the net earnings from cropland split by proposed project-related rights-of-way
- Increase the risk of accidents, including collisions of land vehicles with towers and guide wires, and collisions of crop-duster aircraft with towers and overhead lines

- Increase management costs associated with controlling invasive species and weeds in croplands introduced through proposed project-related construction and maintenance activities and access roads
- Increase the costs of herbicide and pesticide spraying and potentially reduce the coverage of aerial applications
- Reduce the productivity and increase the costs associated with compacted agricultural soils, damage to drain tiles, and erosion resulting from proposed project-related disturbances

The magnitude of the impacts to agricultural operations would depend on the design and location of the transmission line and access roads and their interaction with specific types of farming. The proposed project would cross irrigated and non-irrigated cropland in Montana and Idaho. The land that would fall under transmission towers would be removed from agricultural production (Table 3.7-8). The proposed project would employ several different types of structures that have footprints that range from 0.013 acres per mile for self-supporting steel tubular structures (at six structures per mile) to 2.1 acres per mile for self-supporting steel lattice structures (at four structures per mile) (Chapter 2). The corresponding acreages that would be temporarily disturbed during construction range from 3.4 to 5.3 acres per mile. Alternative 4A is the only alternative that does not impact any acres of cropland. Alternative 1C impacts the greatest acreage of both irrigated and non-irrigated cropland in Montana. Alternative 5C impacts the greatest acreage of irrigated cropland in Idaho.

The economic value of the impact to cropland arises from the annual value of lost production and increased operating costs. Cropland rents reflect the value of agriculture production for a piece of land. In Montana, annual cropland rents in 2009 were estimated at \$77 per acre for irrigated cropland and \$20 for non-irrigated cropland (USDA NASS 2010). Annual cropland rents in Idaho in 2009 were \$128 per acre for irrigated cropland and \$41 per acre for non-irrigated cropland. Applying these numbers, it is possible to calculate the annual value of lost agricultural production from land occupied by the proposed project's structures (Column 3 of Table 3.7-9). The impact is limited for all alternative routes, but greatest for Alternative 5C because of the higher number of acres of irrigated land that would be affected.

Increased operating costs arise from structures placed on the interior or edge of a field. A detailed analysis calculated the impact on agricultural production for an EIS for a proposed transmission line project in north-central Montana (Hydro Solutions, Inc. 2008). It found that farmers incur costs from labor and materials required to control weeds around each footing of a structure and inefficiencies that arise from maneuvering equipment such as combines around structures. Costs are minimized when structures are placed at the edge of fields but do not disappear entirely. To estimate the annual value of increased operating costs for the proposed project, the costs that were relevant to the production of wild hay and irrigated and non-irrigated forage crops were applied to the acres affected by the proposed project, reported in Table 3.7-8. The range of costs represents the costs for one-pole structures and four-pole structures and whether the structure is placed on the edge of the field or on its interior.

These costs represent estimates of the actual increase in operating costs agricultural producers affected by the proposed project could experience. They would differ somewhat from the reported amounts to the extent that the land characteristics and farming practices differ from those studied in north-central Montana. They also do not reflect increases in operational costs that occur when the proposed project interacts with the infrastructure required for some types of irrigation, especially center-pivot irrigation. In some cases, particularly if the proposed project requires a farmer to invest in new irrigation equipment or switch from irrigated to dryland agriculture, the proposed project may increase a farmer's operational costs more—perhaps substantially more—than the values reported in Table 3.7-9. It is possible that some of these costs could be offset by tax breaks or a one-time payment to landowners for the easement right-of-way, which MDEQ specifies as mitigation (Specification 2.1.7; Appendix B.4).

These costs do not reflect the additional stress and safety issues agricultural producers may experience related to the transmission line and structures. These factors may add to the proposed project's impact on agricultural producers by reducing their overall economic well-being.

Table 3.7-8. Miles of Transmission Line that Would Cross Cropland and Acres of Cropland Potentially Taken out of Production Permanently by the Proposed Project

Zone	Alternative	Miles of Irrigated Cropland Crossed	Miles of Non-irrigated Cropland Crossed	Acres of Irrigated Cropland Affected	Acres of Non-Irrigated Cropland Affected
1	1A	1.9	0	<0.0–3.9	0
	1B	1.1	0.7	<0.0–2.3	<0.0–1.6
	1C	2.2	4.3	<0.0–4.6	0.1–8.9
	1D	1.1	0.6	<0.0–2.3	<0.0–1.3
2	2A	1.6	0.1	<0.0–3.4	<0.0–0.3
	2B	1.8	0.1	<0.0–3.8	<0.0–0.3
	2C	0.1	0.2	<0.0–0.2	<0.0–0.4
	2D	0.4	0.1	<0.0–0.8	<0.0–0.2
	2E	0.1	0.1	<0.0–0.2	<0.0–0.3
3	3A	1.7	0.1	<0.0–3.6	<0.0–0.3
	3B	1.3	0	<0.0–2.8	0
	3C	0.5	0	<0.0–1.0	0
4	4A	0	0	0	0
5	5A	0.7	0.1	<0.0–1.5	<0.0–0.2
	5B	6.0	0.6	0.1–12.6	<0.0–1.2
	5C	36.6	0	0.5–76.9	0
	5D	12.1	2.9	0.2–25.5	<0.0–6.2
6	6A	3.4	0	<0.0–7.2	0

Source: ECONorthwest

Note: 0 indicates no acres; <0.0 indicates less than one tenth of an acre affected

Table 3.7-9. Annual Value of Lost Agricultural Production and Increased Operating Costs for Irrigated and Non-Irrigated Cropland (\$2009)

Zone	Alternative	Annual Value of Lost Production	Annual Value of Increased Operating Costs
1	1A	2–303	238–2,060
	1B	1–208	235–2,028
	1C	3–533	820–7,087
	1D	1–203	219–1,891
2	2A	2–263	219–1,893
	2B	2–294	243–2,104
	2C	<1–21	36–308
	2D	<1–62	60–516
	2E	<1–19	28–244
3	3A	2–279	232–2,002
	3B	1–218	171–1,481
	3C	<1–81	63–549
4	4A	0	0
5	5A	1–204	106–912
	5B	10–1,667	840–7,256
	5C	61–9,843	4,661–40,282
	5D	22–3,514	1,918–16,574
6	6A	6–919	435–3,762

Source: ECONorthwest, with data from USDA NASS 2010 and Hydro Solutions, Inc., and Fehringer Agricultural Consulting, Inc. 2008

Impact on the Value Derived from Aesthetic Resources. The proposed project would impact aesthetic resources in all six zones within the study area. This could affect individual’s economic well-being, change property values, recreation and tourism expenditures, and other expenditures and values related to the general perception of the region’s aesthetic beauty. Surveys and travel literature developed for the region indicate that people prize its high-quality views and pastoral, natural landscapes (Montana’s Gold West Country 2007, Idaho Department of Commerce 2009). To the extent that the transmission line diminishes residents’ and visitors’ perceptions of the region’s natural beauty, it could adversely impact the value associated with the aesthetic resources in the study area. These impacts could manifest themselves in several ways:

- Through reduced economic well-being of people viewing the region’s scenery while traveling on the region’s roads and highways
- Through reduced economic well-being of people viewing the region’s scenery from a stationary point, such as a scenic viewpoint, a home, a workplace, a picnic area, or other location
- Through lower expenditures and tax payments associated with fewer people choosing to permanently locate in the affected areas of the study area, choosing instead properties or communities elsewhere that remain unaffected by transmission lines

- Through lower expenditures associated with fewer people choosing to visit the study area, choosing other locations instead
- Through reduced property values because of the presence of the proposed project on or near a residential or commercial property

Impacts on the Value of Property Derived from Aesthetic Resources. Analyses of the impacts of transmission lines on visual resources typically focus on the effects on amenity values from stationary points such as private residences and businesses (see e.g., Priestly 1992). Section 3.11 provides counts of residences within 3 miles of each alternative. The count of residences provides insight into the relative and absolute impact of alternatives on property values and aesthetic resources for residents. Thus, aesthetic impacts on property would vary over the different route alternatives including LROs. Most importantly, different landowners would be affected by different route alternatives. Also, fewer or more landowners would be affected depending on the miles of private and public land crossed per route alternative.

The proposed project could affect the value of these nearby properties through several mechanisms. Its impacts on visual aesthetics might lower the demand for and value of properties that otherwise would look out on a notable scenic vista. Reductions in demand and value also could materialize for properties sufficiently close to the line that it would trigger concerns associated with health impacts from exposure to EMFs or from noise and light pollution from the towers and other electric infrastructure. Temporary impacts on property values could occur during the construction phase because of disturbance from construction activities. Similar permanent impacts could occur because of disturbance from maintenance vehicles and unauthorized use of the roads built for the transmission line.

The research on the property value impacts of transmission lines shows that when a new transmission line is introduced into an area, the value of nearby properties often does not change, but, in certain circumstances, can increase or decrease. Some studies suggest that, when they occur, the property value impacts diminish over time as people begin to perceive the line as part of the existing landscape (Hamilton and Schwann 1995). The impacts on the market value of residential properties typically range from a small increase in value (Des Rosiers 2002) to a small reduction, up to 10 percent (Colwell and Foley 1979; Colwell 1990; Hamilton and Schwann 1995; and Cowger et al. 1996). In situations where the transmission line has direct and significant effects on visual quality (i.e., transmission towers are situated in proximity to and visible from structures), studies have documented reductions in value of 20 percent for homes on the upper price range of the market in a suburb of Montreal (Des Rosiers 2002).

It is important to note that the property value studies looked at different-sized high voltage lines, including some lines that are smaller than the proposed project. The studies also looked at landscapes and housing developments that are different from what the proposed project would cross. Thus, the impacts on property values found in these studies might have been higher had all the lines studied been similar-sized lines located on similar landscapes. Overall, however, the expected impacts of the proposed project on nearby residential property values likely would be consistent with the findings summarized in Appendix C.7. The impact could be large for some individual landowners, by either reducing property values or making property more difficult to sell.

Kroll and Priestly (1992) note that none of the property value studies they reviewed take into account the full costs of a new transmission line on property owners. Most studies miss impacts on individuals' economic well-being associated with the property, but not reflected in market prices, such as sentimental value for a particular view, feature, or landscape diminished or destroyed by the line (Furby et al. 1988). These impacts could affect property owners whose land the proposed project crosses and property owners nearby or within view of the proposed project.

Few studies address the impacts on the value of commercial and industrial properties (Kroll and Priestly 1992), but they generally find the impacts are less than the impacts on residential properties. In interviews with appraisers, real estate brokers, and owners and managers of industrial parks, Chapman (2005) found little difference in market prices for commercial and industrial properties with transmission lines nearby compared to those without.

The proposed project may increase the value of some adjacent properties. This outcome might occur if it were to increase the quality or quantity of goods and services provided by the property. Increases may occur, for example, if the proposed project cleared obstructions and provided better views of the landscape from cleared easements or if easements provided a natural buffer against future development, or enhanced recreational access or wildlife viewing opportunities. Property values may also increase if a cleared right-of-way or new road were to provide better access to parts of the property.

There could be short-term disruptions to landowners during construction and occasional maintenance including road/traffic issues, soil compaction, and noxious weed issues which may cause some financial hardship. Mitigation would minimize impacts to landowners from operations and maintenance.

Impacts on the Value Derived from Scenic Views. Transmission lines also have the potential to adversely affect the experience of drivers enjoying the region's scenic roadside views. The economic importance of effects of the proposed project to travelers depends upon both the demand for visual amenities and the impact of the proposed project on the quality and supply of visual amenities. The various proposed transmission line alternatives associated with the proposed project would (1) sometimes run parallel at visible distance from roads and highways, (2) sometimes perpendicularly cross roads and highways, and (3) sometimes run out of sight of roads and highways. The first two situations may have economic impacts for travelers who enjoy the region's aesthetic amenities, with the greatest impact likely coming from the proposed alternatives that run close to roads and highways in areas where the existing visual amenities are most attractive. In some areas, especially in Zones 1, 2, and 3, the proposed project would be partially or completely obscured from the road by trees, resulting in smaller visual impacts. In other areas, especially where vegetation is lower to the ground and sparser (Zones 4, 5, and 6), it is likely they would be in plain view from the road, resulting in larger visual impacts. The visual impacts would be long term, and the magnitude of the impacts would depend on individuals' preferences for unobstructed views.

Based on hours of visual impact for travelers on an annual basis, the proposed project would be most heavily viewed in Zone 1, and particularly along Alternative 1C (Table 3.7-10). Alternative 2C represents the highest potential viewing from the highway in Zone 2, and Alternative 3B would be the highest viewed in Zone 3. Alternatives 5B and 5D in Zone 5 would have the greatest impact in Zone 5. This analysis is detailed in Appendix C.7. Portions of the proposed project that intersect with highways would also be visible to highway travelers but are not included in the numbers presented in this analysis. Impacts would vary slightly for several of the local routing options: LRO6-2 (South of Butte 1) on Alternatives 1C and 2C would move the proposed project closer to the highway for several miles, increasing impacts for highway travelers. LRO16-3c (Clark Canyon East) and LRO17-2 (Lima) in Zone 3 would move the proposed project further from the highway for approximately 10 miles in each case, reducing visual impacts for highway travelers. These numbers are only rough estimates and may underestimate or overestimate the actual amount of time travelers would be affected by the proposed project's impacts on visual aesthetics.

Economic data are not available to quantify the value of the impact of the proposed project on most travelers in the study area. The impacts specific to drivers engaging in scenic driving as a recreational activity, which some economic studies have addressed (Loomis 2005), is presented in more detail below. The absence of economic information does not necessarily mean that the value of the impact is zero.

Research findings suggest the direction of the impact for most travelers would be negative (representing an economic cost), and the magnitude of the impact would likely vary from person to person, depending on their individual preference for high-quality aesthetic amenities (Appendix C.7).

Impacts on the Value Derived from Recreation and Tourism. The natural resources and scenic vistas found within the study area draw people to enjoy the high-quality recreational opportunities they support: hunting, angling, wildlife watching, hiking, and scenic driving are among the activities documented in the study area. The number of people enjoying these opportunities, and the value they place on their desired experiences, have risen over the last few decades. They are likely to continue to increase as the population grows and the supply of high-quality recreation in the region becomes scarcer.

Table 3.7-10. Hours of Visual Impact for Highway Travelers per Year, by Alternative

Zone	Alternative	Total Annual Viewing Hours
1	1A	17,578
	1B	1,158,116
	1C	2,473,833
	1D	681,105
2	2A	371,301
	2B	553,509
	2C	639,437
	2D	272,348
	2E	162,426
3	3A	56,955
	3B	495,582
	3C	457,179
4	4A	78,840
5	5A	37,264
	5B	62,668
	5C	54,626
	5D	62,668
6	6A	50,538

Source: ECONorthwest

The proposed project would produce impacts on the value derived from recreation throughout all six analysis zones. The impacts on the socioeconomic value of recreation and tourism from the proposed project's construction and operation could manifest themselves primarily through two mechanisms: (1) changes in the quantity of available recreational opportunities within the study area, and (2) changes in the quality of recreation opportunities within the study area. Should the proposed project adversely affect the quantity of recreation opportunities, it could cause people to recreate outside the study area, potentially altering the recreation-related expenditures and associated jobs and incomes within the study area. The proposed project is unlikely to permanently reduce the quantity of recreation opportunities currently available in the study area, but construction activities could reduce the quantity in some areas on a temporary basis (Section 3.6). To the extent the proposed project increases the quantity of recreation opportunities by improving access through new or upgraded roads, it may attract additional people to

recreate in the study area and increase the recreation-related expenditures and associated jobs and incomes within the study area.¹⁰ Should the proposed project adversely affect the quality of recreational opportunities—by diminishing views, increasing congestion, or intruding on a recreationist’s experience of nature, for example—it could reduce the economic welfare recreationists derive from the area’s recreational resources.

Economic data are not available to quantify the value of the impact of the proposed project on recreationists in the study area. The absence of economic information does not necessarily mean, however, that the value of the impact is zero. The following sections present research findings that suggest the direction of the impact for some recreationists would be negative (representing an economic cost), although improved access created by the proposed access roads may have a positive impact for some recreationists. The magnitude of the impact would likely vary from person to person, depending on their individual preference for high-quality aesthetic amenities, ease of access, and outdoor recreational experiences free of artificial intrusions.

Impact on the Overall Quantity of Recreation. The proposed project’s impacts on the quantity of recreation are likely limited, but it could (1) temporarily constrain the supply of existing recreational opportunities and (2) improve access—and potentially the quantity of recreational opportunities available—in some areas for some activities. Construction activities have the potential to temporarily close or restrict access to existing recreation facilities. Depending on the duration, season, location, and type of recreation facility, these temporary impacts could be minimal or considerable. Detailed information or construction plans do not exist in sufficient detail to determine the extent of this impact at this time. In some affected areas, development of the proposed project could preclude realization of some recreational opportunities dependent on absence of the infrastructure, roads, and activities associated with the project.

Impact on the Overall Quality of Recreation. Construction and operation of the proposed project may adversely affect the quality of some existing recreation opportunities within the study area on both a temporary and permanent basis (Table 3.7-11). These impacts are discussed in Section 3.11.

Depending on the proximity to existing recreation areas, the popularity of those areas, and the degree of perceived visual impact, the proposed project could reduce the value recreationists place on their experience, reducing the economic benefits associated with a particular recreation activity. Reductions in economic well-being associated with reductions in the quality of a recreational experience are well documented (Jakus and Shaw 1997, Siderilis et al. 2000) but are likely to vary in magnitude from person to person, and place to place depending on each individual’s preference for undisturbed natural settings, the availability and quality of substitutes, and other factors. If the quality of certain recreation experiences diminishes enough, some people may decide to recreate outside the region, altering the level of recreation-related expenditures and jobs in the region.

Impact on Scenic and Pleasure Driving. Scenic driving is a major recreational activity in the study area. Some of the roads in the study area are officially designated as scenic byways or corridors by federal and state scenic byway programs or marked as scenic by mapping companies such as Rand McNally (2005). The proposed project likely would diminish the economic value associated with scenic and pleasure driving in the study area. The impact would be greatest for Alternative 5A, where the proposed project would intersect with the Sacajawea Historic Byway in Zone 5 and parts of Alternatives 4A, 5A, 5B, 5C,

¹⁰ Even if new or upgraded roads on public lands are closed to public access, recreational users can violate access restrictions, and access restrictions may not preclude all recreational uses. New access routes through public lands may increase the economic well-being of recreationists, even if the use of such roads is not legally permissible.

and 5D, where it would run parallel to and intersect with the Lost Gold Trails Loop Scenic Byway in Zones 4 and 5 (Table 3.7-11).

On the Sacajawea Historic Byway, an average of 560 vehicles per day pass the junction of State Highway 22 on the Byway, approximately where Link 19 (Alternative 5A) of the proposed project would cross the road (Planmakers and J-U-B Engineers 2007). Based on an average occupancy of 1.6 people per car, approximately 325,000 travelers per year would encounter the proposed project.

Table 3.7-11. Visual Impacts on Recreational Resources

Recreational Resource Affected	Alternative(s) and Local Routing Options
Trails	
Lewis and Clark National Historic Trail	1A, 1B, 1C, 1D, 3A, 3B, 3C
Radersburg Off-Road Vehicle Trailhead	1A
Continental Divide National Scenic Trail	1B, 1C, 2A, 2B, 4A
Nez Perce National Historic Trail	4A, 5A
Goodale's Cutoff Trail	5A, 5B, 5C, 5D
Fishing Access Sites and Fisheries	
Missouri River Class I Fishery	1A, 1B, 1C, 1D
Maidenrock Fishing Access Site (Big Hole River)	2A, 2B, 2D
Notch Bottom Fishing Access Site (Big Hole River)	2E
Beaverhead River Recreation Areas	3B, 3C
Clark Canyon Reservoir	3A, 3B, 3C
Scenic Byways	
Lost Gold Trails Loop Idaho Scenic Byway	4A, 5A, 5B, 5C, 5D
Sacajawea Idaho Scenic Byway	5A
Other Recreation Sites	
Elkhorn Area of Critical Environmental Concern	1A, 1B, 1D
Boulder River Area Campgrounds (Whitehorse CG)	1A
Homestake Pass Recreation Area	1B, 1C
Fairmont Hot Springs Resort	1B, 2D
Fleecer Mountain Game Management Area	2D
Humbug Spires Wilderness Study Area	2D
Henneberry Ridge Wilderness Study Area	3A
Clark Canyon State Recreation Area	3A
Hell's Half Acre Wilderness Study Area	5B, 5C, 5D
Cedar Butte Wilderness Study Area	5A, 5B

Source: Section 3.11 of this EIS

An undetermined number of those travelers would be driving for the recreational purpose of taking in the scenery. The average net economic benefit associated with pleasure driving on public lands in the intermountain region is \$78 per user per day, in 2008 dollars (Loomis 2005). Assuming all of the vehicles that traverse State Highway 22 are purposely following the scenic byway for recreational purposes, the

economic value people ascribe to their experience, associated with the Sacajawea Historic Byway, would be around \$25 million per year. The actual value is likely somewhat lower than this amount because some travelers follow the route for other purposes. By crossing the scenic byway, the proposed project would reduce the quality of the experience for some recreational travelers, thus reducing the economic benefits they derive from the experience by some amount. Data are unavailable to determine how much the economic value is likely to diminish. Given that the proposed project would intersect, rather than follow, the scenic byway, the views of the proposed project are likely to be brief, and, thus, the impact is likely smaller than it would be if the proposed project paralleled the highway. Planning documents for the area recognize that transmission lines may have an adverse effect: the Sacajawea Historic Byway Corridor Management Plan (Planmakers and J-U-B Engineers 2007) specifically directs that “future installation of additional power lines along the byway should be minimized,” and when they must be installed, they should be buried underground or disguised with vegetation.

Similar vehicle traffic estimates are unavailable for the Lost Gold Trails Loop Scenic Byway; however, the proposed project is likely to have a greater visual impact on it than on the Sacajawea Historic Byway. The proposed project would cross the byway three times and would be within 5 miles of the byway for several miles. Greater visual impacts would be expected to produce greater reductions in economic benefits travelers derive from the scenic driving experience.

Impact on Hunting. Section 3.3 identifies impacts of the proposed project on big game animals that would translate into socioeconomic impacts on hunters. For example, it states that construction activities that produce noise, dust, and require site modifications could disturb and displace wildlife, and all species are potentially susceptible, including big game species. The section also notes that big game species tend to avoid areas near development, with highest avoidance behavior during hunting and calving periods, and that fragmentation and disturbance, which occurs when roads are constructed and rights-of-way cleared, can impact big game, including elk and mule deer. Section 3.3 describes the alternatives and links would have the greatest impact.

The construction and operation of the proposed project could produce a variety of socioeconomic impacts on hunters. These range from changes in hunting access due to road construction and improvements to changes in the size and location of big game populations resulting from project-generated habitat fragmentation and disturbance. These impacts could have both positive and negative economic consequences:

- Reducing hunters’ level of economic benefits by introducing an artificial element onto the natural landscape, diminishing scenic amenities during both construction and operation.
- Reducing hunters’ economic well-being and the level of expenditures by limiting access to some hunting access sites during project construction and potentially also reducing the quality of hunting at existing sites by increasing the concentration of hunters in certain areas and changing animal behavior such that it results in less hunting success.
- Reducing hunters’ economic well-being and the level of expenditures by improving access to existing sites and creating new access to hunting sites through road construction, which could increase the number of hunters in certain areas, reducing overall hunting success rates and impairing hunters’ enjoyment of solitude.
- Increasing hunters’ economic well-being and the level of expenditures by improving access to existing sites and creating new hunting access sites through road construction (whether these actions result in increased or decreased economic well-being depends on the individual hunter’s preferences for convenience, solitude, and other factors).

- Reducing incomes to hunting outfitters, which could also result in fewer jobs in the region, should hunters choose other parts of the state, or other states, to hunt as a result of lower-quality hunting experiences in the study area.
- Increasing hunting management costs for state agencies by increasing the number of hunting access sites through new road construction and increasing the pressure on game populations by diminishing the quality of breeding and wintering sites.

Absent a study of the preferences of hunters who hunt in the area affected by the proposed project, insufficient economic data exist to support an estimate of the overall economic loss or gain stemming from the proposed project's temporary or permanent impacts on hunting. Moreover, the extent of socioeconomic impacts described above likely would vary throughout the study area, depending on the distribution of big game habitat and hunters.

A study of hunters in Montana does provide some insights. In the early and mid 1980s, the Montana Department of Natural Resources and Conservation (DNRC), in cooperation with the Bonneville Power Administration (BPA), the Forest Service, and the BLM monitored the impacts on big game hunters following the installation of the Colstrip 500-kV transmission line in western Montana (Allen 1984). The initial baseline study, conducted in 1983 during the first season after BPA began clearing the right-of-way for the transmission line, revealed that hunters express a variety of preferences for hunting experiences. The author found that, for the majority of hunters interviewed— about 59 percent, including almost all nonresident hunters—the transmission line would likely affect their hunting experience adversely. For about 16 percent of those hunters, the adverse effects were likely to be high (Allen 1984). The DNRC conducted two follow-up studies in 1986 and 1987 to investigate hunters' actual response to the transmission line and found that the transmission line had less of an impact on hunters' experiences than initially predicted, although some impacts did occur (Allen 1988; Allen 1989). The studies found that the transmission line and its towers and roads detracted from the hunting experience for about one third of the hunters. The transmission line affected long-time hunters in the area (hunters who used the area for more than 5 years) more than new hunters in the area: 20 percent of long-time hunters said the line strongly detracted from their enjoyment. When asked if the new transmission line changed the way they hunted, 38 percent said yes and 54 percent said no, again with greater impacts among long-time hunters in the area, of which 47 percent reported changes in the way they hunted. Just 6 percent of respondents said the transmission line made hunting better, while 29 percent said hunting was worse. The data did not permit researchers to determine how many people stopped using the area because of the line, which may underestimate the transmission line's actual impact on hunting.

Impact on Angling. The proposed project's socioeconomic impacts on angling resemble some of those discussed above for hunting; they are likely to stem from diminished visual amenities and increased access resulting from road construction and improvement. The proposed project may produce both positive and negative economic consequences, depending on the preferences of the anglers. To the extent that the proposed project's access roads would enhance access to fishing areas and increase the numbers of anglers fishing in certain areas, it could reduce the economic welfare of those anglers who seek solitude. Increased access may also put additional pressure on fish populations. This could, in turn, reduce anglers' catch success, and the economic value they receive from fishing. Where the proposed project would cross streams, its presence may reduce the level of economic benefits enjoyed by anglers who prefer fishing in natural landscapes devoid of human structures. In addition to diminishing the economic welfare anglers receive from their fishing experience, it also may cause anglers to choose other locations to fish, reducing trip-related expenditures and associated jobs in some areas. Conversely, the proposed project could also increase some anglers' economic welfare by increasing the ease of access to fishing areas. Should the proposed project's impacts on access to fishing sites increase the number of anglers in the study area, it could increase the angling-related expenditures and associated jobs in the region.

In addition to the proposed transmission line itself, the proposed project would require construction of new road crossings at streams (Sections 3.3 and 3.12). These crossings would create both visual changes and changes to characteristics of the fishing conditions, both upstream and downstream of the crossing. Data presented in Section 3.11 indicate that the proposed project would impact the visual resources proximate to several fishing access sites on the Big Hole and Beaverhead rivers. These sites are on blue ribbon trout waters and are extremely popular. In 2007 it is estimated that from about 25,000 to more than 28,000 angling days were spent at these locations (Table 3.7-12).

Data from economic studies (Loomis 2005) suggest that the average angler receives \$56 in net economic value per day of fishing. Applying this value to the angling days (Table 3.7-12) yields a net economic value of angling of about \$1.6 million per year on the section of the Big Hole River nearest the proposed project, about \$1.6 million per year on the section of the Beaverhead River nearest the proposed project, and about \$1.4 million on Clark Canyon Reservoir. Without a detailed study of the preferences of the anglers who use the fishing access sites where the visual impact of the proposed project is expected to be high, it is impossible to determine the magnitude of the change in economic value that anglers may experience. For some anglers who continue to fish at the site, the change in economic welfare may be permanent, while for others it may diminish over time as they adjust to the proposed project's presence on the landscape. Although the specific economic value of the potential impact is unknown, these data suggest that it would likely be greatest for all alternatives in Zones 2 and 3. The impact on anglers of the proposed project's fish-bearing stream crossings is unknown, but additional impacts could be associated with Alternatives 1A, 1B, 1C, and 1D. Significant socioeconomic impacts on angling are unlikely for Alternatives 4A, 5A, 5B, 5C, 5D, and 6A in Idaho

Table 3.7-12. Fishing Days Associated with Fishing Areas Affected by the Proposed Project

Fishing Areas	Angling Days (2007)	Alternative
Big Hole River (River Miles 0 to 50)	28,386	2A, 2B, 2D
Beaverhead River (River Miles 0 to 75)	28,005	3B, 3C
Clark Canyon Reservoir	25,254	3A, 3B, 3C

Source: ECONorthwest, with data from MFWP (2009a)

Impact on Wildlife Watching. The proposed project's socioeconomic impacts related to wildlife watching are similar to those described above for both hunting and angling. To the extent that the proposed project increases access to areas where people go to watch birds and other wildlife, it could produce both positive and negative economic consequences, depending on an individual's preference for solitude, natural landscapes, and ease of access. The proposed project's potential impacts on the local distribution and behavior of wildlife populations may also enhance or diminish the economic benefits people derive from watching wildlife in any particular location. Section 3.3 indicates that the proposed project's disturbance of wildlife habitat during construction and operation may change the behavior of some wildlife. It also suggests that support structures would attract raptors and increase their hunting efficiency, resulting in adverse impacts to upland, grassland, and shrubland bird species.

3.7.5.8.1 Impact on Quality of Life

The quality of life for residents in the communities within the Montana and Idaho study areas is influenced by many factors, which economists often divide into five categories of capital: human, human-built, natural, social, and financial. Should the proposed project adversely impact any one of these factors, it could have a negative effect on residents' quality of life. While the proposed project itself would

introduce new human and human-built capital to the communities and the landscape, it is likely to have the greatest adverse impact on the region's natural and social capital.

Impact on Natural Capital. Natural capital is a term that recognizes the economic importance of ecosystems for their ability to produce flows of economically important goods and services in the future. The proposed project would affect the region's natural capital by diminishing its ability to provide open space, pasture, scenic vistas, and other goods and services. Many of the region's residents say they moved to the area because of its natural beauty and plentiful outdoor recreation opportunities. To the extent that the proposed project would adversely impact the region's ecosystem, and its ability to provide residents and visitors with goods and services they enjoy, it could diminish their economic well-being by reducing their "second paycheck." This may cause some residents to move elsewhere and may deter some new residents from moving to the area (Vias 1999). Insufficient data are available at the present time to estimate the magnitude of the economic consequences of this impact. While some studies suggest regions with diminished landscape amenities also have lower levels of jobs and incomes (Booth 1999), the shape of the relationship remains inconclusive (Waltert and Schlapfer 2007).

The perceptions of the impacts of the proposed project on natural capital are likely to vary from person to person, and for some people, may diminish over time. Research completed for the Colstrip line indicates that, for residents living near the line, the closer they live to the line, the more negative they feel about it, but negative perceptions decrease with distance. About 35 percent of those living within 1 mile of the line expressed positive or indifferent perceptions of it, while about 77 percent of people living 2 to 3 miles from the line expressed positive or indifferent perceptions of it. The study also found that those living closer to the line are less likely to indicate they have gotten used to the line over time: 31 percent of those living within 1 mile of the line said they had gotten used to it, while about 60 percent of those living 2 to 3 miles from the line said they had gotten used to it. Appendix C.11.1 summarizes these findings in greater detail.

Impact on Social Capital. Social scientists define social capital as the network of connections that individuals build within a community that result in reciprocity with and trust in members of that community as well as institutions that represent their interests (Ritchie and Gill 2004). Studies that have looked at the impact of investments comparable to those of the proposed project on the social capital in the study area have concluded that different segments of the affected communities may be affected differently (Jacquet 2009). Some residents, especially those employed to work on the proposed project, would benefit financially from the wages and benefits received from NorthWestern provided the compensation exceeded those they otherwise would have received. Such increases in income could afford the local workers a higher standard of living, but these benefits would probably not extend beyond the period of employment on the proposed project. Some workers and their families may choose to reinvest some of the new wealth in their community, contributing to the future stock of social capital.

The presence of non-local workers and their families also can affect the social capital of small rural communities. New people cooperating with those already there can increase the resources available to accomplish community tasks such as providing oversight for youth activities and strengthen social capital. Conversely, they can diminish social capital by competing for scarce resources and bringing habits and attitudes that conflict with those of the existing community. Some subgroups within different communities adjust to this type of disturbance better than others (Krannich and Greider 1984). Researchers have written extensively on the socioeconomic impacts on communities that accompany a boom-and-bust cycle of employment (Jacquet 2009). It is unlikely, however, given the expected level of employment the proposed project would generate that these potential impacts would materialize to a substantial extent.

The proposed project would have other adverse impacts on the social capital of the communities in the study area. Issues that cause personal distress can erode the social fabric of a community by reducing interactions between individuals based on trust and a shared belief in a common purpose and by increasing social isolation (Marshall et al. 2004, Freudenburg 1997). Social stress would be greatest for those who oppose the proposed project and between those who oppose it and those who favor it, resulting in disputes between neighbors and changes in the character of towns and neighborhoods. Corrosion of social capital is manifest in the comments submitted during the scoping period, when members of several communities suggested that some proposed alternatives would have sizeable consequences if the proposed project were to cross their properties and expressed preference for other alternatives even though those alternatives would impose similar impacts on other communities (PBS&J 2009). Other people expressed preferences for some alternatives to bypass private properties and instead be placed on public land, even though other people place significant values on ecosystem services that public lands provide.

Marshall et al. (2004) identified at least three factors that contribute to psychological stress and community damage after environmentally disruptive events: (1) perception of government failure, (2) uncertainty regarding mental and physical health of victims, and (3) protracted litigation. In the case of the proposed project, an overall perception that governmental agencies fail to represent citizens' best interests may wear on the social capital of the communities located near the proposed project. Additionally, stigma associated with proximity to the proposed project from possible impacts of the power lines on human and livestock health could contribute to general uncertainty and further corrosion of communities. Finally, should litigation ensue, it could result in a long, drawn-out process that would drain communities' social capital.

The potential socioeconomic impact relevant to this analysis is the effect these factors would have on a community's ability and capacity to work efficiently to address future challenges and disruptions, both related and unrelated to the proposed project. The magnitude of this potential impact likely would vary across the study area, but would be greatest in those communities that are already expressing strong reactions to the proposed project. Depending on the outcome of the proposed project, the impacts on social capital likely would have short-term and medium-term consequences for the communities in the study area. These consequences would be expected to dissipate in the long term.

3.7.5.9 Impact on the Transmission System

The main benefit to society from the proposed project is that it would relieve the currently congested transmission path, WECC Path 18, on the U.S. Western Grid by creating additional electrical transmission transfer capacity between Montana and Idaho. Path 18 is currently scheduled up to its limit for firm transmission rights. The proposed project would result in greater firm transmission space between certain loads and generation in Montana and Idaho (and beyond). This regional benefit could be large and would benefit current and future electricity loads, utilities, grid operators and electricity generators. It would benefit residents of several states with the potential for additional electricity and cheaper and/or cleaner electricity.

The proposed project would produce economic benefits to the extent that it may reduce the cost of producing and delivering electricity services to consumers, including consumers in out-of-state markets. The proposed project might lower costs in several ways. It might lower the cost of transmitting electricity that otherwise would be transmitted along another line. It might enable the development of low-cost generating facilities that otherwise would not be built because they would otherwise lack access to consumer markets. New electricity generation capacity built as a result of the proposed project is a benefit in and of itself. It might reduce the probability of disruption in electricity flows by strengthening the region's transmission grid. This may include more efficient and effective operation of the grid (especially

locally), lower costs of meeting reliability standards, increased fuel diversity of electricity supply, improved reliability, flexibility and performance, more opportunities to purchase electricity on the spot market, and access to more ancillary services. The proposed project would create more routing options for moving electricity between Montana and Idaho loads and loads between other states, which could have long-term benefits in terms of routing options and market transactions. If the value of these benefits outweighs its costs, the proposed project would yield net economic benefits for regional and national economies. Federal and state regulators would oversee the distribution of benefits and costs among different groups.

NorthWestern reports that electricity producers have submitted requests to use about 539 MW of transmission capacity on the proposed line, and it intends to solicit further requests for service in 2010 (Appendix A). This number provides a rough, current indication of the extent to which the proposed project might carry electricity at lower cost than existing transmission lines or remove transmission-access barriers that block the development of low-cost generating facilities, but information sufficient to measure the extent of the reductions in cost is not available. At full, planned capacity, the line would carry 1,500 MW of electricity moving north to south into Idaho and 950 MW of electricity moving in the opposite direction. Entities that oversee the management of the grid have responsibility for determining the line's actual capacity and have not yet completed the rating process (Appendix A).

The electrical grid's managers also have not completed their evaluation of the potential impacts the proposed project might have on the reliability of the existing grid or of the mitigation actions that might be required if the proposed project were to adversely affect reliability under specific scenarios. They also have not assessed the proposed project's potential competitiveness relative to other transmission lines that might be developed (Appendix A). An assessment of the electricity market in Montana concludes, "The construction of a major exporting transmission line from Montana could open up the Montana market to additional outside forces. NorthWestern has a variety of strategies at their disposal to manage the exposure of Montana customers to substantial price risk..." (Appendix A, pg 40). If the proposed project, together with other projects and actions, causes in-state electricity rates to rise, it is possible that generation development spurred by the proposed project could put downward pressure on rates, offsetting some or all of the potential rate increase (Appendix A).

If the proposed project were to carry electricity generated in Montana from wind, solar, or other renewable sources of energy, it would reinforce efforts by the utilities receiving the power to meet mandated renewable energy targets. These targets are frequently expressed as renewable portfolio standards. Montana and all states to the south or west of the proposed project, except Idaho and Wyoming, have adopted either a renewable portfolio standard or similar, nonbinding goals for increasing the use of electricity from renewable resources (DOE 2009).

3.7.5.10 Social Opportunity Costs of the Proposed Project¹¹

Economists use the term *opportunity cost* to refer to the value of the opportunities that are given up when a choice is made to use limited resources for a specific purpose. Consideration of social opportunity costs looks at the proposed project from the perspective of society as a whole rather than just from the perspective of those directly participating in it. There is a social opportunity cost to the economy of building additional transmission capacity when compared to other alternative uses of those resources. This is the opportunity cost of what those project-related jobs, energy, and materials could have been used for in their next best use in the U.S. or world economy. A decision to move forward with the proposed project could generate two categories of social opportunity costs:

- The resources that the proposed project would require could be used to meet the same need the proposed project would address, but in a different way. For example, without the proposed project, society could implement another alternative that would not involve building a transmission line but would focus on reducing demand for electricity. This alternative could entail investments to reduce the demand for electricity by improving the efficiency of consumer and commercial technologies and the construction of building electricity-generating units closer to urban centers of demand.
- The resources that the proposed project would require could also be used to meet a variety of other potential social priorities unrelated to the need the proposed project is intended to address. For example, inputs committed to the project (workers, capital, materials, and equipment) could instead be used to build roads or upgrade existing infrastructure. The public resources and ecosystem goods and services the proposed project would consume (visual amenities, housing, and public safety services) could also be used for other purposes.

If an alternative use of resources would yield net benefits of, for example, \$1 million, then a decision to move forward with the proposed project would cause society to forgo this net benefit, and this amount would represent the opportunity cost of moving forward with the project rather than the alternative. The proposed project would yield a net overall benefit for society only if its benefits minus its costs were an amount greater than the opportunity cost.

In theory, a full assessment of the social opportunity costs of the proposed project would involve quantifying the costs and benefits of the proposed project and the potential alternatives (whether intended to meet the same need or a different set of priorities) and comparing the net benefits across all potential alternatives. Widely accepted professional standards for conducting this kind of analysis require that it consider both direct and indirect market values and non-market values (see, for example, U.S. Environmental Protection Agency, Office of the Administrator 2000). These values have been described for the proposed project, to the extent the data allow, in the previous sections. The next best alternative, or set of alternatives, to the proposed project, has not yet been identified. Therefore, this analysis is unable to specifically account for the social opportunity costs of the proposed project.

3.7.5.11 Uncertainty and Risk Associated with the Socioeconomic Impacts

The term *uncertainty* applies to a situation where there is insufficient information to know how an event, such as the construction and operation of the proposed project, would materialize. Uncertainty in this instance may concern the future status of the proposed project itself, its impacts on natural and social systems, or the economic importance of those impacts. The term *risk* refers to the probability that the

¹¹ This discussion is included at the request of MDEQ reviewers who wanted a general discussion of the “social...opportunity costs of not using the resources for finding another way to meet the need besides building a new transmission line.”

proposed project would result in harm, loss, damage, injury, or another undesirable event. That uncertainty and risk carry important socioeconomic implications is well established in the economic literature (see, for example, Samuelson and Nordhaus 2005). Most people in the U.S. typically dislike uncertainty and risk—in economic terms, they are *risk averse*. For this reason, activities that increase uncertainties lead to diminished economic welfare; conversely, activities that reduce uncertainty lead to improvements in economic welfare.

Increases in uncertainty and risk for households, businesses, and communities in the study area resulting from the proposed project directly impose economic costs, even if worst case scenarios do not materialize. To the extent that the proposed project would reduce risk or uncertainty for others, it would create economic benefits. A decision to implement the proposed project would likely increase uncertainty for some about the value of their property, their health, or the productivity of their farming operations. For others, a decision to proceed with the proposed project might reduce their uncertainties and risks. An unemployed construction worker could perceive that the decision would increase the probability of finding a job working on the proposed project and reduce the uncertainties and risks associated with unemployment.

Insufficient information is available to describe fully the changes in uncertainty and risk created by the proposed project or to calculate their economic importance. The information that is available indicates that uncertainty and risk are present in these areas:

- Whether the proposed project would be built, operated, and decommissioned in a manner consistent with current plans.
- Whether the impacts of the construction and operation of the proposed project described in this EIS would materialize and whether other as-yet unforeseen impacts would emerge.
- Whether the economic value associated with the impacts would be greater or less than currently understood, either resulting from imperfections in the information that is currently available or changes in preferences that result in changes in value. For example, past research has shown that Americans typically place greater value on ecosystem goods and services as they learn more about them (Blomquist and Whitehead 1998). Also, as the supply of ecosystem goods and services in the study area decreases in the future because of development, and as population growth results in an increase in the demand for goods and services, they typically become more valuable as they become more scarce; i.e., as the ratio of supply to demand falls (Freeman 2003).

This information is relevant to decision makers insofar as actions that increase the quality of information available about the social, economic, and ecological impacts of the proposed project, or increase the certainty of a particular course of action, would reduce uncertainty, and thus have the potential to improve economic welfare. In addition, mitigation measures that reduce the risk associated with the proposed project also have the potential to improve economic welfare. In situations where the long-term effects of the risks are unknown and potentially irreversible, economic theory supports taking a precautionary approach to decisions and being especially prudent in evaluating and managing the potential risks (Gollier and Treich 2003).

3.7.5.12 Distribution of Socioeconomic Impacts

Previous sections have described the potential impacts from the proposed project and the uncertainties and risks associated with the impacts. These consequences have socioeconomic importance, but their distribution across different populations also might have importance. The discussion of environmental justice impacts addresses some of the distributional impacts that might have socioeconomic importance, focusing on the extent to which negative impacts would fall disproportionately on low-income and

minority populations (Section 3.13). The distribution of impacts across other groups also might have economic importance, especially when the proposed project's economic benefits would accrue to one group and its costs to another.

Generally, the benefits and the costs of the proposed project probably would accrue to different groups. The benefits likely would accrue largely to those who would receive profits from the construction and operation of the proposed project, such as the project owners. Profits could potentially be large and last the lifetime of the line depending on the electricity market. Any profits would take the form of higher salaries, bonuses and/or promotions. Stockholders of the project owner would benefit to the extent that their stock and/or dividends increase in value as a result of the proposed project. Lenders to NorthWestern would profit from interest upon loans to NorthWestern. The project owners likely would bear the costs directly related to the proposed project's investments (e.g., construction, mitigation, taxes, wages, operation, maintenance, etc.), but not the spillover or external costs, such as reductions in the supply of ecosystem goods and services, that would be borne largely by those living in or otherwise connected with the core study area.

The distribution of benefits and costs would vary over time, but both the construction and operation phases of the proposed project apparently would yield an unequal distribution of benefits and costs among residents and businesses in the study area. For example, the project's construction activities would produce some short-term increases in job opportunities for some local workers and higher sales for some local businesses, but others would see only the costs associated with temporary road closures, increased congestion for local services, noise, dust, and other impacts potentially resulting from construction activities. In the long term, some in the area might share the profits generated by the proposed project, but others would experience costs associated with the degradation of scenic resources, perceived increase in human health risks, reduction in agricultural production, decreases in property value, and other impacts. The proposed project may also impose additional costs on local, state, and federal regulators who would be responsible for additional monitoring activities during construction and operation.

Benefits would also likely accrue to electricity customers across the western U.S. if the proposed project would allow cheaper and/or cleaner electricity to be consumed in certain areas where it otherwise may be less available or more expensive. It is likely that most electricity customers who would benefit in this manner would live outside Montana. Owners of electricity generation, existing or new, would benefit if completion of the proposed project would enable them to earn profits that otherwise would not be available. Potential other benefits from better grid functioning (to the extent that happens) would go to transmission area operators, all electricity customers on the U.S. Western Grid, and regional electricity organizations.

In concept, the proposed project's beneficiaries could make the distribution of benefits and costs more equal by providing compensation to those who would bear the spillover costs. These issues are addressed below.

3.7.6 Mitigation Measures

The preceding sections identified the proposed project's expected impacts on socioeconomic variables. In most cases, the available information supports a description of the direction of the impact (i.e., whether it would produce benefits or costs). In some cases, it allows estimation of the general magnitude of the impact. The sections below prescribe appropriate steps to mitigate those socioeconomic impacts. The lack of certainty about the extent of the different impacts in some cases may limit the ability to fully mitigate them. Socioeconomic impacts that cannot be fully mitigated are considered residual and are discussed in Section 3.7.7. Residual impacts may lead to an irreversible or irretrievable commitment of resources discussed in Section 3.7.8.

This discussion of mitigation measures corresponds to the preceding analysis of socioeconomic impacts. Measures have been developed only for areas where the analysis indicates a substantial adverse impact may occur, after taking into account the agency stipulations (Appendix B.4). Many of the mitigation measures proposed for specific resources in other sections would also mitigate the impacts on socioeconomic values derived from the resources, and those are not repeated here. For example, mitigation options that reduce the proposed project's potential impact on sage-grouse populations and habitat likely would also reduce the potential loss of economic welfare experienced by those who care about the species' survival. For some of the mitigation measures listed below, neither MDEQ nor the BLM may have the legal authority to require they be implemented. They are listed here to help potential stakeholders and the public understand that there are measures that could be implemented, perhaps voluntarily, to minimize or avoid some of the socioeconomic impacts.

In some cases, there may be market mechanisms through which the proposed project's sponsor may mitigate the impacts of the proposed project. For example, there is already a process established to compensate owners of property where support structures and right-of-way easements are placed. Compensation may provide an adequate mechanism for mitigation where residents and businesses could show that the proposed project directly leads to increased management costs, lost value of production, loss of life, or other economic harm. In some cases, the MDEQ Project Specifications require the project owner to pay compensation to landowners when the proposed project's construction or operation damages real or personal property (see, for example, measures 2.1.7 and 2.5.3). Mitigation for loss of property values is not considered feasible because determining the actual amount of change associated with the proposed project is an entirely subjective process. As was discussed above values could change from 0 to 10 percent or more; however, there is no accurate defensible method to determine the magnitude of change. Additionally, the actual change in value decreases over time as the proposed transmission line becomes part of the landscape. For these reasons, no mitigation is proposed for impacts to property values from the proposed project.

Generally, many of the proposed project's expected socioeconomic impacts may be reduced or eliminated by carefully considering the placement of the support structures and the route of the line to avoid the most highly valued resources. Mitigation measures that seek to accomplish this kind of cooperation with landowners are required of the project owner by the MDEQ in its Project Specifications (see, for example, measures 1.1.4, 1.1.10, and 1.3.2). Modifying the design of support structures or using vegetation to obscure the support structures may address some impacts, particularly related to visual amenities. These options have been specifically identified, for example, in planning documents for the region's scenic byways, which suggest that, when a transmission line's path cannot be routed to avoid being seen from the scenic byway, it should be buried or visually minimized within the landscape (Planmakers and J-U-B Engineers 2007).

Additional mitigation measures that could minimize or eliminate the socioeconomic impacts that remain after taking into account the agency stipulations have been developed (Table 3.7-13). Impact-specific considerations would determine the costs of each option; mitigation costs could vary considerably depending on the extent and location of the mitigation, the design of mitigation for each action, and the mechanism (markets, courts, arbitration) used to implement it.

3.7.7 Residual Impacts

Impacts that remain after the mitigation options proposed in the previous section are applied are considered residual impacts. For the reasons outlined below, the proposed project may result in unavoidable adverse socioeconomic impacts.

For most of the proposed project's impacts involving reductions in the value associated with the supply of ecosystem goods or services there would be no market, fiscal accounts, or other mechanisms that would determine the value of the impact and establish the linkage to the proposed project. Examples of such cases include diminished value of recreation experiences, diminished value of scenic driving resulting from obstructed views, and reduced quality of life for local residents and visitors. In these cases, the value of an impact likely would vary among those affected, and no reliable analytical results exist that estimate the value. As discussed, other studies provide some insight into what the value of some of the impacts might be, but uncertainty regarding the application of these values to this context would have to be resolved before they could be applied for mitigation or compensation purposes.

In some cases, the value of an impact may be known, but legal or social mechanisms would not exist to compensate those harmed. For example, an influx of job seekers attracted by the proposed project may increase a community's costs for law enforcement and other social services. Tracing these costs to the proposed project might be too difficult and/or expensive for the community to undertake. Because of this, there may be no formal mechanism available for the community to seek and receive compensation from the proposed project's sponsor or others. Mitigation of the impacts on the community may be possible only if the proposed project's sponsor and the community, on their own or in response to a governmental requirement, were to submit to an arbitration process or other mechanism established to resolve such claims.

As discussed in Section 3.7.6, there is no feasible mitigation for the potential loss of property value. Therefore, the impact to property values would remain a residual, unavoidable, irretrievable and irreversible impact of the proposed project. The magnitude of this impact is impossible to quantify, but is also expected to diminish slightly over time as the transmission line becomes an established part of the landscape.

Table 3.7-13. Mitigation Options for each Socioeconomic Impact

Socioeconomic Impact	Mitigation Options
Income and Employment	Significant impacts on the labor market, jobs, and incomes are not anticipated; therefore, no mitigation is required.
Population	Significant impacts on the population of the study area are not anticipated; therefore, no mitigation is required.
Housing	Significant long-term impacts are not anticipated; therefore, no mitigation is required. 1. Prepare contingency plans to provide temporary housing; e.g., RVs for when workers overwhelm local temporary housing options.
Public Services and Infrastructure	1. Provide compensation for public services used, either by reimbursement or payment of an impact fee. 2. Provide private, dedicated services rather than relying on public services.
Government Revenues	Significant impacts on the stream of government revenues are not anticipated; therefore, no mitigation is required.
Public Health and Safety	1. Provide compensation to workers who incur project-related medical expenses. 2. Provide compensation for project-related loss of life.
Ecosystem Goods and Services	
Value Derived from Species and Habitats	Significant impacts to the socioeconomic values associated with species and habitats affected within the study area are not anticipated; therefore, no mitigation is required.
Agricultural Production	1. Provide compensation for any demonstrated reductions in market value of agricultural land taken out of production as a direct result of the proposed project. 2. Provide compensation for increased operating costs that occur as a direct result of the proposed project. 3. Minimize construction, operation, and maintenance activities around agricultural property during active agricultural production seasons.
Value Derived from Aesthetic Resources	1. Where possible, minimize impacts by locating line adjacent to lower-valued aesthetic resources.
Property Values	1. Provide compensation for any demonstrated reductions in market value of property through a process similar to that used to compensate property owners who would have an easement on their land. 2. Where possible, minimize impacts by selecting a route that avoids higher-value land uses and natural resources.
Value Derived from Recreation and Tourism	1. Where possible, minimize impacts by locating line away from recreation areas. 2. Monitor impacts to recreational users (e.g., hunters and wildlife watchers) and make appropriate modifications to roads and rights-of-way if adverse impacts occur.
Quality of Life	1. Respond to community concerns and recognize local values. 2. Where possible, minimize impacts to higher-valued ecosystem goods and services.

Although mitigation for the socioeconomic impacts may be theoretically possible in some cases, the difficulty inherent in determining a mutually agreeable value, identifying all potentially affected parties, and establishing a process by which compensation would occur makes the mitigation unlikely. Moreover, even after all mitigation measures proposed in this and other sections are implemented, there likely will be adverse impacts on the economic well-being of some people that cannot be mitigated, despite the project owners' and the agencies' rigorous and structured efforts to minimize impacts overall.

3.7.8 Irreversible or Irretrievable Commitments of Socioeconomic Resources

Many of the impacts of the proposed project would be transitory or quickly reversible. For example, the labor market probably would adjust quickly and automatically to proposed project-related impacts on jobs and incomes. Similarly, housing markets would adjust to proposed project-related impacts on the demand for housing. Some of the proposed project's expected impacts, however, cannot easily be undone or reversed. Economists often consider impacts that are not reversible within a time span meaningful for human societies to be irreversible (Fisher 2000). Some analyses employ a generation, or 50 years, as the relevant time period for an irreversible impact. Those impacts that fall into this category should be undertaken with caution and only after fully accounting for the value of the associated uncertainties and risks (Chavas 2000). The preceding discussion identifies several types of irreversible socioeconomic impacts that might result from the proposed project:

- Impacts on human health and safety that result in severe injury or death
- Impacts to aesthetic and natural resources that cannot be reversed in the timeframe described above
- Impacts to quality of life, which, once disrupted, may not ever be the same for some people

Many people are willing to pay to avoid irreversible impacts or irretrievable commitments of resources. Others may reject the notion that the value of an irreversible adverse impact can be measured, or may believe that the value is infinite (Hussen 2004).