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## Other CEQA Considerations

In addition to an examination of project-level impacts as presented in Chapter 3 of this EIR, CEQA requires an EIR to evaluate a project's effects in relationship to broader changes that are occurring or that potentially would occur in the surrounding environment. Accordingly, this chapter presents discussion of CEQA-mandated analyses of irreversible environmental changes, growth inducement, and cumulative impacts associated with the proposed project. It also presents certain variations to the project—project alternatives—that have been or will be considered as options to approving the project as described in Chapter 2 of this EIR, as well as analysis of these alternatives' potential environmental effects.

### 4.1 Cumulative Impacts

A cumulative impact is one that results from the combined effects of past, present, and reasonably foreseeable future projects or activities. CEQA requires an EIR to discuss those cumulative impacts to which the project would contribute, and the importance of that contribution in the context of the cumulative impact.

#### 4.1.1 Approach to Cumulative Impact Analysis

Cumulative impacts for most impact issue topics are not quantifiable and are therefore disclosed in general terms as they pertain to development patterns in the surrounding region. Exceptions to this are traffic, noise, and air quality (the latter two of which are associated with traffic volumes), which may be quantified by estimating future traffic patterns, pollutant emitters, traffic noise, etc., and determining the combined effects that may result.

The State CEQA Guidelines require that cumulative impacts be addressed in an EIR when the cumulative impacts are expected to be significant and when the project's incremental contribution to the effect is cumulatively considerable (State CEQA Guidelines Section 15130[a]). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed project when added to other past, present, and reasonably foreseeable future actions (State CEQA Guidelines Section 15355[b]). Such impacts can result from individually minor but collectively significant actions taking place over time. CEQA Guidelines Section 15130 states that the discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone. The level of detail should be guided by what is practical and reasonable.

## 4.1.2 Assessment of Cumulative Impacts

Where a significant cumulative impact exists, the key issue is whether the project would make a cumulatively considerable contribution to that impact. It is possible that a project may make a cumulatively considerable contribution even when the project's individual impact is less than significant. However, a project's impact may be rendered less than cumulatively considerable when the project is required to implement or fund its fair share of a mitigation measure, or to take part in a program that is designed to alleviate the impact (CEQA Guidelines Section 15130).

Cumulative project-related impacts were analyzed for each of the resources and topics analyzed in the impact sections of this EIR (Chapter 3). The cumulative impacts of the project and other developments in the project area on each resource or topic are described below.

### Past and Present Actions in the Project Vicinity

Past development actions on and near Hatchet Mountain and in the project vicinity included timber harvesting operations that occurred prior to the 1992 Fountain Fire, which burned more than 64,000 acres, or 100 square miles, and salvage timber operations carried out subsequent to the fire. Hatchet Mountain and neighboring lands owned by Sierra Pacific Industries, Fruit Growers Supply Co., and Roseburg Forest Products were replanted primarily with ponderosa pine in the mid-1990s and are still in the reforestation stage. Forest lands in the vicinity of Hatchet Mountain are not anticipated to be harvested in the near- and mid-term foreseeable future (10- to 15-year horizon).

Present development on Hatchet Mountain includes Bunchgrass Lookout Road, a private, unpaved access road that is primarily used by the landowners (SPI and Fruit Growers Supply Co.), as well as by PG&E, Verizon, Jefferson Public Radio, and American Tower to access their existing transmission and communications facilities. These communication facilities are comprised of two clusters of cell towers and their small associated structures. Other developed features include a cleared transmission line right-of-way alignment and transmission lines that traverse the southern portion of Hatchet Mountain.

### Reasonably Foreseeable Actions in the Project Vicinity

#### Other Wind Energy Projects

The Hatchet Ridge Wind project is the first wind energy project proposed in Shasta County. There are no other wind energy projects currently proposed in Shasta County, nor are any expected to be proposed in the reasonably foreseeable future. However, there is currently a study in progress to determine the potential to develop a wind power project in the vicinity of Pondosa in southeast Siskiyou County (Walker pers. comm.). Pondosa is located approximately 23 miles north of Hatchet Mountain. Siskiyou County Planning Department staff has not received a formal application from a project applicant to date. However, it may be assumed that the Pondosa site is being investigated by a prospective wind energy developer to determine if site conditions are suitable for wind generation at some point in the future. Due to the lack of formal documentation regarding any proposed wind energy development in the Pondosa area, it will not be included as a part of this cumulative analysis.

In addition, a 2006 *Statement of Proposed Actions, Pacific Southwest Region, Occurring in More Than One Forest*, published by the Plumas National Forest indicated that Horizon Wind Energy Company had applied and been granted authority to install four monitoring meteorological towers in Township 28 N, Range 12 E on the Mt. Hough and Eagle Lake Ranger Districts on the Lassen

National Forest. Of the four towers, three are located on the Plumas National Forest (Sections 5 and 6), and one is located on the Lassen National Forest (Section 16). The intent of these meteorological towers is to gather data continuously to monitor wind speeds. Based on data collected from this monitoring, one or more of these sites may theoretically be suitable for wind power development.

## Other Non-Wind Projects

Other projects in the vicinity of the proposed project include ongoing highway maintenance and construction activities on SR 299 and SR 89, such as the Cayton Creek Rehabilitation Project, the Fountain Curve Safety Project, the Lake Britton Bridge Replacement Project, and the proposed relicensing of the hydropower generating facilities at Lake Britton and along other reaches of the Pit River.

The Cayton Creek Rehabilitation Project is located just north of the Lake Britton Bridge on SR 89, and continues to the Siskiyou County line. This roadway improvement project includes rehabilitation of distressed pavement, replacement of the Cayton Creek Bridge, and drainage improvements and is scheduled for completion in late 2007 (Caltrans 2007a). The project should be completed prior to the start of construction of the proposed project.

The Fountain Curve Safety Project is a large-scale curve realignment project on SR 299 between Montgomery Creek and Moose Camp. The area is under one-way traffic control, with flaggers and a pilot car, through August 2007. The Fountain Curve Safety Project is scheduled for completion in late 2007 (Caltrans 2007b). The project should be completed prior to the start of construction of the proposed project.

The proposed Lake Britton Bridge Replacement Project, located approximately 10 miles north of Burney, would replace an existing two-lane bridge with a new wider two-lane bridge, and would realign a 2.7-mile section of SR 89 to improve safety. Once the new bridge and highway are constructed, portions of the old highway alignment will be relinquished and the existing bridge will be removed (Caltrans and U.S. Department of Transportation Federal Highway Administration 2006). Caltrans is currently seeking a funding source for this project. If funding is received, construction could begin in 2009 or 2010. This project will most likely start construction after construction of the proposed project is already completed.

PG&E has applied to the Federal Energy Regulatory Commission (FERC) for a new license for its Pit 3, 4, and 5 Hydroelectric Facility. The relicensing project is described in detail in PG&E's final license application submitted to FERC in October 2001 (Federal Energy Regulatory Commission 2001). The Pit 3, 4, and 5 relicensing project spans approximately 38 miles of the Pit River in Shasta County near the towns of Burney and Big Bend. The relicensing project includes four dams, four reservoirs, three powerhouses, associated tunnels, surge chambers, and penstocks. The powerhouses contain nine generating units with a combined generation capacity of 325 MW. The Pit 3, 4, and 5 relicensing project is currently undergoing environmental reviews by federal and state regulatory agencies (State Water Resources Control Board 2006). It is unlikely that this project poses any potential for cumulative impact in conjunction with the proposed project.

In 2001, Ogden Energy and Covanta sought approval for the 500 MW natural gas fired Three Mountain Power Project located northwest of Burney<sup>1</sup>, which proposed to utilize the same

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<sup>1</sup> Commission Decision, Application for Certification, Three Mountain Power Plant Project. Docket No. 99-AFC-2. May 2001. California Energy Commission.

230kV powerline as the proposed project. The project was approved but has never been constructed. It is unknown whether there is still a possibility that this project may be constructed in the future, and therefore it is considered to be a highly speculative action which is not considered for cumulative effects.

## 4.1.3 Cumulative Impacts by Resource Area

### Aesthetics and Visual Resources

There are no other wind energy projects proposed within the viewshed of the proposed project. As described in Section 3.1, *Aesthetics and Visual Resources*, the proposed project involves installing up to 68 wind turbines along the ridgeline of Hatchet Mountain. These turbines would substantially alter the existing visual character and quality of the views looking toward the ridge relative to baseline conditions. The project would introduce large, vertical, artificial structures into the viewshed and would change the ridgeline from one that is predominantly natural to one with distinct artificial features that would be highly visible to Burney residents and businesses, roadway travelers, and recreationists within or on the outskirts of Burney.

Existing development on Hatchet Ridge consists of a pair of parallel 230-kilovolt (kV) transmission lines owned by PG&E, overhead and buried lower voltage electrical distribution lines, existing communication towers, and associated access roads. The project area also contains the Bunchgrass and Bear Springs radio facilities; the communication towers range in height from 50 to 140 feet. The visual intrusion of the 68 wind turbines, in addition to the existing development on Hatchet Ridge, is considered a cumulatively significant impact on the viewshed. This cumulative visual impact is considered significant and unavoidable; no mitigation is proposed that could reduce this impact to a less-than-significant level.

### Agriculture and Forest Resources

Because the project would not result in the conversion of any lands from agricultural uses or Farmland Mapping and Monitoring Program–designated farmland to urbanized uses, the project would not contribute to a cumulatively considerable impact related to farmland conversion.

Impacts would not be considered cumulatively significant for forest resources because the project has a relatively small permanent footprint and would not significantly encroach upon forested areas or interfere with the long-term management of resources on Hatchet Mountain for the growing and harvesting of timber. The proposed project would not involve any actions that would directly affect the forestry industry. Because there would not be a considerable contribution to cumulative impacts on forest resources, the cumulative impact of the project is considered less than significant.

### Air Quality

Construction activities could result in emissions of NO<sub>x</sub> in excess of SCAQMD thresholds. However, implementation of Mitigation Measure AIR-1 would reduce this impact to a less-than-significant level. All other construction-related impacts are less than significant.

Because the proposed project would generate electricity using emission-free technology, and would likely reduce the need to generate electricity using fossil fuel–based technology, its cumulative contribution to air quality impacts is considered beneficial.

## Biological Resources

The overall direct mortality of birds and bats resulting from collision with objects in the project region is relatively small because of the relative isolation of the project area and the associated lack of large-scale facilities, population, infrastructure, and other projects. Implementation of the proposed project is not expected to result in a significant cumulative effect on bird and bat mortality.

Erickson et al. (2001) estimated the annual number of mortalities of migratory birds in the United States that result from collision with a variety of objects.

- Vehicles: 60–80 million.
- Buildings and windows: 98–980 million.
- Power lines: tens of thousands–174 million.
- Communication towers: 4–50 million.
- Wind generation facilities: 10,000–40,000.

The following analysis outlines the potential, if any, for the proposed project to result in a significantly cumulative impact on the bird-object collisions in the context of the statistics outlined by Erickson et al.

**Vehicles.** Vehicle use is currently quite low due to the remote location of the project area, and implementation of the proposed project is not likely to result in a substantial increase in vehicle use. No cumulatively significant impact is expected.

**Buildings and windows.** Large buildings (and associated windows) that could result in substantial collision mortalities are absent from the general region. Because no large buildings are proposed in conjunction with the proposed project, no cumulatively significant impact is expected.

**Power lines.** There are several large electrical transmission lines in the region associated with power generation facilities along the Pit River, and one electrical substation more than 6 miles west of the project. The amount of collision-related mortality associated with these transmission lines is unknown; however, because the proposed project consists only of the extension of a short transmission line interconnection and the placement of underground collection lines, no cumulatively significant impact is expected.

**Communication towers.** Two existing clusters of communications towers in the project area may contribute to collision-related mortality of birds and bats. The number of mortalities associated with these towers is unknown; however, because the proposed project does not include construction of any new communication clusters, no cumulatively significant impact is expected.

**Wind generation facilities.** As previously discussed, no other wind permitting projects are currently proposed for the immediate project vicinity. Accordingly, the proposed project would not, by definition, contribute to avian mortality on a cumulatively significant basis. However, development of additional wind projects in the vicinity of Hatchet Mountain would constitute future actions that could lead to a cumulatively significant direct mortality impact on birds and

bats that use or migrate through the Hatchet Mountain area in the future. An analysis of any of those potential impacts would be not be quantifiable now, and would not be relevant to this analysis at this time.

## Cultural Resources

The proposed project would not result in cumulatively considerable impacts on archaeological or historic-era built-environmental resources that meet CEQA's definitions of historical or unique archaeological resources, because the proposed project would not result in impacts on such resources at the project level.

The proposed project would, however, result in cumulatively considerable impacts on a particular subset of historical resources, namely, traditional cultural properties of the Pit River Tribe. The proposed project would result in significant and unavoidable impacts on Bunchgrass Mountain–Hatchet Ridge, a traditional Achumawi travel route, basketry-material gathering area, and power place (see Section 3.5, *Cultural Resources*, for details). In addition to this traditional cultural property, some 151 Pit River Tribe traditional cultural properties have been documented in a portion of historic Achumawi territory (Tiley and Pierce 2004:28, Table 1).

To properly assess the proposed project's contribution to cumulative impacts on Pit River Tribe traditional cultural properties, it is necessary to compare Bunchgrass Mountain–Hatchet Ridge with similar kinds of cultural resources. For cultural resource management purposes, Tiley and Pierce (2004:Table 1) and Woods and Raven (1985:41, 50, 54, 56, 58) place Pit River Tribe traditional cultural properties in one or more of five categories: village, resource procurement, sacred areas, Indian allotments/historic sites, and place names. Of these categories, Bunchgrass Mountain–Hatchet Ridge fits three categories: resource procurement area (basketry material), sacred areas (power place), and place name (reference to the Windy Point Trail).

Reasonably foreseeable projects would result in impacts on resource procurement areas, sacred areas, and named places through visual and auditory intrusions into sacred areas and impeded access to resource procurement localities, power places, and culturally-important named places. Past, present, and reasonably foreseeable future projects for this analysis include Federal Energy Regulatory Commission relicensing along the Pit River and Lake Britton, ongoing park management at McArthur-Burney Falls Memorial State Park, and timber harvest plans for private timberlands.

Of the 46 sacred areas or power places known in the region, information concerning four of them is detailed enough to warrant specific discussion here. These power places are Burney Falls, Chalk Mountain, Big Blue Springs, and the Eddy in Big Bend/Kinner Falls. Use of these power places is similar to that of Bunchgrass Mountain–Hatchet Ridge. At present, none of these four power places is accessible to the Pit River Tribe (Jones & Stokes 2005:3-37; Tiley and Pierce 2004:35–36). Given the likelihood that a number of power places not discussed here are also located on lands not owned by the Pit River Tribe, access to most power places is limited. Compromised access to Bunchgrass Mountain–Hatchet Ridge as a result of project development and operation would therefore contribute significantly to the continued impairment of access to power places, a vital aspect of the Pit River Tribe's traditional practices. This cumulative impact is considered significant. The severity of the impact could be reduced to a less-than-significant level by providing project-area access to the Pit River Tribe for the purpose of traveling to Bunchgrass Mountain to conduct traditional spiritual practices (see Mitigation Measure CUL-3, Chapter 3.5).

Similarly, access to several traditional basketry material gathering areas is denied to the Pit River Tribe, both by land ownership conflicts and the Federal Energy Regulatory Commission's changing stream-flow regimes along Pit River (Jones & Stokes 2005:3-35). While traditional materials occur on Bunchgrass Mountain near the project area, implementation of the project would not change access or restrictions currently in place on forested Sierra Pacific Industries land. Accordingly, the proposed project would not affect existing limitations on access to areas for basketry materials.

## Geology and Soils

Many projects in Shasta County are subject to geologic hazards and constraints similar to those affecting the proposed project. However, with proper engineering design and geotechnical mitigation specific to each project's needs (as required by applicable state and local codes) neither individual nor cumulative impacts occur. Therefore, there is no significant cumulative impact, and no further analysis is required.

## Hazards and Hazardous Materials

Cumulative impacts related to hazards and hazardous materials could occur where regional development patterns place structures and/or people in proximity to significant sources of safety hazards or hazardous materials emissions, or where regional patterns develop new cumulatively hazardous sources near sensitive receptors.

The proposed project would require the storage of transformer oil, and fuel and carburetor fluid would be used for equipment and motor vehicles during installation. If these materials are handled improperly or if containers leak, workers or the public could be exposed to hazardous materials. Additionally, construction of the proposed project would require the use of vehicles and other construction equipment that use hazardous materials such as fuels, lubricants, and solvents. Hazardous material transport and storage is highly regulated by city, county, state, and federal authorities. While the proposed project would not contribute directly to significant hazards resulting from the transport and storage of gasoline, the potential exists for accidental release due to vehicle accidents. However, like the transport and storage of hazardous materials, the treatment of accidental spills and releases are highly regulated, and procedures and protocol exist to mitigate potential impacts to less-than-significant levels.

The proposed project would be subject to coordination with and approval from the FAA to ensure that structures and other project features do not infringe on the safe operations of nearby airports. This includes assurance that new sources of light and glare would not combine to create unsafe conditions for pilots.

The proposed project could increase the potential for wildland fires due to lightning or to transmission line or turbine malfunction that could emit sparks onto nearby vegetation. However, with preparation of an emergency response plan and maintenance of adequate firebreaks and other fire prevention precautionary measures, impacts related to wildland fires would not be cumulatively considerable.

The proposed project would not result in cumulative impacts related to interference with an adopted emergency response plan because there is no adopted emergency response plan for the project area (which is in a rural area). In addition, there are no anticipated cumulative impacts related to blade and ice throw, accidents involving the general public, or electrical shock and accidents because there are no other anticipated wind turbine projects in the study area that could lead to similar impacts.

Accordingly, the proposed project would have less-than-cumulatively-considerable impacts regarding exposure of the public to hazards or hazardous materials.

## Hydrology and Water Quality

Septic system failure has occurred in Shasta County. The magnitude of the potential cumulative impacts of these failures on water quality, particularly groundwater quality, is unknown (Shasta County 2004). Although the potential for the project's septic system to fail is minimal given the County's stringent design, monitoring, and maintenance requirements, such failure could cause the project to contribute to the potential existing cumulative water quality effects. However, because the project is in an area zoned and used primarily for the growing and harvesting of timber, the potential for additional septic systems to develop in the project area is low. The potential for cumulative water quality impacts resulting from widespread use or failure of septic systems in this area is low because the development potential of the area is low. Accordingly, this potential cumulative impact is considered less than significant.

## Land Use and Planning

Like impacts on aesthetics, cumulative development in the region can change the area's character from that of a sparsely settled, rural, undeveloped timberland and agricultural community to one characterized by development of many sorts. The proposed project would contribute to this cumulative impact by converting undeveloped forested land atop a ridge to developed energy-producing uses that entail structures, infrastructure, and the extension/improvement of roadways in the project area. However, because the development of structures is not intensive and surrounding land outside the project's 73 acres would remain in timber production, the contribution to widespread cumulative land use character changes in eastern Shasta County would be minimal.

## Noise

Construction and operational activities would cause no noise impacts at the nearest noise-sensitive land uses. Because no foreseeable future projects are currently proposed within a distance that would subject local noise-sensitive receptors to noise impacts in excess of allowable limits, the proposed project would have no cumulatively considerable impact.

## Public Services

As noted in Impact PS-1, project-specific impacts on law enforcement services would be less than significant because of precautionary measures that will be taken to prevent law enforcement incidents. Impact PS-2 notes that Mitigation Measures HAZ-5 through HAZ-7 would require the project applicant to comply with the legal requirements pertaining to fire prevention during project construction, create and maintain adequate firebreaks, practice fire prevention on an operational basis, and prepare an emergency response plan. These mitigation measures would also reduce impacts related to fire services to a less-than-cumulatively-considerable level. Because the project would not result in substantial increased demands for law enforcement and fire services as discussed in Impacts PS-1 and PS-2, the proposed project's contribution to cumulative public service impacts is not considered considerable.

## Traffic and Transportation

Impacts on vehicular traffic associated with the proposed project would occur during construction; however, these would be mitigated through implementation of a Traffic Control



Plan that would include notification requirements, coordination with Caltrans and local jurisdictions, and road repair. No other known wind energy projects would be constructed concurrently with the proposed project, and no other large-scale transportation projects will be occurring in the project vicinity along SR 299; as such, no cumulative impacts are anticipated. Adverse effects on traffic would be those effects that directly result from project construction. Implementation of mitigation measures described above would reduce these impacts to a less-than-significant level. Furthermore, operations and maintenance workers for the project would not have a significant cumulative impact on SR 299 traffic or local roads.

## Utilities and Service Systems

Regional development creates cumulative demand on all aspects of utility infrastructure by increasing the number of inhabitants, employees, or visitors to the area. Many larger projects enhance utilities or address their own demands by installing infrastructure or by contributing funding for necessary improvements. The proposed project would address its own infrastructure demands by installing water, sewer, and stormwater infrastructure. Accordingly, the proposed project would not contribute to considerably cumulative demands for utilities or service systems.

## 4.2 Growth-Inducing Impacts

Section 15126(d) of the State CEQA Guidelines requires that an EIR discuss the extent to which a proposed project would directly or indirectly foster economic or population growth or the construction of new housing, including the removal of obstacles to growth. The guidelines provide that growth in an area is not necessarily beneficial, detrimental, or of little significance to the environment.

Growth can be induced in several ways, including the elimination of obstacles to growth or stimulation of economic activity within a region. According to the standards of significance set forth in CEQA, a project is considered to be either directly or indirectly growth inducing if it results in any of the following conditions.

- Fosters economic or population growth or additional housing.
- Removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities).
- Taxes community services or facilities to such an extent that new services or facilities would be necessary.

The development of power infrastructure is a response to increased market demand and not a factor that induces new growth. The proposed project would provide electricity for the regional grid infrastructure that would be sold to customers served by that grid. The grid serves the western states; accordingly, adding to that overall supply of electricity does not induce growth in a particular location. Because the proposed project would not require the extension or improvement of other public services in the area, such as sewer and water supply, any existing barriers to development would remain unchanged.

Construction of the proposed project would require a short-term increase in personnel of up to 200 people; these personnel would be provided from the regional employment base that exists in the northern California area. Long-term employment would be limited to approximately 6–10

people. Therefore, the population and employment growth within the county anticipated to result from the proposed project would not be significant.

The proposed project would generally widen existing access roads. No other development would be anticipated as a result of the proposed project road improvements because the area is zoned and planned for timber uses, and installation of the wind turbines would tend to preclude other development from occurring.

## 4.3 Significant and Unavoidable Impacts

The analyses conducted in Chapter 3 of this Draft EIR indicated that the proposed project would result in the significant and unavoidable impacts listed below. See the appropriate sections for complete discussions of these impacts and any mitigation that might ameliorate their severity.

- Impact AES-2: Adverse effects on a scenic vista by degrading the visual character of the project area and its surroundings (significant and unavoidable)
- Impact BIO-8: Potential direct mortality of greater sandhill cranes (significant and unavoidable)
- Impact BIO-9: Potential direct mortality of bald eagles (significant and unavoidable)
- Impact BIO-11: Potential direct mortality of special-status raptors and other avian species (significant and unavoidable)
- Impact CUL-1: Visual and auditory disruption of Pit River Tribe religious practices conducted on Hatchet Ridge caused by construction and operation of wind turbines (significant and unavoidable)

## 4.4 Significant, Irreversible Environmental Changes

State CEQA Guidelines Section 15126.2(c) requires an EIR to discuss a project's irreversible environmental changes associated with the usage of nonrenewable resources during its construction and long-term operation. The same section also requires a discussion of the project's irreversible changes related to potential environmental accidents. This section provides the following direction for the discussion of irreversible changes:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements, which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that current consumption is justified.

The proposed project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels (e.g., fuel, oil, natural gas, and gasoline) for construction equipment, as well as consumption or destruction of other nonrenewable and slowly renewable resources (e.g.,

gravel, metals, and water) for construction and onsite structures and infrastructure. The operational phase of these project components would result in a minor amount of resource consumption associated with facilities maintenance. The proposed project would also result in the long-term conversion of timberlands to developed land uses. This conversion would constitute an irreversible commitment of land to another land use for the duration of the lifetime of the project (20–30 years). The irreversible commitment of nonrenewable energy resources would be offset by the beneficial energy effect of the project, which would reduce dependence on nonrenewable energy resources in California by providing energy with a renewable (wind) energy source.

## 4.5 Alternatives Analysis

The purpose of the alternatives analysis in an EIR is to describe a reasonable range of alternatives to the project or the project location that could feasibly obtain most of the project objectives, but would avoid or substantially lessen any of the significant environmental impacts of the project. An EIR should also evaluate the comparative merits of the alternatives. This section addresses the range of potential alternatives to the proposed project and the feasibility and environmental considerations of each.

Key provisions of the State CEQA Guidelines (Section 15126.6) pertaining to alternatives analysis are summarized below.

- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.
- The “no project” alternative shall be evaluated, along with its impacts. The “no project” analysis shall discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR shall be governed by a “rule of reason”; therefore, the EIR needs to evaluate only those alternatives necessary to permit a reasoned choice.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained, whose implementation is remote and speculative, and that would not achieve the basic project objectives.

The range of feasible alternatives should be selected and discussed in a manner that fosters meaningful public participation and informed decision-making. The factors that may be taken into account when addressing the feasibility of alternatives (as described in State CEQA Guidelines Section 15126.6[f][1]) include environmental impacts; site suitability; economic viability; social and political acceptability; technological capacity; availability of infrastructure; General Plan consistency; regulatory limitations; jurisdictional boundaries; and whether the proponent could reasonably acquire, control, or otherwise have access to an alternative site.

After completing an initial review of the proposed project along with all potential environmental impacts, the County identified a “reasonable range” of alternatives, as defined by CEQA. A preliminary alternatives screening report was prepared and is included as Appendix F.

The level of significance of all identified impacts is presented in the summary impacts table (Table ES-1).

Based on the screening criteria described in the preliminary alternatives screening report and the guidance summarized above, only the no-project alternative would substantially reduce one or more potentially significant impacts of the proposed project, however it would not meet any of the project objectives. While the Smaller Capacity Project and the Butte County Morning Glory Avoidance Alternative have the potential to incrementally reduce some of the environmental impacts of the proposed project, neither alternative would eliminate or substantially reduce any significant impact to a less-than-significant level. Furthermore, the impacts that could potentially be reduced under these alternatives would already be reduced to a less than significant level through mitigation measures applied to the project as proposed. Finally, neither of these alternatives is considered feasible by the project applicant.<sup>2</sup>

## 4.5.1 Alternatives Considered but Rejected

The County has identified and evaluated a “reasonable range” of alternatives to the proposed project that would be feasible and could potentially reduce the significance of impacts. The following alternatives were considered but rejected because they did not meet one or more of the screening criteria, or they failed to eliminate or substantially reduce one or more of the significant effects of the proposed project.

### Alternative Technologies

Alternative forms of energy generation (both renewable and nonrenewable) would theoretically be feasible for development at Hatchet Ridge. The development of a fossil fuel plant at the site is highly unlikely due to a variety of environmental and economic factors, including operational emissions.<sup>3</sup> Other renewable technologies, such as solar generation, would result in similar environmental impacts, including the land coverage required to accommodate a solar array with a

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<sup>2</sup> The project applicant, RES America, has provided the following information related to “feasibility” of the proposed project.

1. By reducing the number of turbines, we are essentially reducing the output for the project. Given the topography of the proposed project area, turbine locations cannot be altered or added to make up for loss of a group of turbines in one area of the project. For reasons of safety and turbine performance, crowding turbines together is not an option. As currently sited, the turbines are spaced the minimum distance from one another.
2. The minimum project size of 100 MW is absolutely essential to support the civil/electrical infrastructure for this relatively remote site. The cost of certain project facilities (e.g., substation, interconnection) are not reduced if the number of turbines is reduced. If turbines are removed, the cost of the project components must be absorbed by fewer turbines with reduced energy output. This drives the cost per MW to a point where the project is no longer economically viable.
3. All of the project commercial arrangements in regards to the Power Purchase Agreement, turbine supply, and warranty agreements are tied to 43 turbines and cannot be reversed. Changes to the output and number of turbines would render the agreements null and void. Given the time and cost associated with ordering turbines and negotiating agreements, renegotiating at this point would make the project infeasible.

<sup>3</sup> Furthermore, installation of a fossil fuel plant at the site would undermine the overall project objective of increasing renewable energy sources.

capacity of 100 MW. Accordingly, use of a different renewable source would not avoid or substantially reduce one or more of the potentially significant impacts associated with the project.<sup>4</sup> The use of vertical axis wind turbines could theoretically minimize the visual impact because of reduced height; however, the availability—and hence the feasibility—of these devices is unknown. Consequently, inclusion of a vertical axis wind turbine alternative would be deemed speculative, and not appropriate as a viable alternative to the project as currently defined.<sup>5</sup>

Theoretically, development of a nonrenewable energy source plant at Hatchet Ridge might also be possible. For example, in 2001, the Three Mountain Power Project was approved by the California Energy Commission. The project has not been built (likely due to financing problems) and its current status is unknown. Although wind energy projects and natural gas-fired power plants operate at greatly different capacity factors<sup>6</sup> and are not directly comparable in terms of energy output, both projects are located in the same general area and are proposed to use the same PG&E transmission line.

Analysis of the Three Mountain Power Plant project, as proposed, revealed that a project of its type would likely produce significant adverse environmental impacts that would not be associated with the current proposed wind farm project. In fact, the natural gas-fired power plant would have required significant water use, and was further estimated to produce the emission levels listed below.

- PM10—167 tons per year.
- NO<sub>x</sub> as NO<sub>2</sub>—144 tons per year
- CO—401 tons per year.
- SO<sub>x</sub> as SO<sub>2</sub>—10 tons per year.
- VOC—65 tons per year.

Clearly, the construction of a natural gas-fired power plant does not meet the project objectives<sup>7</sup>, and while it may theoretically reduce the significant visual impacts associated with the proposed project, it would result in several other potentially significant impacts.<sup>8</sup> Accordingly, the use of alternative technologies (either renewable or nonrenewable) would not constitute a viable alternative.

## Alternative Site

Selection of an alternative site could theoretically reduce the significance of impacts on cultural resources if a suitable wind area could be located that is not in a culturally significant location. Similarly, visual impacts could theoretically be reduced if a site that is not visible from a nearby town or other sensitive use could be found. Impacts on air quality could theoretically be reduced

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<sup>4</sup> CEQA Guidelines, §15126.6

<sup>5</sup> *Residents Ad Hoc Stadium Committee v. Board of Trustees* (1979) 89 Cal. App.3d 274

<sup>6</sup> *Capacity factor* is the ratio of the actual output of a power plant over a period of time to its output if it had operated at full capacity during that time period. For example, a wind power project might have a 35% capacity factor, while a natural gas plant might have a factor as high as 90%.

<sup>7</sup> One of the stated project objectives is to increase nonrenewable energy sources.

<sup>8</sup> A gas-fired plant would not likely reduce the significant impact on cultural resources associated with the lack of access to the region for Tribal religious purposes, because a plant of nearly any type would likely result in a similar lack of access.

if a site with specific conditions (e.g., available paved roads to reduce dust emissions) could be found. Lastly, it is possible that avian impacts at another location could be less than those associated with the proposed project, but a minimum of 1 year of monitoring data would be needed to support such a hypothesis, and a suitable site (that would also meet project objectives) would have to be identified.

In order to identify potential alternative sites within the jurisdictional confines of Shasta County, documentation of windpower site suitability was examined. The National Renewable Energy Laboratory has prepared a *Wind Power Map of Parts of Northern California and Nevada at 50m* documenting potential sites with suitable wind speeds to support a wind power project (Figure 4-1). This map also shows Tribal lands and transmission lines. There appear to be very few sites in Shasta County that could support a wind farm; Hatchet Ridge is one of those sites. In order for another site to be suitable for consideration as part of this analysis, it would also have to reduce one or more significant effects and be feasible. While it is possible that another suitable site may be located, it is not apparent that an alternative site would reduce the identified impacts of the proposed project. Additional study would be required; such additional study is beyond the scope of this alternatives analysis.<sup>9</sup>

In addition, a 2006 *Statement of Proposed Actions, Pacific Southwest Region, Occurring in More Than One Forest*, published by the Plumas National Forest indicated that Horizon Wind Energy Company had applied and been granted authority to install four monitoring meteorological towers in Township 28 N, Range 12 E on the Mt. Hough and Eagle Lake Ranger Districts on the Lassen National Forest. Of the four towers, three are located on the Plumas National Forest (Sections 5 and 6), and one is located on the Lassen National Forest (Section 16). The intent of these meteorological towers is to gather data continuously to monitor wind speeds. Based on data collected from this monitoring, one or more of these sites may theoretically be suitable for wind power development.

The potential impacts on visual resources, cultural resources, and avian and bat species at these sites is unknown at this time, but if a project was proposed on National Forest land, it would be subject to review under the National Environmental Policy Act. Shasta County has no jurisdiction over National Forest land; consequently, any proposed alternative site located on those lands may not represent a feasible alternative for the purposes of CEQA.<sup>10</sup>

Lastly, the California Energy Commission has identified five major wind resource areas (WRAs) in California, the closest to the proposed project being the Solano WRA in Solano County.<sup>11</sup> It is theoretically possible that another site could be found in Shasta County that has adequate wind speed and duration and is in suitable proximity to a transmission system with available capacity, but because Shasta County has no identified WRAs for which data are readily available, the selection of a specific alternative site to compare to the proposed project is highly speculative; accordingly, this alternative was eliminated from further consideration and evaluation.

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<sup>9</sup> For example, due to the prevalence of Native Americans throughout the majority of Shasta County, it would be difficult to define an area for a wind farm that would clearly not result in any cultural resources impacts.

<sup>10</sup> In *Citizens of Goleta Valley v. Board of Supervisors of Santa Barbara County* (1990) 52 Cal. 3d 553, 276 Cal. Rptr. 410, 801 P.2d 1161, the Supreme Court clarified the requirement that an EIR consider alternative project sites and suggested that a local agency need not consider siting a project outside its territorial jurisdiction as part of the EIR process. Cited in *SORE vs. City of West Hollywood*, 9 Cal.App.4 at 1745.

<sup>11</sup> According to the California Energy Commission, there are five WRAs in California (CEC 2002; and Miller and Simon 1978): Altamont Pass (Alameda and Contra Costa Counties), Pacheco Pass (in Merced County), San Geronio Pass (in Riverside County), Solano (in Solano County), and Tehachapi Pass (in Kern County).

## Phased Project Alternative

The proposed project could be installed in phases over a period of several years. The project could theoretically be developed in 3–5 phases of 20–33 MW each, as has been done with wind projects in other parts of California. A phased project may delay some of the permanent impacts associated with the project and may allow for adaptive management or implementation of improved design features in later phases. With a phased project, if impacts on avian or visual resources are greater than predicted after completion of the first phase, the County could impose additional conditions on the project, such as seasonal shut-downs or other measures that could reduce significant impacts, but a regulatory mechanism for such a strategy has not been identified. A phased project alternative would not reduce the ultimate significance of any impact (i.e., the level of significance of impacts at project completion) from the level of significance of the same impacts associated with the proposed project. Furthermore, implementation of a phased project may not meet the stated project objectives due to economic feasibility. Financing a phased project at this location may not be feasible.

Because the phased project alternative does not have the potential to reduce the long-term level of significance of impacts, nor is it likely to be consistent with all of the project objectives (e.g., it may not be economically feasible), this alternative was dismissed from further consideration.

## Alternative Site Plan

The arrangement of the turbines and other facilities could be reconfigured within the boundaries of the area that has been leased to accommodate the proposed project. A project with varied placement of turbines and other structures (e.g., substation, transmission interconnection points) could be feasible. However, the development of an alternative site plan does not have the potential to avoid or reduce significant impacts and may not be feasible, because careful placement and siting of turbines is necessary to take full advantage the wind resource and avoid multi-turbine interference. Any development on Hatchet Mountain would affect the culturally significant area, result in visual impacts, and result in some level of avian and bat mortality.

## Smaller Capacity Project Alternative

A smaller project could permanently reduce the magnitude or extent of some impacts. The proposed project would generate approximately 100 MW of electricity. A reduced project with a smaller capacity (e.g., 30 MW) would be possible and may be feasible. The potential for this alternative to reduce the significant impacts associated with the proposed project are discussed by resource topic below.

### Aesthetics

A smaller overall project would reduce the significance of the impact on a scenic vista, but not to a less-than-significant level. The installation of any typical “utility-scale” wind energy project would result in a significant visual impact from the town of Burney. Fewer turbines (e.g., a 30 MW project consisting of 15 turbines) would lessen the visual impact associated with the project, but the visual impact of a reduced number of turbines would still adversely effect the scenic vista (Impact AES-2). A smaller project would not provide a “substantial” lessening of the impacts on aesthetic resources.

### Biology

A smaller project would theoretically reduce the magnitude of biological impacts associated with the proposed project, including a proportional reduction in avian and bat mortality. Depending

on the size of the project, this alternative may result in a substantial reduction in biological impacts. The incremental change may not reduce the impacts before mitigation to a less-than-significant level.

### Cultural Resources

Impact CUL-1, visual and auditory disruption of the Pit River Tribe religious practices conducted on Hatchet Ridge, is considered a significant and unavoidable impact. This alternative would lessen the impact resulting from the introduction of the industrial features of the project, because the overall project would be smaller. However, the Smaller Capacity Project Alternative would not reduce this impact to a less-than-significant level. Accordingly, from a cultural resources perspective, this alternative does not represent a substantial environmental benefit over the proposed project.

## Butte County Morning Glory Avoidance Alternative

Based on the turbine arrangement shown in Figures 2-1 and 3.4-3, approximately 15 acres of occupied habitat for Butte County morning glory would be temporarily disturbed and 11 acres permanently affected by the proposed project. Butte County morning glory is designated by the California Native Plant Society as “rare and endangered in California.” Consequently, an evaluation of impacts on the species is mandatory under CEQA. Based on the total occupied habitat of the population in the area (approximately 144 acres), the potential permanent removal of 11 acres (approximately 8% of the population) could constitute a significant impact, although Mitigation Measures BIO-1 and BIO-2 would reduce this impact to a less-than-significant level.

Six turbines in the northwest portion of the project area would be eliminated or relocated under the Butte County Morning Glory Avoidance Alternative. The elimination of turbines from the Butte County Morning Glory occupied habitat area would not result in a substantial reduction of the visual and aesthetic, cultural resource, or avian and bat impacts associated with the proposed project. The effects on these resources are expected to be similar to those of the proposed project. All other effects are similarly anticipated to remain essentially the same under this alternative. Because the biological mitigation measures associated with the proposed project will reduce the impact to a less-than-significant level, this alternative does not present an environmentally superior alternative to the proposed project and is not considered to be economically feasible due to the reduction in power output associated with the elimination of the six turbines.

## 4.5.2 No-Project Alternative

Although this alternative would not meet the project objectives, it is evaluated in this EIR as required by CEQA. Such analysis entails consideration of (a) existing conditions and (b) reasonably foreseeable future conditions that would exist if the proposed project were not approved (CEQA Guidelines Sec. 15126[d][4]). Under the no-project alternative, the conditional use permit would not be issued and the proposed project would not be built. It is assumed that the land would continue to be managed for timber production.

Under this alternative, the existing physical conditions of the site would continue as described in the *Existing Conditions* section of each resource area discussed in Chapter 3, *Environmental Setting, Impacts, and Mitigation*. There would be no changes to the physical or visual character of the site. There would be no possibility of avian or bat mortality resulting from the project. There would be no impact on a scenic vista or disruption of Native American practices. No project-generated



traffic would be added to state or county roadways, and no electrical power would be generated at the site. The other project-specific impacts described in Chapter 3 would also not occur.

### **4.5.3 Environmentally Superior Alternative**

CEQA requires an EIR to examine a range of feasible alternatives to the project. State CEQA Guidelines Section 15126.6(e)(2) requires that the EIR identify which of those alternatives is the environmentally superior alternative. If the No-Project Alternative is the environmentally superior alternative, then CEQA requires an EIR to identify which of the other alternatives is the environmentally superior alternative.

The No-Project Alternative would reduce or minimize the significant effects on visual, biological, and cultural resources. The alternative technology, alternative site, phased project, smaller capacity, and Butte County morning glory avoidance alternatives do not have the potential to reduce significant impacts to a less-than-significant level; are remote and speculative in terms of implementation, with effects that cannot be reasonably ascertained; would not meet one or more of the project objectives; or would reduce the scale and power production capacity so as to render the project economically infeasible. Therefore, the proposed project is considered to be the environmentally superior action alternative.