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CHAPTER 4

Comparison of Alternatives

This section compares the environmental advantages and disadvantages of the Project and alternatives evaluated in detail in this Draft EIR. This comparison is based on the analysis of environmental impacts of the Project provided in Chapter 3, *Environmental Analysis*, and the descriptions of the Project and alternatives provided in Chapter 2, *Description of Project and Alternatives*. This comparison is designed to satisfy the requirements of CEQA Guidelines §15126.6(d), which states:

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

4.1 Comparison Methodology

The following methodology was used to compare alternatives in this Draft EIR:

- Step 1: Identification of Alternatives.** The alternatives development and screening process described in Section 2.5.1, *Alternatives Development and Screening*, was used to identify potential alternatives to the Project. Among the many potential alternatives initially considered, the No Project Alternative (described in Section 2.5.3.1); Alternative 1, South of SR 299 (described in Section 2.5.3.2); and Alternative 2, Increased Setbacks (described in Section 2.5.3.3), were carried forward for detailed environmental review. No other reasonable feasible alternatives meeting most of the basic objectives of the Project were identified that would substantially reduce or eliminate the potentially significant environmental impacts of the Project.
- Step 2: Determination of Environmental Impacts.** Potential environmental impacts of the Project and each of the alternatives were identified and analyzed in detail in Chapter 3, including potential direct, indirect, and cumulative impacts related to construction, operation and maintenance, and decommissioning and site restoration.
- Step 3: Comparison of Project with Alternatives.** Environmental impacts of the Project were compared to those of the No Project Alternative, Alternative 1, and Alternative 2 to make a preliminary determination of the Environmentally Superior Alternative.

4.2 Comparison of Alternatives

If the No Project Alternative were selected, none of the proposed wind turbines and associated facilities or infrastructure would be constructed, operated and maintained, or decommissioned on the Project Site. No Federal Aviation Administration–approved lighting would be present; none of the proposed ground clearance or subsurface disturbance would occur; and no electrical or communications lines would be installed on the Project Site. No new access roads would be constructed, existing culverts would not be improved. The Project Site would continue to be operated as managed forest timberlands subject to authorizations of California Department of Forestry and Fire Protection, the Regional Water Quality Control Board, and other regulatory agencies.

Because the No Project Alternative would avoid all potential impacts of the Project and Alternatives 1 and 2, the No Project Alternative is not included in **Table 4-1, Summary of Impacts of the Project and Alternatives**. For Alternatives 1 and 2, Table 4-1 provides a comparative analysis for each of the resource areas and concludes whether the Alternatives would cause impacts that would be substantially the same as, or increased or reduced relative to the Project.

4.3 Environmentally Superior Alternative

The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment. The No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would avoid all impacts of the Project. However, the No Project Alternative would fail to meet the basic objectives of the Project, including but not limited to: locating a commercially financeable wind energy project with the capacity to provide up to 216 megawatts to the Northern California grid (NP15) in close proximity to an existing Pacific Gas and Electric Company transmission line (see Section 2.3, *Project Objectives*).

Because the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives.

Determining an environmentally superior alternative can be difficult because of the many factors that must be balanced. For example, Alternative 2 could be preferred because, relative to the Project, it would further remove wind project infrastructure from residential property lines and from all roads, not just public ones. Slightly fewer roads and less below-ground and above-ground infrastructure would be constructed, operated and maintained, and decommissioned and removed from the Project Site. Similarly, the Project could be preferred because, relative to either Alternative 1 or Alternative 2, it would generate the greatest amount of renewable energy, and thus would offset the most metric tons of carbon dioxide emissions generated by fossil fuels and provide greater assistance to the State toward meeting the renewable energy generation targets set in Senate Bill 100.

Additional information received in or developed during the agency and public review period for the Draft EIR, or during the project approval process, could affect the balancing of the respective benefits and consequences of the alternatives. Accordingly, it would be premature to designate an Environmentally Superior Alternative at this stage.

**TABLE 4-1
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES**

EIR Section	Resource Area	Project	Alternative 1, South of SR 299	Alternative 2, Increased Setbacks
3.2	Aesthetics	<p>Impact 3.2-1: The Project, in particular the form, color, movement, and nighttime lighting of the proposed turbines, would have a substantial adverse effect by substantially reducing visual character, visual quality, and the quality of scenic vistas for tourists, recreationists, or residents. While the implementation of recommended Mitigation Measure 3.2-1 would reduce the potential significance of impacts, impacts would not be reduced below established thresholds of significance (Significant and Unavoidable).</p> <p>The Project would result in a less than significant impact relating not only to the potential to damage to scenic resources within a state scenic highway (Impact 3.2-2), but also to the potential to create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area (Impact 3.2-3). (Less than Significant Impact)</p>	<p>Under Alternative 1, the up-to-seven turbines north of SR 99 (turbine numbers A01 through A07) would not be constructed, resulting in incrementally fewer obstructions in the visual landscape and incrementally fewer safety lights. Depending on the specific viewing location, this alternative could reduce aesthetic impacts; however, from certain locations, clustering of turbines south of SR 299 could reduce the coherence between the Hatchet Ridge project and the proposed Project, creating an appearance of multiple separate wind energy generation projects encroaching in the foothills. Any increase or decrease in the aesthetic impacts created by Alternative 1 would not be significant. Therefore, depending on the viewing location, Alternative 1 could either slightly increase or reduce aesthetic impacts. Impacts would be substantially similar to the Project impact conclusions and mitigation requirements would remain the same.</p> <p>Equal to the Project</p>	<p>Under Alternative 2, proposed setbacks would be increased relative to the Project to preclude turbine construction within three times the height of the turbine (i.e., within 2,037 feet) of a residential property line and within 1.5 times the height of the turbine (i.e., within 1,018.5 feet) of State Route 299, any other publicly-maintained public highway or street, and of two private roads (Supan Road and Terry Mill Road). This would result in four of the Project turbines (M03, D05, B01 and K02) not being constructed. The resulting spacing of the turbine strings could reduce from key observation points 1, 2, and 3 the visibility and visual impact of turbines from SR 299 and regarding views from KOPs near SR 299. Although this alternative would reduce the overall visual impact of the wind energy development compared to the Project, impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>
3.3	Air Quality	<p>Impact 3.3-2c: Construction, decommissioning, and site reclamation activities would generate PM₁₀ emissions that would result in a cumulatively considerable net increase of PM₁₀, for which the Project region is non-attainment of California Ambient Air Quality Standards (CAAQS). The implementation of recommended Mitigation Measure 3.3-2c would reduce the severity of the impact, but not below established threshold of significance. (Significant and Unavoidable)</p> <p>Impact 3.3-1, Impact 3.3-2b: Construction, decommissioning, and site reclamation activities would generate NO_x and other emissions that could obstruct implementation of the Northern Sacramento Valley Planning Area 2018 Plan to attain the ozone CAAQS by resulting in a violation of an ozone air quality standard, and thereby would be inconsistent with the intent of the 2018 Plan and result in a cumulatively considerable net increase in regional ozone emissions. The implementation of recommended Mitigation Measures 3.3-1a and 3.3-1b would reduce the potential significance of these impacts below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>The Project would result in various less than significant impacts, including with respect to its construction, decommissioning, and site reclamation activities and the generation of ROG emissions that could result in a cumulatively considerable net increase of ozone (Impact 3.3-2a); its operation, which would generate pollutant emissions that would not result in a cumulatively considerable net increase of criteria pollutants (Impact 3.3-2d and 3.3-3); its emission of Toxic Air Contaminants (Impact 3.3-4); and its potential to create objectionable odors (Impact 3.3-5). (Less than Significant Impact)</p>	<p>Under Alternative 1, construction activities, including timber harvesting, would generate fewer vehicle trip and equipment emissions than the number estimated for the Project because up-to-seven fewer turbines and related infrastructure would be constructed. Similarly, the decommissioning and site reclamation phase also would generate fewer vehicle trip and equipment emissions than the amounts estimated for the Project because fewer turbines and related infrastructure would be developed and the size of the area to be reclaimed would be smaller than what was identified for the Project. Although the impacts would be reduced relative to the Project, the impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>	<p>Under Alternative 2, construction activities, including timber harvesting, would generate fewer vehicle trip and equipment emissions than the number estimated for the Project because up-to-four fewer turbines and related infrastructure would be constructed. Similarly, the decommissioning and site reclamation phase would generate fewer vehicle trip and equipment emissions than the amounts estimated for the Project because fewer turbines and related infrastructure would be developed and the size of the area to be reclaimed would be smaller than for the Project. Although the impacts would be reduced relative to the Project, the impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>
3.4	Biological Resources	<p>Operation of the Project would result in significant unavoidable Project-specific and cumulative impacts -potentially including mortality and injury- to eagles and other raptors (including goshawk) as well as to bats, including special-status bat species, via collision with power lines or operating wind turbine generators, or electrocution from energized components. See Impact 3.4-3, Impact 3.4-8, Impact 3.4-13, and Impact 3.4-18. Mitigation measures including monitoring and potential adaptive operational techniques are identified at the Project-specific level; however, even with mitigation incorporated, remaining impacts would be Significant and Unavoidable. Because no additional reasonable, feasible mitigation measures are available to address cumulative impacts that, if implemented, would reduce the Project's contribution below the established level of significance. Therefore, cumulative impacts would remain Significant and Unavoidable.</p> <p>Mitigation measures have been identified, the implementation of which would reduce other Project impacts below established thresholds. This is true with respect to: Impact 3.4-1 (potential construction impacts to special- status plant species within an unsurveyed 800-acre area of the Project Site), Impact 3.4-2 (construction impacts on nesting bald and golden eagles –although the likelihood of eagles nesting within the Project Site is low, construction noise and activity could result in nesting disruption or abandonment if activities occur during the nesting season and active nests are located in the vicinity), Impact 3.4-4 (decommissioning impacts to nesting bald and golden eagles similar to those described for the construction in Impact 3.4-3), Impact 3.4-6 (construction and decommissioning impacts to nesting raptors other than goshawks due to noise, vegetation removal, and increased activities during the construction and decommissioning), Impact 3.4-7 (construction and decommissioning impacts to nesting goshawks due to noise, vegetation removal, and increased activities</p>	<p>Under Alternative 1, the Project Site would be 4,086 acres resulting in 378 acres of less Project-related disturbance and seven (9.7 percent) fewer turbines than the Project. This would result in a similar percentage reduction in bird and bat collision-related impacts. Collisions resulting in eagle, other sensitive raptors, and bats would continue to be significant and unavoidable, but likely reduced by approximately 10 percent compared to the Project.</p> <p>Alternative 1 would require less Rocky Mountain Maple Riparian Scrub (a sensitive vegetation community) habitat removal. An estimated 31.3 fewer acres of this habitat would be removed, resulting in a 27 percent reduction in the impact area. As for the Project, the impacts related to removal of this habitat would be less than significant with mitigation incorporated.</p> <p>In other respects, Alternative 1 would reduce impacts relative to the Project generally commensurate with the reduction in disturbance and number of turbines. Although the impacts would be reduced relative to the Project, the impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>	<p>Alternative 2 is anticipated to result in 102 fewer acres of temporary disturbance and 49 fewer acres of permanent disturbance than the Project. Alternative 2 also would result in the construction and operation of four (5.5 percent) fewer turbines than the Project. This would result in a similar percentage reduction in bird and bat collision related impacts. Collisions resulting in eagle, other sensitive raptors, and bats would continue to be significant and unavoidable, but likely reduced by approximately 5.5 percent compared to the Project.</p> <p>Alternative 2 would require approximately 1.7 acres less removal of Rocky Mountain Maple Riparian Scrub habitat. As for the Project, the impacts related to removal of this habitat would be less than significant with mitigation incorporated.</p> <p>In other respects, Alternative 2 reduce impacts relative to the Project generally commensurate with the reduction in disturbance. Although the impacts would be reduced relative to the Project, the impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>

**TABLE 4-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES**

EIR Section	Resource Area	Project	Alternative 1, South of SR 299	Alternative 2, Increased Setbacks
3.4 (cont.)	Biological Resources	<p>during the construction and decommissioning), Impact 3.4-12 (habitat loss and water quality impacts on Pit roach, special-status amphibians and western pond turtle), Impact 3.4-15 (Project impacts to riparian habitat or other sensitive vegetation communities, including removal of up to 107.2 acres of sensitive Rocky Mountain Maple Riparian Scrub habitat), and Impact 3.4-16 (Project impacts to wetlands and other waters, including permanent impacts on 2.22 acres of wetlands and 1.2 acres of other waters; temporary impacts on 1.48 acres of wetlands and 0.6 acres of other waters; and impacts resulting from the construction of or improvement to 32 stream crossings, including crossings of perennial, ephemeral, intermittent and unvegetated ditch type streams.</p> <p>In other respects, Project impacts would be less than significant, and no mitigation measures would be required. This is true with respect to Impact 3.4-5 (Project impacts to California spotted owls – although California spotted owl use of the area is expected to be low based on Project Site surveys and the results of Hatchet Ridge Wind post construction monitoring efforts, 995 acres of the Project Site was identified as being suitable [moderate or high quality] habitat for California spotted owls and potential nesting disruption could result from project noise, vegetation clearing, and increased activities during the construction and decommissioning phases), Impact 3.4-9 (collision-related impacts to waterfowl during operation), Impact 3.4-10 (Project impacts on sandhill cranes during migratory movements in fall and spring), Impact 3.4-11 (construction and decommissioning impacts to nesting songbirds, potentially including special-status species), Impact 3.4-14 (temporary adverse impacts to special-status mammals during site preparation and construction, and during decommissioning and site restoration activities), and Impact 3.4-17 (impacts to movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites).</p>		
3.5	Communications Interference	<p>The Project could cause intermittent interference to or freezing of television reception at some residences in the service area of the stations that broadcast over the Project Site (Impact 3.5-1) and or interference with point-to-point microwave relay station transmissions due to turbine location adjustments or currently unknown transmissions. The implementation of recommended Mitigation Measures 3.5-1 and 3.5-3 would reduce the potential significance of these impacts below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>The Project also would result in a less-than-significant impact related to potential interfere with existing navigational systems operated by the FAA or the U.S. military (Impact 3.5-2). (Less than Significant Impact)</p>	<p>All of the turbine locations under Alternative 1 would be at least as far away from land mobile/public safety radio transmitter stations, earth satellite stations, AM broadcast facilities, television broadcast facilities, aircraft navigation beacons, and microwave and cellular communication facilities as for the Project. Therefore, the potential impacts on television reception (Impact 3.5-1), aircraft navigation (Impact 3.5-2), and microwave and cellular communication (Impact 3.5-3) would be the same as described for the Project. It is possible that Alternative 1 could slightly reduce the potential for unforeseen microwave communication interference because the turbines north of SR 299 would not be constructed (turbines A01, A02, and A03 are some of the closest to known microwave paths, as identified in Appendix D; however, evaluation of these turbines did not indicate interfere with the Fresnel zones of these paths, and so these turbines are not expected to cause interference. Therefore, the impact conclusions and mitigation requirements would be the same as for the Project.</p> <p>Equal to the Project</p>	<p>All of the turbine locations Under Alternative 2 would be at least as far away from land mobile/public safety radio transmitter stations, earth satellite stations, AM broadcast facilities, television broadcast facilities, aircraft navigation beacons, and microwave and cellular communication facilities as described for the Project. Therefore, the potential impacts on television reception (Impact 3.5-1), aircraft navigation (Impact 3.5-2), and microwave and cellular communication (Impact 3.5-3) would be the same as described for the Project, although there may be a small reduction in the potential for unforeseen microwave communication interference because several turbines would not be constructed (turbine D05 is one of the closest to known microwave paths, as identified in Appendix D; however, evaluation of this turbine did not indicate that it would interfere with the Fresnel zones of these paths and so is not expected to cause interference). Therefore, the impact conclusions and mitigation requirements would be the same as for the Project.</p> <p>Equal to the Project</p>
3.6	Cultural and Tribal Cultural Resources	<p>Impact 3.6-3: There is a prehistoric archaeological site in the Project Site that, for the purposes of CEQA, is considered a tribal cultural resource. In addition, Native American tribes have identified tribal cultural resources in the Project Site. The Project would cause a substantial adverse change in the significance of a tribal cultural resource if such a resource were disturbed or damaged. The implementation of recommended Mitigation Measures 3.6-1 and 3.6-3 would reduce the severity of the impact, but not below established thresholds (Significant and Unavoidable)</p> <p>Impact 3.6-1: The Project could cause a substantial adverse change pursuant to CEQA Guidelines Section 15064.5 due to disturbance of a historical resource, for example, during grading and excavation associated with construction, trenching, or the soil borings that would be collected to an approximately 50-foot depth to ensure that the proposed turbine foundations would be stable. The implementation of recommended Mitigation Measure 3.6-1 would reduce the potential significance below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>Impact 3.6-2: Given the prehistoric archaeological sensitivity of the Project Site, the possibility of encountering human remains cannot be discounted. Project-related disturbance of human remains would be a significant impact and could occur if, for example, grading, excavation, or soil borings associated with construction of facilities and infrastructure. The implementation of recommended Mitigation Measure 3.6-2 would reduce the potential significance below established thresholds. (Less than Significant with Mitigation Incorporated).</p>	<p>Under Alternative 1, no turbines would be erected north of SR 299. Thus, Alternative 1 would avoid all impacts to cultural and tribal cultural resources north of SR 299, if any such resources exist. There would be an overall reduced acreage of temporary and permanent disturbance, limited to a footprint defined in a smaller area with fewer turbines compared to the Project. The prehistoric archaeological site in the Project Site would not be avoided. Although impacts would be reduced relative to the Project, the impact conclusions and mitigation requirements would remain the same.</p> <p>Less than the Project</p>	<p>Under Alternative 2, the prehistoric archaeological site identified within the Project Site would not be avoided; however, the overall reduction in the number of turbines would reduce both temporary (construction-related) and permanent disturbance compared to the Project. Alternative 2 would require implementation of the same protective measures and mitigation as the Project. Although impacts would be reduced relative to the Project, impact conclusions and mitigation requirements would remain the same under Alternative 2.</p> <p>Less than the Project</p>

TABLE 4-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

EIR Section	Resource Area	Project	Alternative 1, South of SR 299	Alternative 2, Increased Setbacks
3.7	Energy	<p>Impact 3.7-1: Project construction, operation and maintenance, decommissioning and site reclamation could result in the wasteful, inefficient, or unnecessary consumption or use of energy associated with equipment and vehicle fuel use, although there are no unusual Project characteristics that would cause the such use to be less energy-efficient compared with other similar projects elsewhere in the state. The Project's use of electricity during operation and maintenance would be greatly offset by the generation of electricity from the Project. Accordingly, the Project's electricity demand also would not constitute a wasteful, inefficient, or unnecessary use of energy. (Less than Significant Impact)</p> <p>The Project would provide a new source of renewable energy supporting SB 100 and the State's energy goals, and would result in a substantial beneficial impact relating to renewable energy generation, the use of which to serve demand would be prioritized over gas-fired plants and non-renewable sources. (Beneficial Effect)</p>	<p>Under Alternative 1, incrementally less fuel would be required to construct, operate, maintain, and decommission a wind energy development on the Project Site because up-to-seven fewer turbines and related infrastructure would be developed. Alternative 1 would have a total nameplate generating capacity of up to 195 MW, which equates to approximately 21 MW less nameplate generating capacity as the Project. This output would more than offset the amount of electricity needed to operate and maintain Alternative 1, but would not result in as substantial a benefit as the Project due to the reduced overall capacity. Although the impacts and overall benefit of Alternative 1 would be reduced relative to the Project, the impact conclusion would remain the same, and no mitigation measures would be required.</p> <p>Greater than the Project</p>	<p>Alternative 2 would preclude the construction of four wind turbines, as compared to the Project, resulting in the loss of approximately 12 MW to 22.8 MW of generating capacity based on generation potential per turbine. Under Alternative 2, the number of workers and durations of construction, operation and maintenance, and decommissioning and site restoration would be incrementally less than for the Project, resulting in slightly reduced fuel use. Electricity needed during operation and maintenance would more than offset the amount of electricity needed to operate and maintain Alternative 2, but would not result in as substantial a benefit as the Project due to the reduced overall capacity. Although the impacts and overall benefit of Alternative 2 would be reduced relative to the Project, the impact conclusions would remain the same, and no mitigation measures would be required.</p> <p>Greater than the Project</p>
3.8	Forest Resources	<p>Impact 3.3-1: The Project would result in the temporary disturbance of up to 1,384 acres of timberland during construction and the permanent conversion of up to 713 acres of timberland to developed power generation facilities uses (i.e., to the loss of forest land or conversion of forest land to non-forest use). This would result in a reduction of less than 0.05 percent of the commercial forest lands in Shasta County. (Less than Significant Impact)</p>	<p>Alternative 1 would adversely affect incrementally less timberland than the Project because the approximately 378 acres of the Project Site located north of SR 299 would continue to be managed for timber production. This elimination of 378 acres of the Project Site from development would reduce temporary impacts to commercial forest lands from 1,384 acres to 1,259 acres and would reduce permanent impacts from 713 acres to 652.5 acres. Although the impacts of Alternative 1 would be slightly reduced relative to the Project, the impact conclusion would remain the same, and no mitigation measures would be required.</p> <p>Less than the Project</p>	<p>Alternative 2 would reduce temporary impacts to commercial forest lands from 1,384 acres to 1,282 acres relative to the Project and would reduce permanent impacts from 713 acres to 664 acres. Although the impacts of Alternative 2 would be slightly reduced relative to the Project, the impact conclusion would remain the same, and no mitigation measures would be required.</p> <p>Less than the Project</p>
3.9	Geology and Soils	<p>The Project would cause less-than-significant impacts to geology, soils and paleontological resources, including the risk of loss, injury, or death involving strong seismic ground shaking (Impact 3.9-1), seismic-related ground failure (including liquefaction) (Impact 3.9-2), and landslides (Impact 3.9-3). It also would result in less-than-significant impacts resulting in substantial soil erosion or the loss of topsoil (Impact 3.9-4) or unstable geologic units or soils that potentially could result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse (Impact 3.9-5). Further, the Project would cause less-than-significant impacts relating to the creation of substantial direct or indirect risks to life or property due to its location on expansive or corrosive soil (Impact 3.9-6) and the adequacy of onsite soils to support the proposed septic tank (Impact 3.9-7). (Less than Significant Impact)</p>	<p>Alternative 1 would result in an incremental reduction in soil disturbance (and erosion potential) relative to the Project due to the fact that up-to-seven fewer turbines and related infrastructure would be developed, and fewer onsite road miles would be needed to develop and serve Alternative 1. A septic system would be developed just as for the Project. Although the impacts of Alternative 1 would be slightly reduced relative to the Project, the impact conclusions would remain the same, and no mitigation measures would be required.</p> <p>Less than the Project</p>	<p>Alternative 2 would result in an incremental reduction in soil disturbance (and erosion potential) relative to the Project due to the fact that four fewer turbines and related infrastructure would be developed, and fewer onsite road miles would be needed to develop and serve Alternative 2. A septic system would be developed just as for the Project. Although the impacts of Alternative 2 would be slightly reduced relative to the Project, the impact conclusions would remain the same, and no mitigation measures would be required.</p> <p>Less than the Project</p>
3.10	Greenhouse Gas Emissions	<p>The Project also would have a less than significant impact relating to its potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The Project would directly support the 40 percent reduction in GHG emissions by 2030 target under the 2017 Scoping Plan Update and goal of SB 100 for increasing California's procurement of electricity from renewable sources to 100 percent by 2045; Executive Order B-55-18 and the new statewide goal of achieving carbon neutrality (zero-net GHG emissions) by 2045 and maintaining net negative emissions thereafter; the 2018 Regional Transportation Plan & Sustainable Communities Strategy for the Shasta Region; and the Forest Carbon Plan. (Impact 3.10-2).</p> <p>The Project would result in a less-than-significant impact relating to the generation, directly and indirectly, of GHG emissions such as CO₂, methane, nitrous oxide and SF₆. After accounting for the annualized construction and decommissioning, and annual operational emissions of 809 MT CO₂e per year, and the loss of carbon sequestration capacity during the Project's operational timeframe, the Project would provide a potential reduction of 225,131 MT CO₂e per year. Overall, this would be a beneficial impact. (Impact 3.10-1)</p>	<p>Alternative 1 would generate incrementally fewer GHG emissions than the Project and would offset incrementally fewer MT CO₂e per year because it would have a total nameplate generating capacity that would be approximately 21 MW less than the Project due to the reduction in the number of turbines. There would be no change relative to the Project with respect to plan consistency. The impacts of Alternative 1 would be slightly reduced relative to the Project; the beneficial effect of Alternative 1 also would be reduced. Nonetheless, the impact conclusions would remain the same, and no mitigation measures would be required.</p> <p>Greater than the Project</p>	<p>Alternative 2 would generate incrementally fewer GHG emissions than the Project and would offset incrementally fewer MT CO₂e per year because it would have a total nameplate generating capacity that would be 12 to 22.8 MW less than the Project due to the reduction in the number of turbines. There would be no change relative to the Project with respect to plan consistency. The impacts of Alternative 2 would be slightly reduced relative to the Project; the beneficial effect of Alternative 2 also would be reduced. Nonetheless, the impact conclusions would remain the same, and no mitigation measures would be required.</p> <p>Greater than the Project</p>

TABLE 4-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

EIR Section	Resource Area	Project	Alternative 1, South of SR 299	Alternative 2, Increased Setbacks
3.11	Hazards and Hazardous Materials	<p>During normal operation, equipment failure or an extreme event could lead to turbine failure, resulting in a potential hazard (Impact 3.11-3). The Project also could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Impact 3.11-7). The implementation of recommended Mitigation Measure 3.11-3 and Mitigation Measure 3.11-7, respectively, would reduce the potential significance of each impact below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>The Project would have a less-than-significant impact from the potential to create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials or wastes (Impact 3.11-1), reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (Impact 3.11-2), potential hazards from ice shed from turbine blades (Impact 3.11-4), applications of certain pesticides (Impact 3.11-5), and from the alternating changes in light intensity that could occur when turbine blades are rotating (Impact 3.11-6).</p>	<p>Alternative 1 would result in substantially the same impact as the Project relating to equipment or turbine failure and to potential impairment of or interference with an evacuation plan. The same mitigation requirements would apply.</p> <p>Alternative 1 would result in incremental reductions in the less-than-significant impacts that would be caused by the Project due to the up-to-seven fewer turbines that would be constructed, operated and ultimately decommissioned. As a result, Alternative 1 would cause an incremental reduction in the amount of hazardous materials or waste, incrementally fewer turbine blades that could shed ice, and incrementally less vegetation that would be subject to pesticide application. The turbines that would be installed under Alternative 1 would cause substantially the same shadow flicker as the Project in light of the locations of potential receptors. Even with these incremental changes in impact levels, the impact conclusions would remain the same.</p> <p>Less than the Project</p>	<p>Alternative 2 would differ from the Project by precluding the construction, operation and maintenance of turbines within three times the height of the turbine from a residential property line and would require setbacks of 1.5 times the height of the turbine from public and private roads. Because Project turbines (M03, D05, B01 and K02) not be constructed, Alternative 2 would result in a less than significant impact relative to whether, during normal operation, equipment failure or an extreme event could lead to a turbine failure resulting in a blade throw. Under Alternative 2, Mitigation Measure 3.11-3 (Mandatory Setbacks) would not be required. Given the greater distance between proposed turbines and potential visual receptors, the less than significant impact of the Project relating to shadow flicker would be even more remote under Alternative 2. Remaining impacts would be incrementally reduced, or substantially the same as the Project.</p> <p>Less than the Project</p>
3.12	Hydrology and Water Quality	<p>The Project would, unless mitigated, violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during construction and decommissioning (Impact 3.12-1); substantially degrade groundwater quality from blasting, if it occurs (Impact 3.12-2); substantially increase siltation of waterways or provide substantial additional sources of polluted runoff during construction and decommissioning (Impact 3.12-4); and conflict with implementation of the Central Valley Basin Plan (Impact 3.12-5). The implementation of recommended mitigation measures would reduce the potential significance of each of these potential significant impacts below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>The Project would result in a less-than-significant impact relating to the potential to decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin (Impact 3.12-3).</p>	<p>Alternative 1 would avoid all impacts to Little Hatchet Creek and most disturbance-related impacts to the main stem of Hatchet Creek. There would be an overall reduction in temporary and permanent disturbance due to the fewer number of turbines compared to the Project. Although the impacts of Alternative 1 would be reduced relative to the Project, the impact conclusions would remain the same, and the same mitigation measures would be required.</p> <p>Less than the Project</p>	<p>Given the location of the Project turbines that would not be constructed under Alternative 2, Alternative 2 would result in substantially similar impacts to hydrology and water quality as the Project. The same impact conclusions would be reached, and the same mitigation measures would be required.</p> <p>Equal to the Project</p>
3.13	Noise and Vibration	<p>The Project could result in the generation of a substantial temporary increase in ambient noise levels (Impact 3.13-2) on and near the Project Site in excess of standards if construction activities were required during nighttime hours or during helicopter use. The implementation of recommended Mitigation Measure 3.13-2 would reduce the potential significance of this potential significant impact below established thresholds. The Project also could result in significant impacts due to groundborne vibration from blasting. The implementation of Mitigation Measure 3.13-3 would reduce impacts to below established thresholds. (Less than Significant with Mitigation Incorporated)</p> <p>The Project would have a less-than-significant impact from operational noise due to the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project (Impact 3.13-1).</p>	<p>Because the Project turbines that would not be constructed under Alternative 1 would be located over 5,000 feet from the nearest receptor (LT-3) and, thus, would contribute substantially less to noise and vibration impacts, the impacts of Alternative 1 would be substantially the same as those of the Project, the impact conclusions would be the same, and the same mitigation requirement would apply.</p> <p>Equal to the Project</p>	<p>Under Alternative 2, proposed setbacks would be increased relative to the Project to preclude turbine construction within 2,037 feet of a residential property line and within 1,018.5 feet of SR 299, any other publicly-maintained public highway or street, and of Supan Road or Terry Mill Road. Implementation of these setbacks would remove turbines M03, D05, and B01 based on the residential property line setback, and would remove turbine K02 based on the roadway setback. The effect of eliminating these turbines, in particular turbine D05, would reduce the operational and construction-related noise levels at receptor location R-4 compared to those identified for the Project. Although this impact would be incrementally reduced relative to the Project, the impact conclusions would be the same and the same mitigation requirements would apply.</p> <p>Less than the Project</p>
3.14	Transportation	<p>The Project would, unless mitigated, substantially increase safety hazards to the public and inhibit emergency access due to the proposed use of oversize vehicles, which could limit motorists' views on roadways and obstruct the driving area (Impact 3.14-3, Impact 3.14-4). The implementation of recommended Mitigation Measure 3.14-3 would reduce these potential significant impacts to a less-than-significant level. (Less than Significant with Mitigation Incorporated)</p> <p>The Project would result in less-than-significant impacts relating to its potential to conflict with a program plan, ordinance or policy addressing the circulation system (Impact 3.14-1) and its potential to conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled (VMT) as the appropriate focus of transportation analyses toward reducing related GHG emissions (Impact 3.14-2).</p>	<p>Alternative 1 would require incrementally fewer oversized loads to deliver/remove heavy construction equipment and wind turbine components due to the reduction by up to seven turbines relative to the Project. Further, Alternative 1 would incrementally further reduce the Project's less-than-significant VMT impact because incrementally fewer vehicle trips by pick-up trucks, haul trucks, and worker vehicles due to the possibility of an incremental reduction in construction and decommissioning schedules resulting from a need for less work to occur during those timeframes. Although the impacts of Alternative 1 would be reduced relative to the Project, the impact conclusions would remain the same and the same mitigation measure would be required.</p> <p>Less than the Project</p>	<p>Alternative 2 would require incrementally fewer oversized loads to deliver/remove heavy construction equipment and wind turbine components due to the reduction by four turbines relative to the Project. Further, Alternative 2 would incrementally further reduce the Project's less-than-significant VMT impact because it would require fewer vehicle trips due to the possibility of an incremental reduction in construction and decommissioning schedules resulting from a need for less work to occur during those timeframes. Although the impacts of Alternative 2 would be reduced relative to the Project, the impact conclusions would remain the same and the same mitigation measure would be required.</p> <p>Less than the Project</p>

TABLE 4-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

EIR Section	Resource Area	Project	Alternative 1, South of SR 299	Alternative 2, Increased Setbacks
3.15	Utilities and Service Systems	The Project would have a less-than-significant impact on utilities and service systems relating to the sufficiency of water supplies available to serve the Project (Impact 3.15-1), the adequacy of a wastewater treatment provider's capacity to serve the Project's projected demand (Impact 3.15-2), and the Project's potential to generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals (Impact 3.15-3). (Less than Significant Impact)	Alternative 1 would incrementally reduce water, wastewater and solid waste needs commensurate with the reduction in development and ground disturbance associated with up-to-seven fewer turbines and related infrastructure such as would be needed for the collector system, access roads, and lay-down areas relative to the Project. Storm water drainage infrastructure or improvements would not be required north of SR 299. Although the impacts of Alternative 1 would be reduced relative to the Project, the impact conclusions would remain the same. Less than the Project	Alternative 2 would incrementally reduce water, wastewater and solid waste needs commensurate with the reduction in development and ground disturbance associated with the development of four fewer turbines and related infrastructure. Although the impacts of Alternative 2 would be reduced relative to the Project, the impact conclusions would remain the same. Less than the Project
3.16	Wildfire	The Project would, unless mitigated, substantially impair an adopted emergency response plan or emergency evacuation plan (Impact 3.16-1); exacerbate wildfire risks and expose Project occupants to pollutant concentrations or a significant risk of loss, injury or death from a wildfire or the uncontrolled spread of a wildfire (Impact 3.14-2); and expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes (Impact 3.16-4). The implementation of recommended Mitigation Measure 3.16-1; Mitigation Measures 3.16-2a, 3.16-2b and 3.16-2c; and Mitigation Measure 3.16-4 would reduce these potential significant impacts to a less-than-significant level. (Less than Significant with Mitigation Incorporated) The Project also would have a less-than-significant impact resulting from the proposed installation and maintenance of infrastructure such as roads, fuel breaks, emergency water sources, power lines or other utilities because such infrastructure could exacerbate fire risk (Impact 3.16-3). (Less than Significant Impact)	Alternative 1 would incrementally reduce the construction, operations and maintenance, and decommissioning footprint, restricting it to the portion of the Project Site that is located south of SR 299. This would have the effect of incrementally reducing the potential for a wind project-related ignition during all phases of the Project. Further, under Alternative 1, the portion of the Project Site north of SR 299 would remain under timber management and production, which could decrease the risk of wildland fire because that portion of the Project Site would be harvested and thinned, preventing excessive fuel build up in the area of the Project Site north of SR 299. Although the impacts of Alternative 1 would be reduced relative to the Project, the impact conclusions would remain the same and the same mitigation requirements would apply. Less than the Project	Alternative 2 would reduce the number of turbines by four relative to the Project, and so would incrementally reduce potential ignition sources from turbines, vehicles and equipment during construction, operation and decommissioning relative to the Project. Additionally, increasing the setbacks of the turbines from residential properties would provide some additional protection to surrounding communities by increasing the area between residences and the turbines in the event that a turbine fire were to occur. Although Alternative 2 would reduce impacts to wildland fire slightly, impact conclusions would be the same and the same mitigation requirements would apply. Less than the Project

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