

## Response to Don Johnson

262-1. Development of the Draft EIS was a collaborative effort involving professionals and technical specialists from at least four organizations: Tetra Tech, the PUD, the USDA Forest Service, and CAI. Tetra Tech, as noted in this comment, was contracted as “a capable, well-staffed consulting firm.” Tetra Tech was not contracted to work independently of the PUD staff as this comment implies. Rather, they were contracted to work for both Lead Agencies: the PUD and the USDA Forest Service. Essentially, Tetra Tech served as an extension of the staff of these agencies. This is standard practice in situations where state and federal agencies contract EIS consulting services and Tetra Tech has served in this capacity, namely as an extension of agency staff, on numerous large-scale, high profile EIS projects throughout the northwest and elsewhere in the country. Tetra Tech and the USDA Forest Service staff involved in this project are unaware of any cases where a consultant hired by an agency with SEPA or NEPA oversight responsibilities has operated independently of that agency.

The Lead Agencies and staff of Tetra Tech disagree with the assertion that the EIS process has not been an “unbiased and transparent effort to determine the relative environmental impact of the alternatives.” With respect to the issue of transparency, the EIS process has followed all the public involvement requirements in both NEPA and SEPA. In addition, in an effort to provide various avenues for public involvement, the PUD developed a project-specific web page and posted all the Draft EIS materials. The PUD also provided two public hearings with a court recorder to provide additional opportunities for public comment, and continues to provide an open forum for the public during twice-monthly PUD commissioner meetings. Further, the PUD Board of Commissioners approved the purpose and need and alternatives selected for detailed evaluation in a public meeting.

Under both SEPA and NEPA, the lead agency is responsible for publishing a Draft EIS for comment by the public and other agencies. There is no requirement that all preliminary draft sections or partial, incomplete documents be released to the public. This type of distribution would, as noted by Manager Berrie and quoted in this comment, be inappropriate. It is, however, appropriate for the Lead Agencies to review and provide feedback on the work of their consultant prior to its publication and this is the case here. The preliminary draft document noted in the comment was distributed to the PUD and the USDA Forest Service, including members of the USDA Forest Service’s shadow Interdisciplinary Team (IDT), for review. Subsequent revisions were made based on input from PUD, USDA Forest Service, and Tetra Tech staff.

The Strategic Consulting and Permitting task was added to Tetra Tech’s scope of work as part of the contract revision in May 2004 that was approved by the PUD’s Board of Commissioners. This task is described in the revised scope as follows:

Tetra Tech will provide strategic consulting services to the PUD, including coordination with legal counsel, management of the permitting process, and services to facilitate the coordination of the NEPA/SEPA process with the acquisition of all needed permits to complete construction. We will assist PUD staff with strategies for approaching the EIS process and managing public input successfully. This task does not include any testimony in any court proceeding or any court proceeding support.

Tetra Tech will assist PUD staff with related environmental permitting, including JARPA, HPA or 404 permits required for creek, river, or wetland crossings, construction stormwater

permits, the USDA Forest Service Special Use Permit and Rights-of-Way grants from DNR and other state or federal agencies.

In addition, as was quoted in the comment, Chuck Berrie's statement that draft material might contain factual errors, omissions and unnecessary information is an accurate statement. This is one of the reasons that ongoing review of drafts has been undertaken by Tetra Tech, legal counsel for the PUD, and PUD and USDA Forest Service staff prior to distribution of material to the public. This review has not undertaken in an effort to conceal information from the public or the Board of Commissioners, but instead has been directed towards making sure that any document released to the public is accurate and reflects the most current information available. Both state and federal law recognize a deliberative process privilege that allows public officials, their legal counsel and consultants to review and discuss issues and information concerning the discharge of the public officials' duties confidentially, before information or documents are publicly disseminated.

262-2. The cost issue is controversial, as noted in the comment. Neither NEPA or SEPA require that this type of cost information be included in an EIS. Indeed, SEPA suggests that the contents of a SEPA document be limited to "environmental impacts" (WAC 197-11-440(8)). Consistent with this requirement, Tetra Tech recommended that the PUD conduct a separate cost estimate and present the findings of this analysis in the EIS only as they pertain to environmental impacts, specifically potential electric rate increases.

Many of the comments received during public scoping requested that the cost analysis be included as part of the EIS and this sentiment was reiterated by at least one of the PUD commissioners. Based on this input, the PUD decided to directly incorporate this information in the EIS.

The emails and drafts referred to in this comment were provided to the comment author in his role as a PUD Commissioner. These drafts were part of an ongoing discussion among the PUD staff, the CAI consultants, and Tetra Tech, and are protected under FOIA and the Washington State Records Act from public disclosure because they are "works in progress". In addition, they would be subject to the deliberative process privilege referred to in the response to Comment 262-1.

CAI is an independent, electrical engineering firm that was selected for the cost estimate work following a competitive bidding process. This selection was approved by the PUD Board of Commissioners. The drafts reviewed by the comment author show that initial assumptions made by the new contractor were refined through discussion. Some errors were discovered and corrected. The final product of these discussions is the public documentation found on the PUD website.

The PUD has not contracted Potelco to design any of the proposed alternatives. As stated in the Draft and Final EIS, engineering design will be completed for the selected alternative only. Potelco did not provide another cost estimate following the site visit referenced in the comment. Please also see the response to Comment Topic 3.

262-3. Other "hot" rebuild techniques that do not use the Potelco robotic arm also require two construction vehicles with outrigger stabilizers. One vehicle is responsible, with or without robotic arms, to carefully hold the 115 kV "hot" transmission conductors while the other vehicle removes and replaces the structure beneath the hot conductors. The 20 x 30' pad is an adequate

estimate for any pair of construction vehicles that are able to work in very constrained working conditions.

262-4. The Tetra Tech “presentation” referred to in this comment was not intended to be a presentation. It is simply a summary of the field visit prepared by the Tetra Tech staff member who attended the visit. The purpose of this document was to summarize the visit and provide photographs for review by the Tetra Tech specialists preparing the Draft EIS. The document was posted on the Tetra Tech intranet for review by staff members, as appropriate. It was in powerpoint format because this allowed the addition of text. The comment does not provide any information that supports the assertion that the Draft EIS contradicts these photographs and, as a result, it is not possible to provide a specific response to this concern. The estimates of disturbance used to assess the potential environmental impacts of a “hot” rebuild in the Draft EIS are consistent with the type of equipment that would be necessary to complete this work. Disturbance areas for structures that would be replaced “hot” are estimated to be approximately 1,200 square feet compared to 900 square feet for structures that would be replaced or installed cold. This difference reflects the need for additional equipment to conduct a “hot” rebuild.

262-5. Please see the response to Comment Topic 3. The estimated costs for alternatives 2 and 4 presented in the Draft EIS are \$10.8 million and \$15.9 million, respectively.

262-6. The Quick Reference Guide summarizes the project objectives and the alternatives and is intended as a reference guide for reviewers who are less familiar with the project. It does not present cost information and is not intended to be an index for the document. The index is presented as Section 9. Cost supporting information is provided in Appendix C of the Draft EIS. Please see the response to Comment Topic 3.

The Table of Contents outlines the sections to the third heading level, which is a standard and appropriate level of detail. This guide enables readers to look up the effects by resource area, among other things. The index, which was generated electronically for the Draft EIS using indexing software, has been revised so that it identifies the main sections where the subjects are discussed.

262-7. Please see the response to Comment Topic 1.

262-8. Please see the response to Comment Topic 2. The comment author appears to believe that a smaller conductor would reduce the line losses that would be experienced under Alternative 4. This is not the case, as is outlined in more detail in response to Comment Topic 2.

262-9. The basis for not using the Highway 97 line to provide service to the Malott area in 1986 was that the Highway 97 line was not owned by the PUD in 1986; instead, that line was owned by BPA at this time. The PUD only considered a tap of its own system. In addition, a tap of the Highway 97 line would have involved a river crossing and disturbance of riparian habitat. Further, the Malott tap accounted for just 5 percent of the total load in 2005. The current problems with the existing Loup Loup transmission line would still exist if this load was directly served by the Highway 97 line.

262-10. Please see the response to Comment Topic 1.

262-11. All structures must be visited and two pads leveled at each to conduct the hot rebuild. If additional structures were added, more ground disturbance would occur. Based on the desire to minimize ground disturbance, an alternative or option that involved introducing midspan

structures was not considered. If one of the alternatives that involves a “hot” rebuild of the Loup Loup line is selected (Alternatives 4, 5, and 7 [partially]), then replacing all structures is necessary to assure the needed service life of the system

Therefore an alternative or option that involved introducing midspan structures was not considered. Replacing all the affected structures is necessary to assure the needed service life of the system if one of the alternatives that involves a “hot” rebuild of all of part of the Loup Loup line is selected .

262-12. Please see the response to Comment Topic 2. The 556 conductor was chosen for alternatives that involve rebuilding the existing Loup Loup transmission line to provide equivalent system capacity across all alternatives.

262-13. The process used to select the alternatives for further analysis is discussed in Section 2.2 of the Draft EIS. As described in this section, the purpose and need for the project and the range of reasonable alternatives to the Proposed Action (Alternative 2) were presented at the February 24, 2004 Board of Commissioners meeting and approved by the Board. The ability of the alternatives to meet the purpose and need is summarized in Tables 2-5 through 2-9 of the EIS.

The comment does fully not explain how a phased cold rebuild of the existing Loup Loup transmission line would work in practice. The proposed reconstruction of the distribution system can proceed with a cold rebuild during planned outages because the majority of the structures and lines to be replaced serve only a limited number of customers. The existing Loup Loup transmission line is 27 miles long and any planned outage would affect all the customers served by the line. The proposed cold rebuild with planned outages would involve a lengthy series of outages affecting all customers on the Loup Loup line, even if those outages were spread over three years.

262-14. The comment does not provide a reference for the conclusion that Alternative 4 would not improve transmission reliability. As noted in Table 2-6 and discussed elsewhere in the Draft and Final EIS documents, Alternative 4 would improve transmission reliability, but the radial line would still be subject to potential disruptions from unscheduled outages due to wildfire, windstorm, ice storms, or accidents. The only way to substantially reduce the potential for these types of outage is to develop a looped system, as proposed under Alternatives 2 and 3.

262-15. Upgrading the distribution system under Alternatives 4, 6, and 7 would involve rebuilding the Twisp and Pateros main feeders. This would improve distribution reliability, as noted in Tables 2-6, 2-8, and 2-9 of the EIS. Despite this improvement, the feeder length would, however, remain the same, that is the circuits would continue to extend from the existing Twisp and Pateros substations and the number of customers per mile of distribution system would remain the same. A single outage would continue to affect the same number of customers on long feeders.

262-16. Please see the response to Comment Topic 1. Wire or conductor life is proportional to load and the reduction in distribution load that would occur under Alternatives 2, 3, and 5 would extend the life of the existing distribution circuits.

262-17. These costs are included in the cost estimates presented in the Draft EIS. Easement costs are, for example, included in the column in Table C-5 (Appendix C) labeled “private easement costs.” The costs included in the estimates presented in the draft and the associated

assumptions are described in Section 3 of Appendix C. Please also see the response to Comment Topic 3.

262-18. Helicopter use is explicitly included in the cost estimate provided by CAI. Commissioner Johnson requested and was provided the detailed calculations, which are included in the Final EIS in the revised Appendix C, Cost Estimate, and was aware that the additional \$310,000 estimated cost for delivering structures by helicopter was included in the cost estimate for Alternative 2.

In designing each alternative, PUD staff attempted to minimize environmental impact. Minimizing the use of roads through the use of helicopters for installation and snowmobiles for routine inspection is a critical mitigation measure for Alternative 2.

It is realistic to use helicopters for construction, and such use is frequent throughout the state where appropriate. It is also realistic to use snowmobiles for routine patrol. After installation of a new transmission line, and barring catastrophic events like wildfire, no major replacement activities will be needed for at least 20 years. The planning horizon for the maintenance activities for this EIS is 10 years.

Projected maintenance costs do not include the use of helicopters because there is no projected need for helicopters for maintenance. Maintenance costs per mile are for patrol only. The PUD estimates that patrol times are roughly equal whether snowmobiles or trucks are used. Therefore, patrol costs per mile are estimated at \$215 per mile for Alternatives 2, as well as for Alternatives 4 through 7. In addition, Table 3-9 in the EIS includes ongoing periodic structure replacement for the existing Loup Loup line if Alternative 2 or 3 is chosen.

Finally, the scheduled outage scenario shown in that table for Alternative 2 and 5 refers to distribution system structure replacement, which would affect a much smaller number of ratepayers. No scheduled distribution outages would be required over the maintenance planning horizon for other alternatives.

262-19. Please see the response to Comment Topic 6 with respect to the differences in road requirements between the 1998 Twisp/Pateros Transmission Line and Substation Project and Alternative 2 evaluated in the Draft EIS.

Estimates of the miles of road requiring some blade work are presented by alternative in Table 3.8-8 of the Draft EIS. These estimates have been updated and revised in the Final EIS and are summarized in Section 2.4.3 of the Final EIS. The costs of the road work required under each alternative are identified in the column labeled "road construction and reconstruction costs" in Table C-5 in Appendix C of the Draft EIS. Please see the response to Comment Topic 3 for additional information regarding the cost estimate.

262-20. As noted in Section 2.4.5.4 of the Draft EIS, use of old holes to install new structures can only be determined at the time of structure installation. To ensure all potential costs were addressed, the analysis prepared for the Draft EIS is based on the assumption that all new holes would be required for the purposes of analysis.

Approximately 50 percent of the holes required under Alternative 2 would be dug by hand, not 75 percent, as noted in the comment (see Table 2-17 in the Draft EIS). The cost analysis presented in the Draft EIS assumed that hole digging costs would average \$2,000 per hole regardless of whether the hole is hand- or machine-dug. This analysis has been revised in the Final EIS to

include the cost of hand digging for 50 percent of the holes. Based on the cost estimate developed by CAI, hand-dug holes are assumed to average \$400 per hole more than machine-dug holes, i.e., a hand-dug hole is assumed to cost \$2,400, whereas a machine-dug hole is assumed to cost \$2,000. This change increases the estimated cost of digging holes for Alternative 2 from \$906,000 to \$996,600, an increase of \$90,600, which is equivalent to approximately 0.8 percent of the revised total cost estimate for Alternative 2.

The revised cost analysis has also been adjusted to account for hand digging 50 percent of the holes under Alternative 4 (see Table 2-17 in the Draft EIS). This adjustment increases the estimated cost of digging holes for Alternative 4 from \$944,000 to \$1,038,400, an increase of \$94,000, which is equivalent to approximately 0.6 percent of the revised total cost estimate for Alternative 4.

A cost sensitivity analysis was performed to assess the relative cost effects of assuming that 33 percent of the existing holes along the Loup Loup transmission line could be re-used under Alternative 4. This analysis, which also used the increased cost for hand-digging, as noted above, indicated that the re-use of 33 percent of the existing holes would reduce the cost for Alternative 4 by approximately \$157,000 or approximately 1 percent of the revised total cost estimate of \$16.1 million.

This comment does not identify where the author thinks the text is inconsistent with the tables and, therefore, it is not possible to provide a specific response to this concern.

262-21. The December 2004 outage referred to in the comment was a distribution outage that involved 50 lines down or fuses open on radial distribution circuits. No transmission lines were involved in this outage and the Methow Valley, which is the project area for the alternatives analyzed under this EIS, was not affected. As a result, this outage is not analyzed or addressed in the EIS.

262-22. As noted in the comment, the new transmission line proposed under Alternative 5 would allow load to be transferred between this line and the existing Loup Loup transmission line.

The existing 3040 switch referenced in the comment connects the two parts of the existing valley floor distribution system. Both parts are at capacity during peak winter loads and loads cannot be switched between them during peak loading. Under any alternative proposing the Gold Creek substation, including Alternative 5, the distribution system would consist of four 7-mile-long feeders; one north from Pateros, one south from Gold Creek, one north from Gold Creek, and one south from Twisp. These four feeders would each carry half the load the current feeders carry, allowing them the ability to pick up the load from the adjacent feeder as needed in an emergency.

262-23. Please see the response to Comment Topic 4. There are no “subsidized development benefits” involved in moving an existing distribution line to new transmission structures. The capacity charges that may be incurred by new customers in the vicinity of the new substation would drop from a maximum of \$1,680 per connection (if the proposed development was the maximum distance of 14 miles from a substation) to a maximum of \$840 per connection (for a maximum distance of 7 miles from a substation). For example, the Tacoma Land Company development is presently about 7 miles from the Pateros substation and would be about 7 miles from the Gold Creek substation. There is no advantage to this development from the construction of the Gold Creek substation.

262-24. Contrary to the assertion in the comment, the proposed Gold Creek would provide much more than economic benefits to property owners located close to that substation. Please see the response to Comment Topic 4.

262-25. The comment does not indicate the source of this information—i.e., the assertion that there would be an 8.7-mile, distribution “underbuild” under Alternative 2. The Draft EIS identifies a distribution cost of approximately \$674,000 under Alternative 2. This cost would be associated with the rebuild of the section of the existing distribution system that would be overbuilt under this alternative. In other words, a distribution line already runs along the proposed transmission line. If Alternative 2 is chosen and constructed, the transmission structures would replace the *existing* distribution structures and the *existing* distribution service would continue. Rather than construct this portion “hot,” the proposal is to prepare the new poles, with new distribution conductor, then transfer service from the existing distribution system. The *existing* ratepayers along this portion of the PUD system would thus experience minimal disruption of service.

The comment inaccurately portrays the outcome for existing ratepayers in the rest of the valley. The installation and operation of the Gold Creek substation reduces the load on valley circuits by half, thus assuring that the existing, routinely maintained, conductors can efficiently carry the predicted load well into the future.

262-26. Please see the response to Comment Topics 4 and 5. With respect to the impacts on mule deer, please see the response to comment 262-27 below.

262-27. The potential effects of the proposed alternatives on mule deer are assessed in Section 3.8.2.3 of the Draft EIS. Operation and maintenance of the proposed Pateros/Twisp transmission line would have the potential to affect individual mule deer wintering in the area of the proposed transmission line; however, operation and maintenance activities would be expected to be infrequent in nature and of short duration. Therefore, no significant effects to wintering mule deer are expected. Information regarding the potential effects of operation and maintenance activities on mule deer has been added to Section 3.8.2.3 in the Final EIS.

262-28. Please see the response to Comment Topics 4 and 5.

262-29. The auger truck is only useful in relatively loose substrate, as was stated in the Draft EIS in Section 2.4.5.4. Backhoe- or hand-digging are needed in rockier soil. Truck transport of poles on the Loup Loup line would require extensive road improvements, particularly of curve radius and especially in the headwaters of Fraser Creek, to accommodate the long poles on a truck. In order to avoid these road improvement costs, backhoe transport of poles was proposed, even though it is somewhat more expensive than truck transport.

262-30. Compared to a comprehensive reconstruction of the entire 32-mile distribution system, the proposed distribution changes under Alternative 2 do not constitute a “major change”. Alternative 2, as identified in the Draft EIS, included 8.7 miles of distribution work. This total included transferring 5.2 miles of existing distribution lines to new transmission poles (distribution overbuild) and installing 3.2 miles of new distribution line on new or existing transmission structures (distribution underbuild). The proposed distribution underbuild was expected to occur along French Creek and Watson Draw. Since the initial publication of the Draft EIS (December 2005), in response to customer requests, the PUD has extended distribution service south of French Creek. As a result, the potential distribution underbuild that was considered as part of Alternatives 2 and 5 in the Draft EIS is no longer part of these alternatives

and has been dropped from the analysis in the Final EIS. This is discussed further in Sections 2.3.2 in the Final EIS.

262-31. Summary Tables S-9 and S-12 display different acres of potential impacts from road and structure-related disturbance to habitat types by alternative. Table S-9 only displays the potential loss of high-quality habitat by condition class (i.e., Condition Class B), whereas, Table S-12 displays the number of acres by vegetation type, regardless of condition class. The values used to construct these tables can be found in the Draft EIS under Section 3.5.2.2 (Tables 3.5-6, 3.5-7, and 3.5-8) in the Final EIS.

262-32. The text that describes Table S-13 states: “(t)hese totals include new transmission line construction and reconstruction of the existing Loup Loup transmission line and the existing distribution circuits along the valley floor, as appropriate.” The alternatives are described in more detail elsewhere. The purpose of this table is simply to identify the different land ownerships that would be crossed. A distinction is made between total affected miles and new and existing utility corridors in Tables 3.9-4, 3.9-5, and 3.9-6 in the Draft EIS. This information is not presented in the summary in the interest of brevity, but is readily available to the reader.

The comment does not identify what agency has designated the existing Loup Loup transmission line corridor as a “utility corridor.” The Loup Loup transmission line is a designated corridor in the Okanogan National Forest Land and Resource Management Plan. This accounts for approximately 4.4 miles of the existing 28 mile right-of-way. The existing line also crosses a number of other different land ownership that authorize this land use under different permits, grants, and types of easement. Although there is already an existing line, the modifications proposed under Alternatives 4 through 7 would require revisions to the existing permits, grants, and easements (see Table 3.9-7 in the EIS).

262-33. As stated in Section 2.4.3 of the Draft EIS, a “track road” is an unimproved dirt road without surfacing or regular maintenance. Many track roads are formed over the countryside after periodic use by four-wheel-drive, while others may be built using minimal construction to allow passage of two- or four-wheel-drive vehicles. This distinction is made in the section cited in this comment. Please also see the response to Comment Topic 7.

262-34. Although not explicitly stated, this comment appears to suggest that description of the access road work that would be necessary under Alternative 4 is treated inconsistently. This is not the case. As stated on page 2-13, Alternative 4 would require restoration on NFS lands to permit access. This type of restoration is described elsewhere as “blade work.” Please also see the response to Comment Topic 7.

The comment is correct that the required blade work under Alternative 4 would be distributed over 32.7 miles of existing road. However, the amount of actual road surface that would need to be worked on is expected to be approximately 8.1 miles (see Table 3.8-8 in the Draft EIS). This information is presented in Table 2-12 in the Final EIS.

262-35. Over the life of the Loup Loup transmission line, all elements of the system have been periodically inspected, and replaced as needed, including but not limited to poles, other structural elements, insulators, and conductors. As a result, while the line has been in place since 1948, the majority of the system components are not 58 years old. This type of periodic replacement is considered routine maintenance and the associated costs are included in the cost analysis presented in Appendix C for each alternative, as appropriate. Please also see the response to Comment Topic 1.

262-36. Labor costs for all alternatives were priced for comparison by estimating costs for installation of each element without regard for labor source.

262-37. The December 2004 outage referenced in the comment did not involve the transmission system, nor did it occur in the Methow Valley, the project area for alternatives analyzed under this EIS. As a result, it is not addressed or analyzed in the Draft or Final EIS documents. Please also see the response to Comment 262-21.

262-38. Please see the response to Comment Topics 11 and 1.

Under both Alternatives 2 and 3, the Methow Valley would be served by two transmission lines forming a looped system. This increases reliability with respect to unscheduled outages due to events, such as wildfire, windstorms, ice storms, or accidents, because it allows emergency switching between the two geographically separated circuits in the event that one is affected by an unscheduled outage. The loop system also allows switching for planned, routine maintenance, thereby eliminating scheduled outages. This is discussed in Section 1.3.3.1 and summarized in Table 2-4 in the Draft EIS.

Table 2.3 in the Draft and Final EIS describes the alternatives considered but eliminated from further review. Distributive generation, such as solar power, was considered as a possible solution but it was determined that this type of power source could not meet the recent and predicted future growth or resolve existing overload problems associated with the current system (see Table 2-3). The process used to select the alternatives for further analysis is discussed in Section 2.2 of the Draft EIS. As described in this section, the purpose and need for the project and the range of reasonable alternatives to the Proposed Action (Alternative 2) were presented at the February 24, 2004 Board of Commissioners meeting and approved by the Board. The ability of the alternatives to meet the purpose and need is summarized in Tables 2-5 through 2-9 in the EIS.

262-39. The inherent limitations of a single radial feed are summarized immediately following the text quoted in this comment. Please also see the response to Comment Topic 1 with respect to the improvements to the existing Loup Loup transmission line that would take place under Alternatives 2 and 3. Power transmission to Tonasket and Oroville is outside the scope of this analysis.

262-40. It should be noted that the comment author has added the term “(subsidize)” to the first sentence fragment quoted in this comment.

The comment does not explain how the decline in countywide population in 2003 relates to the author’s concern that Alternative 2 would facilitate development. As a result, it is not possible to provide a specific response to this issue. In general, it may be noted that this population figure pertains to the county as a whole, not just the potentially affected area, which accounted for at most 13 percent of total county population in 2000 (see Table 3.13-1 in the EIS). In addition, past trends and projections developed by the Washington OFM suggest that population will continue to grow in both Okanogan County and elsewhere in the state.

262-41. Please see the response to Comment Topics 4 and 5.

262-42. The potential distribution underbuild that was included as part of Alternatives 2 and 5 in the Draft EIS is no longer included in these alternatives. Please see the response to Comment Topic 4.

262-43. Please see the response to Comment Topic 4.

262-44. The PUD will apply for all necessary environmental and land use permits and authorizations prior to construction of the selected alternative, including compliance with Okanogan County planning and zoning regulations and requirements. Compliance with applicable regulations will be necessary in order to allow for issuance of those permits.

262-45. As noted by this comment author and others, the Pateros/Twisp alternative has been substantially altered since its initial ECI design was completed. Please see the response to Comment Topic 6 for a summary of the differences between the former Twisp/Pateros Transmission Line and Substation Project and Alternative 2 as evaluated in this EIS. If Alternative 2 is selected, new design work will be required. This would also be the case with the other five action alternatives. Design work was estimated for all alternatives as seven percent of the total construction costs, including transmission, distribution, and substation costs where appropriate.

262-46. The calculation of a 25 percent change allowance, given that estimates are being made prior to any engineering design on any of the alternatives, was reasonably applied to all alternatives.

262-47. Please see the response to Comment Topic 1.

262-48. The comment does not provide a source for the cited numbers or indicate what they pertain to and, as a result, it is not possible to provide a specific response, especially with respect to an “inflated labor estimate.” There is no inflation of labor estimates and there is no difference in labor costs between the different conductor.

The cost estimates developed for the alternatives evaluated in the Draft EIS are based on the configuration of these alternatives, as described in Chapter 2 of the document. The procedure used to develop the cost estimates is described in Appendix C. Please also see the response to Comment Topic 3. Please see the response to Comment Topic 2 with respect to the proposed use of different conductors.

262-49. The comment does not explain what the author means by “cost inflation over Alt 2” and, therefore, it is not possible to provide a specific response. The procedure used to calculate the annual cost of capital improvement is explained in Table C-4 in Appendix C of the EIS.

262-50. Please see the response to Comment Topic 2.

262-51. Only the valley floor cost estimates for maintenance were less per mile than the other alternatives. Access to some structures after access roads and pads are recontoured and restored along the Loup Loup would not be feasible by vehicle. Crew time to access poles would therefore be longer for those structures.

262-52. Please see the response to Comment Topics 4 and 5.

262-53. Please see the revised Appendix C.

262-54. Please see the revised Appendix C.

262-55. The potential visual impacts of the distribution “overbuild” portion of Alternative 2 are included in the visual resources analysis presented in Section 3.11.2.5 of the Draft EIS. A visual simulation that superimposes the proposed structures on the existing landscape is presented for this portion of the route in Figure 3.11-6.

Potential development concerns that have been raised with respect to the potential “distribution underbuild” portion of the Pateros/Twisp route are addressed in response to Comment Topics 4 and 5.

262-56. Please see the response to Comment Topic 1. A looped transmission system has significant reliability advantages and these are discussed in Chapter 1 of the Draft and Final EIS documents.

262-57. The ability of each alternative to meet the purpose and need for the project is summarized in Section 2.3 of the Draft and Final EIS documents. Although not stated, it is assumed that the commenter is comparing Alternatives 2 and 4. The abilities of these alternatives to reduce transmission and distribution line outages are summarized in Tables 2-4 and 2-6, respectively.

With respect to transmission line-related outages, Alternative 2 would be fully compliant with this objective (see Table 2-4 in the EIS). Alternative 4 would, in contrast, be only partially compliant because unscheduled outages due to wildfire, windstorm, ice storm, or accidents would still occur (Table 2-6).

Alternative 2 would also be fully compliant with the distribution reliability objective (Table 2-4). Alternative 4 would, again, be only partially compliant because the distribution feeder length would remain the same under this alternative and the number of customers per mile of distribution system would likely increase over time (Table 2-6).

262-58. Contrary to the assertion of the commenter, there would be differences in line losses between alternatives, even if the same size wire was used. Please see the response to Comment Topic 2.

262-59. As stated in Section 2.4.5.4 of the Draft EIS (page 2-41), wherever possible, the existing holes would be used to install the new structures, but the use of old holes could only be determined at the time of structure installation. As a result, it is assumed for the purposes of analysis that all new holes would be required so that all potential effects are covered.

A cost sensitivity analysis was performed to assess the relative cost effects of assuming that 33 percent of the existing holes along the Loup Loup transmission line could be re-used under Alternative 4. This analysis indicated that the re-use of 33 percent of the existing holes would reduce the cost for Alternative 4 by approximately \$157,000 or approximately 1 percent of the revised total cost estimate of \$16.1 million (see Appendix C in the Final EIS).

262-60. This comment appears to be citing the reference to the “mediation matrix” found on page C-1 of Appendix C to the Draft EIS. The Draft EIS does not “specify” that this matrix was used or that all factors were used as elements of the cost analysis. Instead, it identifies those factors from the mediation matrix that are typically included in a cost estimate and states that all those factors are included as elements of the cost analysis. The reader is referred to Appendix C for the specific detail. Please also see the response to Comment Topic 3.

262-61. PUD staff developed the cost estimates for their own internal costs, easements, permitting, and road construction. The methodology used to develop these estimates is summarized in some detail in Table C-3 in Appendix C to the Draft EIS.

262-62. The components of the total capital cost estimates developed for each alternative are shown in Table C-5 in Appendix C to the Draft EIS. These are the costs summarized in Table S-5 and these totals do include the costs for permits, design engineering, and mitigation.

262-63. Alternative 2 includes 8.4 miles of distribution work. This would include transferring 5.2 miles of existing distribution lines to new transmission poles (distribution overbuild) and installing 3.2 miles of new distribution line on new or existing transmission structures (distribution underbuild). The costs for this work are included in the cost estimates presented in the Draft and Final EIS documents. Please also see the response to Comment 262-30.

262-64. The names and telephone numbers of the electrical contractors contacted as part of the CAI cost estimates were provided via email to Commissioner Johnson, the author of this comment, on February 1, 2005.

262-65. The cost analysis presented in the Draft EIS assumed that hole digging costs would average \$2,000 per hole regardless of whether the hole is hand- or machine-dug. This analysis has been revised in the Final EIS to include the cost of hand digging for 50 percent of the holes. Based on the cost estimate developed by CAI, hand-dug holes are assumed to average \$400 per hole more than machine-dug holes; in other words, a hand-dug hole is assumed to cost \$2,400, while a machine-dug hole is assumed to cost \$2,000. This change increases the estimated cost of digging holes for Alternative 4 from \$944,000 to \$1,038,400, an increase of \$94,000, which is equivalent to approximately 0.6 percent of the revised total cost estimate for Alternative 4.

The revised cost analysis has also been adjusted to account for hand digging 50 percent of the holes under Alternative 2. This adjustment increases the estimated cost of digging holes for Alternative 2 from \$906,000 to \$996,600, an increase of \$90,600, which is equivalent to approximately 0.8 percent of the revised total cost estimate for Alternative 2.

The cost analysis and accompanying text have been revised and additional explanation regarding the mitigation cost estimates is included in Appendix C of the Final EIS.

262-66. Please see the amended Appendix C in the Final EIS.

Projected maintenance costs do not include the use of helicopters because there is no projected need for helicopters for maintenance. Maintenance costs per mile are for patrol only. The PUD estimates that patrol times are roughly equal whether snowmobiles or trucks are used. Therefore, patrol costs per mile are estimated at \$215 per mile for Alternatives 2 and 4-7. In addition, Table 3-9 includes ongoing periodic structure replacement for the existing Loup Loup line if Alternative 2 or 3 is chosen.

262-67. The results of this record review are included in Section 3.1.3 of the Draft EIS, which summarizes the findings of a record review and discussions with staff at the Okanogan County Planning Department. This review was specifically for new developments.

The comment's assertion that rebuilding the existing Loup Loup transmission line would have no effect on NFS lands and specifically those in the vicinity of Frazer Creek is incorrect. Potential effects are evaluated by resource in Chapter 3 of the Draft and Final EIS documents. Although

there would be effects, as discussed in the appropriate resource sections, these potential effects are not expected to be significant. Please also see the response to Comment Topic 14.

262-68. The cumulative effects of the proposed alternatives to vegetation, including shrub-steppe habitat, are assessed in Section 3.5.2.5 of the Draft and Final EIS documents. The cumulative effects to hydrology and water quality are assessed in Section 3.4.2.3.

262-69. Please see the response to Comment Topics 4 and 5.

262-70. The potential erosion and sedimentation effects of the proposed alternatives are assessed in Section 3.3.2.2 of the Draft and Final EIS documents. The USDA Forest Service is a joint lead agency for this project and its technical staff contributed to, reviewed, and concurs with the effects analyses presented in this document.

262-71. The assertion in the comment that the proposed Pateros/Twisp would not cross NFS lands is correct. The erosion potential for each alternative is shown in the Draft EIS in Table 3.3-3 (Table 3.3-2 in the Final EIS). Off-road vehicle use is discussed in pages 3.3-12 and 3.3-14. This issue was discussed as a concern for both erosion and compaction of soils. The mitigation for this potential impact is to control access to the areas that present erosion potential. Control of unauthorized access is discussed in Section 2.4.3.3 of the Final EIS.

262-72. It was appropriate to include soils in the soil survey, but exclude rock. Analysis of soil was relevant because soil will generate sediment. By contrast, the rate at which bare rock will generate sediment from chemical or physical weathering is too slow to be considered a source of sediment, unless rockfall occurs. The compaction potential of rock is also essentially zero. However, thin and/or rocky soils were included in the analysis. Where a certain percentage of rock outcrop occurs, it is noted in the soil surveys for that soil type. Large, continuous areas of almost entirely bare rock are considered "rock".

For example, unit 162 (Rock outcrop) in the Okanogan soil survey is described as follows:

Rock outcrop occurs throughout a wide area in the uplands. It is more than 90 percent igneous, either acidic or basic, and sedimentary rock. Less than 10 percent of the mapping unit is very shallow soil material. The vegetation is moss and lichens on the outcrops and scattered, scrubby ponderosa pine, and blue bunch wheatgrass on the very shallow soil material... (USDA, 1980)

262-73. Contrary to the assertion in this comment, the erosion analysis presented in the EIS does provide a comparison of the alternatives. Section 3.3.2, which addresses the potential impacts of the proposed alternatives on soils, has been revised in the Final EIS to help clarify the analysis and associated results. The WEPP model, which is referenced in this comment, is used to compare the alternatives based on the relative risk for erosion or sedimentation with mitigation in place and serves primarily to evaluate the effectiveness of proposed mitigation measures. This analysis has been moved to the end of Section 3.3.2.2, which evaluates erosion, and additional text has been added to clarify the purpose of the model.

Erosion potential is evaluated by alternative in Table 3.3-3 of the Draft EIS, which classifies potentially affected soils based on their erosion potential (slight, moderate, or severe). These erosion categories were developed based on detailed soil type and slope information compiled from the soil surveys that cover the affected areas, and the accuracy of the soil survey data was verified in the field (see Tetra Tech, 2004b). This table, which is presented as Table 3.3-2 in the

Final EIS, has been expanded and now provides erosion potential for road-related disturbance, as well as structure-, substation-, and laydown area-related disturbance.

The WEPP model analysis presented in the Draft EIS assumes a constant 30 percent slope for all locations, as noted in Table 3.3-2, footnote 2 (this table is included as Table 3.3-6 in the Final EIS). A sensitivity analysis that used different slope classes to more closely represent the topography of the alternatives did not alter the finding that there would be no significant impacts under any of the alternatives with mitigation in place or alter the relative rankings of the alternatives.

262-74. Please see the response to Comment Topic 1 with respect to the assertion that a distribution rebuild would be required regardless of the alternative selected. The road disturbance figures shown in Table 3.3-3 for Alternatives 2 and 4 are 28.7 acres and 43.6 acres, respectively. (Please note that Table 3.3-3 was incorrectly titled. The correct title is “Soil Erosion Potential by Alternative [acres].” This error has been corrected in the Final EIS. Further, this table, which is presented as Table 3.3-2 in the Final EIS, has been expanded and now provides erosion potential for road-related disturbance, as well as structure-, substation-, and laydown area-related disturbance.) The numbers cited in the comment appear to be from Table 3.3-5 and are for disturbance within 300 feet of streams. The cited numbers appear to be for Alternatives 3 and 6, and not for Alternatives 2 and 4. In any case, the reason that there would be greater road-related disturbance within 300 feet of streams under Alternative 4 when compared to Alternative 2 is because Alternative 4 requires more work within 300 feet of a stream. For example, the existing Loup Loup transmission line parallels or is directly adjacent to Frazer Creek for a portion of the route. By contrast, stream crossings along the proposed Pateros/Twisp route would approach streams at a perpendicular angle.

262-75. The percentage of the potentially affected roads requiring blade work is shown in Table 3.8-8 of the Draft EIS. This information is presented in miles in Table 2-12 in the Final EIS. While it is possible to estimate the percent of the affected roads that would require blading, it is not possible prior to detailed design activities to identify exactly where this blading would be necessary. Detailed design will not be undertaken until a final determination of the selected alternative has been made by the Board of Commissioners. This is explained in Section 2.3 and Section C.1.2 of Appendix C in the Final EIS.

262-76. Please see response to comment 262-74. The comment author correctly notes that the alternatives involving the existing Loup Loup transmission line would require more roadwork within 300 feet of streams than the alternatives that do not (i.e. Alternatives 2 and 3). The comment author does not explain why there appears to be a “distortion” or a “manipulation” and, as a result, it is not possible to provide a specific response to this concern.

This analysis, which is presented in Section 3.3.2 of the Draft and Final EIS, is based on the estimated number of acres that would be disturbed within 300 feet of a stream. Actions on NFS lands are presently governed by the 1989 Okanogan National Forest Land and Resource Management Plan. This plan was amended for the project area in 1995 by the Decision Notice for the Interim Strategies for Managing Anadromous Fish-Producing Watersheds in Eastern Oregon, Washington, Idaho, and Portions of California (PACFISH). PACFISH identifies Riparian Habitat Conservation Areas (RHCAs) and Riparian Management Objectives to enhance management of aquatic systems. RHCAs identify portions of watersheds where riparian-dependent resources receive primary emphasis. Fish-bearing streams are classified as Category 1 and receive a 300-foot (slope distance) or the height of two site potential trees (whichever is greatest) RHCA on both sides of the stream. The Lead Agencies believe this is important

information and provides an appropriate basis for comparison between alternatives, especially at the summary level presented in the overall comparison of alternatives table cited in the comment. In addition, the estimated number of acres that would be disturbed within 300 feet of a stream is also presented by soil erosion potential rating in Table 3.3-5 in the Draft EIS. The analysis presented in the Draft EIS uses this distance and model to evaluate the potential effects of the alternatives.

The comment author asserts that Table 3.3-7 contains a “similar distortion” without specifying how. In fact, potential disturbances identified in Table 3.3-7 are not limited to areas within 300 feet of streams. As a result, it is not clear why the comment author believes that Table 3.3-7 is distorted; nor is it clear how the purported distortion relates to the concerns regarding the stream buffers discussed above.

262-77. Potential impacts to soils due to disturbance from access road improvements are addressed in Section 3.3.2.2 of the Draft and Final EIS documents. Road access would be controlled by maintaining or extending gating to limit vehicular access to NFS, BLM, WDFW, and WDNR managed lands, and to private lands where permission is granted by the landowner and, as a result, it is not anticipated that any increased access to grazing would occur.

262-78. Please see the response to Comment Topics 4 and 5.

262-79. More detailed maps that show the relationship between streams and roads are included in Appendix B to the Draft and Final EIS. This reference has been added to Section 3.4.1 in the Final EIS.

The comment notes that Alternative 2 would cross a number of streams and cites Table 3.7-3 as the source of this information. Table 3.7-3 characterizes the existing environment and identifies the total number of existing stream crossings by stream type within the project area. These crossings are not specifically associated with any of the project alternatives. The number of streams crossed by the proposed construction activities is summarized for each alternative in Table 3.6-5 in the Final EIS.

262-80. The potential effects of the proposed alternatives on hydrology and water quality are assessed in the environmental effects portion of Section 3.4 of the Draft EIS.

262-81. The evaluation criteria used in Section 3.4 to analyze the potential effects of the proposed alternatives on water quality include the number of road-stream crossings that would be required for each alternative. The results of this analysis are presented in Table 3.4-1 in the EIS. The comment author appears to conflate new construction activities, which would occur under all of the action alternatives, with new road-stream crossings, i.e., stream crossings that did not previously exist. This distinction is made in Table 3.4-1, which presents the number of crossings by road type (road or track road) and stream type for each alternative. Road crossings already exist; track road crossings would for the most part be new temporary crossings.

Potential soil disturbance, sediment delivery, and impacts to riparian vegetation from roads and/or structure placements or replacements are addressed in Sections 3.3, and 3.6.

262-82. Section 3.4.2.2 of the Draft EIS summarizes the findings of the soil erosion analysis, which is discussed in more detail in Section 3.3.2.2 and summarized in Tables 3.3-2 through 3.3-5. The reader is referred to this section for additional detail. The reason that a rebuild of the Loup Loup transmission line (Alternatives 4, 5, 6, and 7) has more severe soil erosion potential is

that the line is directly adjacent to, parallels, and crosses Frazer Creek 16 times. By contrast, the proposed Pateros/Twisp line (Alternatives 2 and 5) cross streams at a perpendicular angle.

262-83. This comment asserts that the “results of erosion modeling are invalid” citing page 3.3-9 of the Draft EIS. The comment does not provide a basis for the conclusion that the results of the modeling are invalid, and consequently, it is not possible to provide a response to this concern. A detailed response to this comment author’s concerns about the WEPP modeling is provided above in response to Comment 262-73, and the reader is referred to that response for additional detail on the model’s purpose and application.

The Draft EIS conclusion cited in the comment is presented in Section 3.4.2.2, which states that:

Surface roughness in the riparian area and implementation of mitigation measures would prevent the small amount of soil eroded from reaching streams.

Contrary to the assertion in the comment, the Lead Agencies and EIS authors believe that this is a “reasonable” conclusion.

262-84. Please see the response to Comment 262-81.

The EIS concludes that none of the alternatives are expected to result in substantial (measurable) soil erosion or delivery of sediment to streams. This analysis is based on the projected level of ground disturbing activity that would be associated with each alternative. The results of this analysis are presented in Sections 3.3 and 3.4 of the EIS.

262-85. None of the proposed alternatives would contribute substantially to the effects of other past, present, and reasonably foreseeable future actions on hydrology and water quality. This is discussed in Section 3.4.2.3 of the EIS and consistent with the findings of the direct and indirect effects analysis for this resource (see Sections 3.4.2.1 and 3.4.2.2).

262-86. The potential effects of the proposed alternatives on riparian vegetation are evaluated in detail in Section 3.6.2.3 of the EIS.

262-87. There is a typographical error in this comment. Table 3.6-4 identifies 4.84 acres of wetlands within the rights-of-way associated with Alternative 4, not 48 acres as stated in the comment.

A “hot” rebuild of the Loup Loup transmission line as proposed in Alternative 4 would result in structure- and road-related disturbance that would not be required under the No Action alternative. In other words, these are environmental impacts that would be “added” under Alternative 4. It is these structure and road-related or added impacts that are assessed in Section 2.6 of the Draft EIS. As noted in Footnote 1 to Table 3.6-4, this table identifies all wetlands in the rights-of-way, including those that would be avoided and not affected by the proposed activities.

Section 3.6.2.2 of the Draft EIS provides a detailed assessment of potential effects to wetlands by alternative. This discussion concludes for Alternative 4, for example, that:

With the use of erosion and sediment controls..., project-related effects would be temporary and considered low.

262-88. Use of the proposed track road in this area would be limited in order to construction to minimize potential effects to the identified wetland. As explained in Section 3.6.2.2, these effects would be further minimized through the use of mats to minimize compression and sediment controls to minimize potential sediment entry to the wetland (also see Section 4.0-mitigation measure WET-7). The area in question shows no evidence of any current or historical surface water movement. As a result, it is not anticipated that the area would require post-construction regrading. The concern in this area relates to the possibility that the two potentially-affected wetlands may be connected hydrologically [i.e., subsurface]. The need for replanting will be assessed post-construction. If this area requires heavy maintenance in the future, similar mitigation measures would be applied.

262-89. The potential effects of roadwork associated with Alternative 2 are assessed in the section cited in this comment (Section 3.6.2.3). Rather than repeat this information here, the reader is referred to this section of the Draft or Final EIS.

262-90. Please see the response to Comment Topic 4.

262-91. The potential effects of the proposed alternatives on fisheries are assessed in the environmental effects portion of this section (Section 3.7.2). Consultation under ESA with the USFWS and NOAA Fisheries is only required on Federal lands (i.e., under Alternatives 3 through 7). Alternative 2 does not cross any Federal lands. Although, not required, the PUD has completed a Biological Assessment with specific mitigation measures to be implemented for each of the alternatives, depending on which is selected, as due diligence to assure that all potential risks on Federally-listed species are addressed.

262-92. Table 3.7-6 is a summary of the variables assessed under the Matrix of Pathways and Indicators developed by NOAA Fisheries and USFWS, 1998. The Draft EIS notes that input of sediment into streams from ground disturbance and removal of riparian vegetation can affect several of the indicators in the matrix for listed fish species. Results of the summary under each of the alternatives are further explained under Section 3.7.2.2 (Delivery of Sediment to Streams) and Section 3.7.3.3 (Removal of Riparian Vegetation).

Rebuilding the Loup Loup transmission line (Alternatives 4, 5, 6, and 7) has more severe soil erosion potential because it is directly adjacent to and parallels Frazer Creek, as well as crossing it 16 times, whereas, the proposed Pateros/Twisp line (Alternatives 2 and 5) cross streams at a perpendicular angle. Please see the response to Comment Topics 4 and 5 with respect to the author's concern about potential development.

262-93. Please see the response to Comment 262-83 with respect to concerns that Alternative 2 would result in increased sediment delivery to streams.

262-94. The estimated road disturbance figures presented in Table 3.7-7 in the Draft EIS have been revised and this table has been removed from the Final EIS. The revised road disturbance figures are presented in Table 2-13 in the Final EIS. The revised disturbance calculations are explained in Section 2.4.3.2 of the Final EIS.

The comment author refers to personal communication from Al Whitiger of Potelco, who is claimed to have "denied" that 1,200 square feet working area is required for each structure being replaced as part of a "hot" rebuild. This alleged statement is not substantiated. Furthermore, it directly conflicts with information and photographs provided to the PUD staff by the same individual (Mr. Whitiger). The 1,200 square foot estimate used in the impact analyses presented

in the Draft and Final EIS documents was developed in conversation between the PUD chief engineer and Mr. Whitiger and supported by the photographs of the process provided by Mr. Whitiger. These photos are available for review on the PUD's web site ([www.okanoganpud.org](http://www.okanoganpud.org)). This area includes the footprints of the necessary vehicles, as well as the safety spaces that are required around each vehicle for foot traffic.

Please see the response to comment 262-81 with respect to the comment author's repeated concern about Table 3.4-1.

| 262-~~95~~. Please see the response to Comment Topics 4 and 5.

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| 262-~~96~~. The potential effects of the proposed alternatives on mule deer, bald eagles, and sharp-tailed grouse are discussed in Sections 3.8.2.3, 3.8.2.5, and 3.8.2.3 of the Draft and Final EIS documents, respectively. Please also see the response to Comment Topic 13.

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| 262-~~97~~. Table 3.8-6 in the EIS shows the total miles of existing road and existing and proposed track road that would require some level of improvement. As noted elsewhere, the alternatives as configured in the EIS are based on the best pre-design information available at this time. This level of detail is consistent across alternatives and appropriate for comparison between alternatives. While it is apparent that the identified roads would require some level of blade work, it is not possible at this stage to estimate exactly where this work would be required. The PUD has, however, developed estimates of the percentage of different roads that would require work and this information is presented in Tables 2-13 and 2-14 and discussed in Section 2.4.3.2 in the Final EIS.

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Pictures of a typical "hot" rebuild provided by Potelco are available on the PUD's web site ([www.okanoganpud.org](http://www.okanoganpud.org)). These slides portray the "hot" rebuild process on relatively flat terrain with no surrounding vegetation. The "hot" rebuild process requires that two separate vehicles have access to the structure at the same time. This requirement provides the basis for an estimate of a 1,200 square foot working area, compared to a 900 square foot working area for new construction or "cold" rebuild activities. This estimate is supported by the photographic evidence provided by Potelco. Please see the response to Comment 262-94 with respect to the comment author's reported personal communication with Al Whitiger of Potelco and associated repeated concern.

It should also be noted that Alternative 4 also requires the replacement of the existing distribution structures along the valley floor, which would not be necessary under Alternative 2.

| 262-~~98~~. Table 3.8-9 has been revised in the Final EIS. This is discussed in more detail in response to Comment 242-7.

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| 262-~~99~~. The impacts to deer winter range are expected to be low under all alternatives. The rationale for this conclusion is presented in Section 3.8.1.2 and 3.8.2.3 of the Draft and Final EIS documents.

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Section 3.8.1.2 outlines the approach used to assess impacts from existing and proposed access roads within the study area. Figure 3.8-3 depicts the results of the modeling used as described by Gaines et al. (2003). Width of buffers varied by road use. All open roads or those roads likely to be plowed during winter were buffered 800 meters on either side in the model. Existing or proposed track roads are not plowed; however, access by snowmobile is common on existing track roads and will be buffered 150 meters on either side. Track roads where no blade work is

anticipated were also buffered 150 meters on either side for this analysis, even though snowmobile use would not likely occur because these roads should be indistinguishable from the surrounding landscape. Because of the amount of existing roads and the limited number of new roads, Figure 3.8-3 only shows a small area of impact to the existing mule deer winter range.

The overall conclusion with respect to deer winter range is summarized in the final sentence of Section 3.8.2.3, which states:

Overall, because of the timing of construction activities, amount of habitat removal, and the existing road densities within the project area, impacts to deer winter range are anticipated to be low.

Please see the response to Comment Topics 4 and 5 with respect to the comment author's concern about development.

| 262-~~100~~. Operation and maintenance of the proposed Pateros/Twisp transmission line by snowmobile during the winter months could have the potential to affect individual mule deer wintering in the area of the proposed transmission line. However, because operation and maintenance activities would be expected to be infrequent in nature and short in duration, no significant effects to wintering mule deer are expected.

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Please see the response to Comment Topics 4 and 5 with respect to the comment author's concern about development.

| 262-~~101~~. Please see the response to Comment Topics 4 and 5.

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| 262-~~102~~. Existing land use trends are discussed in Sections 3.1.3 and 3.9.1.5 of the Draft EIS. This discussion includes projects that have received approval but have not yet been constructed and other projects that were pending approval when the Draft EIS was prepared.

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| 262-~~103~~. The comment does not explain why a comparison of "acres of private land adjacent to the alternate corridors and the number of landowners" would be more meaningful than estimates of actual construction- and operation-based disturbance or the land use-specific information presented in Tables 3.9-4 through 3.9-6 in the EIS. It is also not clear what is meant by the reference to Figure 3.11-1. Table 3.9-7 identifies the number of new private easements that would be required under each alternative and, therefore, indicates the number of potentially affected private landowners by alternative.

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Please see the response to Comment Topics 4 and 5 with respect to the comment author's concern about development.

| 262-~~104~~. The estimate of private easement costs for Alternative 2 presented in Appendix C (\$206,646) was, as explained in Table C-3, calculated based on average values from prior PUD easement negotiations. These costs are a \$750 fixed cost per easement, \$300 per contact and \$1 per linear foot, with an average of three contacts assumed per landowner for Alternative 2. A "contact" in this context refers to a point of contact with the ground and includes a structure or an anchor for a guy. The estimate presented in the Draft EIS includes the estimated cost for all private easements that would be required under Alternative 2.

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The section of the Draft EIS cited in this comment (Section 3.9.2.2) refers the reader to Section 3.13 for a discussion of the relationship of the proposed alternatives to economic and residential

development. This discussion is presented on page 3.13-9 of the Draft EIS, which is also cited in this comment. Please also see the response to Comment Topics 4 and 5.

262-~~105~~. This comment's summary of Table 3.9-8 and the adjacent text is correct. This comment presents part of a sentence from the Draft EIS in quotes, which may be misleading. The full sentence in Section 3.9.2.1 is as follows:

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Although Alternatives 2, 3, 5, and 7 would result in the development of sections of new utility corridor, this construction is not expected to affect overall land use patterns in the valley.

Please also see the response to Comment Topics 4 and 5 regarding the potential impacts of new development.

262-~~106~~. The Draft EIS authors and Lead Agencies do not see a contradiction between the statements that "a transmission line that paralleled a trail for more than half its length could.. be considered a significant experiential (recreation) impact" (page 3.10-6) and the finding that:

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Alternatives 2 and 5 have the potential to affect dispersed recreation experiences in the foothills and benches east of State Highway 153, but these effects are not expected to be significant because they would not affect a significant portion of this type of use. (page 3.10-8)

Although not explicitly stated, the comment appears to imply that Alternative 2 would involve the construction of a new transmission line that would parallel a scenic highway for more than half its length. This is not the case. The potential visual impacts of the proposed alternatives, including Alternatives 2 and 5, are evaluated in Section 3.11 of the Draft EIS.

262-~~107~~. Please see the response to Comment Topics 4 and 5 with respect to the comment author's concern about development. It may also be noted that the Draft EIS does not provide support for the comment author's "expectation that development would be stimulated by the proposed new P/T line."

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262-~~108~~. Please see the response to Comment Topics 4 and 5.

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262-~~109~~. Potential effects to cultural resources are evaluated by alternative in Section 3.12 of the Draft EIS. As stated on page 3-12-5, this analysis is based on information gathered through a literature and records search and an archaeological survey of all route alternatives where access was possible. This analysis assesses the potential effect of each alternative on three categories of cultural resources: archaeological sites, historic structures, buildings, or objects, and TCPs. As noted in Section 3.12.1.1, Cultural Resources Defined, TCPs are sites that play an active part in ongoing cultures. This discussion has been expanded in the Final EIS. The Draft EIS notes that: "a request for a permit to conduct research in the TCP records of the Confederated Tribes of the Colville Indian Reservation has been submitted to the Tribe." The THPO has since provided a protocol for the conduct of the TCP survey to the USDA Forest Service and that protocol is being followed. A draft overview document, as specified in that protocol, has been completed and is under internal review. When its review and revision is complete, it will be provided to the THPO for review. At that time an agreement between the THPO and the PUD will likely be in place to allow the THPO to conduct the tribal library research and interview portion of the work, with the intent of finishing all TCP-related work and including the general results into the Final EIS.

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262-~~110~~. This comment quotes parts of the text from Section 3.12.2.3 and is taken out of context. The full text is presented on pages 3.12-11 and 3.12-12 of the Draft EIS.

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The cumulative effects analysis presented for cultural resources and the other potentially affected resource areas considers all residential projects that have been approved by the Okanogan County Planning Department, as well as the residential projects and one planned development that were pending county approval (see Section 3.1.3 of the Draft EIS). Please see the response to Comment Topics 4 and 5 with respect to the concern that Alternatives 2 and 5 could generate residential development that would otherwise not occur.

262-~~111~~. Potential irreversible and irretrievable commitments of resources are addressed for each alternative in Section 3.15.1 of the Draft and Final EIS documents. The complete text from the Draft EIS that is partially quoted in this comment is as follows:

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All of the action alternatives would involve the use of land for construction and operation of the proposed facilities. This use would represent an irretrievable commitment in that the areas where the structures are placed, the cleared right-of-way, and the new substation, included under Alternatives 2, 3, and 5, would not be available for some other use. This is not expected to be a substantial loss under any of the alternatives. This is especially the case with Alternatives 4, 6, and 7, which mainly involve rebuilding existing utility lines. (page 3.15-1)

The impacts of this irretrievable commitment are assessed by resource in Chapter 3 of the Draft and Final EIS documents. Potential effects to wildlife and visual resources are assessed in Sections 3.8.2 and 3.11.2, respectively.

262-~~112~~. Please see the response to Comment Topic 2. The comment author does not provide a source for the comment's assertion that using 556 conductor would "add \$95,000/year more line loss than using a 336 conductor." Based on the PUD calculations of line loss, the use of 556 conductor in Alternative 4 (and others featuring the reconstruction of the Loup Loup line) would result in larger line loss savings than if 336 were used on the Loup Loup line. Line loss savings would be \$256,300 per year using 556 conductor compared to \$252,700 per year using 336 conductor, a net annual saving of \$3,600 per year. Please see the sensitivity analysis, Attachment B to the Cost Appendix C.

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Different conductor sizes were specified for the radial feed alternatives (4, 6, 7, and the rebuild portion of 5) to make them approximately electrically equivalent to the loop feed alternatives (2 and 3)—that is, able to carry the same load. A 556 conductor on a radial feed provides approximately the same capacity as 336 conductor on a loop line. Based on the BPA's power flow studies, the differences in line losses between Alternative 4, using 556 conductor, and Alternative 2, using 336 conductor, is \$95,200. This means that Alternative 2 would save about \$95,200 more annually than Alternative 4, principally because the load can be distributed and is less under both average and peak conditions, even with the smaller conductor specified for Alternative 2, than the average load on the radial feed of Alternative 4.