

Methow Valley Transmission Project
Identification of Preferred Alternative by Okanogan PUD SEPA Responsible Official

February 6, 2006

Summary:

The Okanogan Public Utility District (“PUD”) is a non-profit local government entity whose mission is to provide reliable, economical electrical service to customers within its defined boundaries and to plan for the future electrical service needs of its constituents. The PUD has proposed to correct a series of problems presently existing in both its transmission and distribution systems that serve the Methow Valley area of Okanogan County, Washington.

The PUD has jointly prepared with the United States Forest Service (“USFS”) an Environmental Impact Statement (“EIS”), consistent with the National Environmental Policy Act (“NEPA”) and the Washington State Environmental Policy Act (“SEPA”). The EIS documents the potential environmental impacts of the PUD’s proposed action, as well as six alternative actions.

Having thoroughly reviewed the purpose and need for the project and the EIS, the PUD’s SEPA “responsible official,” the PUD Manager, has identified Alternative 2, the Pateros-Twisp route, as the Preferred Alternative (“PA”) among the alternatives considered under the EIS. The PUD Manager’s selection of Alternative 2 as the PA was based on the fact that Alternative 2 best meets the stated purpose and need of the project, while minimizing the potential environmental impacts of the project, and it does so at the lowest cost of the alternatives considered.

Potential Environmental Impacts:

The EIS analyzed the potential environmental impacts of each of the seven alternatives considered in detail. Each of the alternatives considered in the EIS has some potential environmental impacts associated with it. Each alternative offers advantages and disadvantages when compared to the others. The EIS states that, by using Best Management Practices and applying appropriate mitigation measures, all alternatives can be constructed without significant environmental impacts. Therefore, using solely the criteria of potential environmental impacts, each of the alternatives should be considered, and none eliminated. Given that none of the alternatives will result in significant environmental impacts, the PUD Manager’s identification of the PA was based on the ability of the alternatives to meet the project’s stated purpose and need and the relative cost of those alternatives that met the purpose and need.

The Project’s Stated Purpose and Need:

The PUD has identified a series of problems in its transmission and distribution systems that serve the Methow Valley. To address these problems, the PUD has identified the following objectives for the project:

Transmission System	
<i>Objective</i>	<i>Problem</i>
Increase Capacity	Voltage drops below 95 percent of nominal voltage or current exceeds conductor limits
Increase Reliability	Duration and frequency of outages
Reduce Line Losses	Electric power lost through transport of power through the line
Distribution System	
<i>Objective</i>	<i>Problem</i>
Increase Capacity	Voltage drops below 95 percent of nominal voltage or current exceeds conductor limits
Increase reliability	Duration and frequency of outages
Reduce Line Losses	Electric power lost through transport of power through the line

After a thorough review of each of the alternatives analyzed in the EIS, PUD staff concluded that Alternatives 2 and 3 best met the stated project objectives. In fact, Alternatives 2 and 3 are the *only* alternatives that meet all six of the project objectives identified by the PUD. The other Alternatives either do not meet or only marginally meet all of the objectives. Alternative 1 (No Action) resolves none of the objectives, and Alternatives 4-7 do not adequately solve the transmission reliability concerns, nor do they reduce line losses as well as Alternatives 2 and 3.

The specific areas of advantage for Alternatives 2 and 3 are:

Reliability:

Both Alternatives 2 and 3 would provide a new transmission line into Gold Creek and Twisp Substations. Construction of a second transmission line would allow emergency switching, as well as routine planning for maintenance, thereby eliminating scheduled transmission outages and sustained emergency outages. Transmission redundancy yields a great advantage because two lines are more reliable than a single line. Both Alternatives 2 and 3 dramatically reduce the probability that customers in Mallott, Twisp, Winthrop, and Mazama would be without power for an extended period of time. During maintenance and system restoration, the outage area can often be reduced (or eliminated) in size, while the rest of the service area has power. Power outages will still occur, but the number of customers impacted and/or the length of time they are impacted will be significantly reduced. The result is a reduction in the probability of severe consequences to the economy, public safety, and personal property due to an extended outage.

Alternatives 4 through 7 only partially meet the objective of improving reliability. Under these Alternatives, scheduled maintenance outages and unscheduled outages due to wildfire, windstorm, ice storm, or accidents would still occur and would still impact the Okanogan Electric Cooperative (“OCEC”) and portions of the Methow Valley system. The OCEC, which is served from this transmission line system for all of its customers, has a nine-member board which is elected by its members. The OCEC Board has been very consistent in its message over the years that it strongly supports a redundant route such as Alternative 2 or 3.

Distribution reliability is improved under all alternatives. However, the greatest improvement is seen in those alternatives that incorporate a substation on the valley floor. (Alternatives 2, 3 and 5). The advantage the substation provides is that it reduces the average length of each distribution feeder by segmenting them into 4 feeders instead of two. This reduces the number of customers who may be affected by an outage on any one feeder.

Line Losses:

Line losses are energy that is consumed by the conductor (wire) generating heat during the transport of power through the line. Line losses are a function of load, circuit length, conductor size and electrical resistance.

With the exception of Alternative 1, each of the alternatives analyzed in the EIS yields some reduction in line loss. This is due to the fact that conductor size will be increased under all alternatives. The line loss savings for Alternatives 2 and 3, however, are significantly greater than those provided under any of the other alternatives. The primary advantage in line loss reduction for Alternatives 2 and 3 is that those Alternatives reduce the distance the energy must travel between the generation sources to the customers. They provide a new, shorter path, thereby reducing line losses.

As a result of transmission system improvements, both Alternatives 2 and 3 provide a reduction in line losses that is approximately 37% higher when compared with the other alternatives. Using figures representing market conditions at the time the Draft EIS was prepared, this savings translates into approximately \$100,000 more in line loss savings when Alternatives 2 and 3 are compared with the other alternatives. (Approximately \$351,500 for Alternatives 2 and 3 versus approximately \$256,300 per year under the other alternatives. Distribution line losses for Alternatives 2 through 7 are similar – each contributes additional savings in the \$50-53,000 range per year).

The cost increases that have occurred in the wholesale power market in the past year and which are forecast for the future only heighten the value and importance of these line loss savings. For example, using actual 2005 wholesale power prices, the combined transmission and distribution savings in line losses for Alternatives 2 and 3 would be approximately \$552,000 versus \$418,000 per year, or an approximate advantage of \$134,000 per year.

Capacity:

With the exception of the No Action alternative, all alternatives address the transmission and near-term distribution capacity requirements. However, Alternatives 2, 3 and 5 utilize a new substation, which provides each of those alternatives an advantage in terms of meeting distribution capacity requirements, as well as a buffer for future growth that might take place during the expected life of those improvements. Therefore, if capacity is evaluated as a basis for the selection of PA, Alternatives 2, 3 and 5 each have a slight advantage over the other alternatives. However, because the capacity differences were relatively small, this criteria, standing alone, would not form a basis for picking one alternative over another.

Criteria Used to Select Alternative 2 over Alternative 3: Cost

Based on the analysis in the EIS, in the opinion of the PUD Manager, Alternatives 2 and 3 both meet the stated purpose and need of the project. Given this fact, the selection of the PA was based on an evaluation of the relative cost of those alternatives. In making an assessment based on cost, the cost to the customer is the net cost of construction, minus the benefit (cost savings), most of which comes from line loss reduction. In case of Alternatives 2 and 3, since both of those alternatives yield approximately the same annual savings from line loss, the advantage in cost arises from the cheaper construction cost of Alternative 2.

The relative construction cost of Alternative 3 is 27% higher than the construction cost for Alternative 2. Estimated total cost for Alternative 2 is \$10.8 million, compared to \$13.7 million for Alternative 3. The primary contributing factors to the increased cost is that Alternative 3 requires construction around energized (hot) existing distribution system infrastructure. Right-of-way and easement costs are also expected to be higher under Alternative 3. By comparison, each of the other alternatives come in at a higher cost and does not yield the same level of line loss savings.

Lower costs ultimately equate to lower rates for PUD customers, a factor that has been consistently expressed as a concern to the PUD by its customers.

Conclusion:

The PUD Manager has identified Alternative 2, the Pateros-Twisp new transmission route, as the Preferred Alternative to address the transmission and distribution problems that exist in the Methow Valley electrical system. Alternative 2 best meets the objectives of the project that have been identified by the PUD, and does so with minimal impacts to the environment and at a cost savings that is superior, when compared with other alternatives.