

**F I N A L**

# **VISUAL RESOURCES**

## **BPA Transmission Line Brown Road to Custer Substation**

*Prepared for*

BP Cherry Point Refinery

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## 1.0 INTRODUCTION

BP West Coast Products (BP) is proposing to connect a cogeneration power plant proposed for construction at the BP Cherry Point Refinery (Whatcom County) to an existing Bonneville Power Administration (BPA) transmission line. With the refinery and the cogeneration facility connected to the BPA system and under certain conditions, line overloads could occur, resulting in unacceptable sagging of the transmission line conductors under some combinations of conditions.

First, the following conditions would have to occur: 1) outside temperatures must be higher than 85 degrees Fahrenheit, and 2) one of the two transmission lines from the Custer substation to the Intalco plant must be out of service. Then, if either of the following combinations occurs, the remaining line could be overloaded:

- a) the cogeneration plant is shut down (producing no power), the refinery is operating with a normal power demand of 100 megawatts (MW), and Intalco is operating with a normal power demand of 490 MW. This would place a 590 MW demand on the remaining line.
- b) the Intalco plant is shut down (no power demand), the cogeneration plant is operating at the full capacity of 720 MW, and the refinery is operating at 100MW. This would place a total load on the remaining line of 620 MW.

The preferred approach for addressing the potential overload situation is a remedial action scheme (RAS) to adjust the demand to be below the capacity of the line. In the case where the power plant is shut down, Intalco would implement a RAS to reduce their demand by 40 MW. In the case where Intalco is shut down, the cogeneration plant would implement a RAS to reduce the power output by 70 MW. The other option for addressing the overload problem is by replacing existing transmission towers and transmission lines with a double-circuit line. The existing single-circuit line is on steel lattice towers. The double-circuit line would be on steel lattice towers or monopole tubular towers. The double-circuit line may require the towers to be closer together than the existing towers. The rebuild option is the reason for the visual study.

The project area is located in Sections 1, 2, 3, 4, 5 and 8, Township 39 N, Range 1E, W.M., about 7 miles southeast of Blaine, Washington. The study area includes a 125-foot transmission line right-of-way (ROW) corridor approximately 5 miles long along a section of BPA's Custer-Intalco No. 2 transmission line from Brown Road to the Custer substation (see Figure A-1, Appendix A).

This report briefly analyzes effects of the rebuild option on the visual resources or visual quality along the transmission line corridor. Visual quality refers to visual patterns created by a combination of natural landscape characteristics and industrial and man-made features. For this project, visual quality was estimated for rural, urban/industrial, and natural components. The methodology consisted of a brief inventory of existing visual quality (site visit), identification of any sensitive views, an estimate of the proposed project on visual quality, and brief descriptions of any visual changes that may result from the project as well as assessments of visual effects from sensitive viewpoints. Viewer sensitivity is based on the importance of features, conditions that affect visual perception, and social factors that contribute to viewer perception. It depends on viewer types and direction and viewer awareness/sensitivity to visual changes. The levels of sensitivity generally are classified as low, moderate, and high. This depends on whether the viewer is focused on work activity near the project area and not surrounding views, whether the views are by travelers from highways and local roads, and whether these views are from residential and other local viewers. Supplemental photographs and simulations are included in Appendix A. The simulations were based on photographs of the existing transmission line.

## **2.0 EXISTING CONDITIONS**

### **2.1 EXISTING TRANSMISSION LINE**

The existing transmission line extends southwesterly and southerly from the Custer substation, then westerly along higher ground north of Grandview Road to a point west of Kickerville Road before turning south to a BP interconnection point between Grandview Road and Brown Road. For much of the route the transmission line crosses farmland (cattle grazing and hay production) near a few rural residences, but it is also situated within mixed deciduous and evergreen forested

areas, primarily on the eastern and western ends of the project. The existing steel lattice towers carry a single-circuit (three conductors), stand about 85 feet high and are spaced approximately 1,150 feet apart along the route.

## **2.2 EXISTING VIEWS**

In reference to the three viewer sensitivity levels described in the introduction, three viewpoint areas were selected to represent the levels. They were based on a site visit that included viewing properties along the transmission line corridor and roadways near the corridor. One viewpoint area is along Grandview Road (not a scenic byway, but a major road in the project vicinity), another viewpoint area is from the Bannerman property (representative of the rural residences along the route), and the third viewpoint area is a point west of the Custer substation where the focus is not on surrounding views.

Along Grandview Road (west to east), the towers and transmission lines are generally not visible (except where the corridor crosses Grandview Road) from about Kickerville Road to about Yukon Way. They are intermittently visible from Yukon Way to North Star Road, but visible from North Star Road to about Elk Road. They are generally not visible from Elk Road east and northeasterly to the Custer substation. Along approximately 40% of the road segment, the transmission towers and line are not visible, and along approximately 60% of the segment they are intermittently visible or visible. Viewer sensitivity from the road is low to moderate, depending on visibility. From the Bannerman property on the higher ground north of Grandview Road along the route, the towers and transmission lines interrupt vistas (viewsheds) looking east (toward Mt. Baker) and north (pastoral panorama). Other rural residences along the route also experience interruption of views looking east or north. Viewer sensitivity is high. Near the Custer substation (from Blaine/Ferndale Road), the existing substation along with the existing towers and transmission lines are prominent in the landscape although not significantly interrupting any viewsheds. The surrounding vegetation and topographic relief also tends to confine the viewshed. Viewer sensitivity is low.

### **3.0 ALTERNATIVES**

Two alternatives are being considered for the new transmission facilities associated with the proposed cogeneration power plant. One alternative is essentially a No-Action Alternative whereby a remedial action scheme would be implemented to reduce the load demand on existing transmission towers and lines, which would remain with no additional facilities. The other (Rebuild Alternative) will involve replacement of the existing steel lattice towers with an increased number of tubular towers or poles (spaced at about 900-foot intervals) and additional transmission lines (double-circuit, six wires instead of three).

### **4.0 VISUAL EFFECTS**

Under the No Action Alternative no new visual effects on nearby residences along the route would occur. Under the Rebuild Alternative (with new proposed facilities), there could be additional view effects on the surrounding viewshed in the rural residential areas along the transmission line corridor. The proposed tubular poles would be approximately 120 feet high (taller than the existing steel lattice towers), and as stated, would be spaced at approximately 900-foot intervals (closer spacing than the existing towers, totaling about 5 additional towers). Use of tubular poles (instead of steel lattice towers) may reduce the visual effects somewhat for individual towers (by a narrower profile), but the increased number and height of proposed poles would mean that more towers would be visible interrupting the views (east toward Mt. Baker and north toward the pastoral panorama) when compared with existing conditions. The visual simulations (see Figures A-4 and A-5, Appendix A) show tubular poles near the Custer substation and from viewpoints on the Bannerman property looking west and east. A summary of visual effects of the Rebuild Alternative from representative viewpoints is included in Table 1. In general, the visual effects would be about the same as existing conditions, except for a slight increase in effects in the area where rural residences are located along the route.

**Table 1**  
**Summary of Visual Effects from Representative Viewpoints**  
**(Rebuild Alternative)**

<b>Location Description</b>	<b>Visual Quality</b>	<b>Visual Sensitivity</b>	<b>Visual Effect</b>
Grandview Road/Kickerville Road	Rural and Urban/Industrial	Low to Moderate	Low
Bannerman Property (west)	Rural	High	High*
Bannerman Property (east)	Rural	High	High*
Custer Substation (Blaine/Ferndale Road)	Rural and Urban/Industrial	Low	Low

\*Potential for slight increase above existing conditions (also a high visual effect)

**APPENDIX A**  
**VICINITY MAP, PHOTOGRAPHS AND SIMULATIONS**