

3.9 VISUAL RESOURCES

This section describes the existing visual environment (aesthetics plus light and glare) in and around the KVVPP area. It assesses the potential for aesthetics and light and glare impacts using accepted methods of evaluating visual landscape quality and predicts the type and degree of changes the KVVPP would likely have. This section also identifies mitigation measures designed to minimize those impacts.

The analysis in this section is based on information provided by the Applicant in the ASC (Sagebrush Power Partners LLC 2003a, Section 5.1.4 and Exhibit 22) and updated simulations provided by the Applicant for a 65-turbine project (Priestley 2005). EFSEC's EIS consultants also verified the information through site visits conducted in March and May 2003. Additional information used to evaluate the potential impacts has been referenced. The visual impact assessment used the Scenery Management System defined in *Landscape Aesthetics, A Handbook for Scenery Management* (U.S. Forest Service 1995) and *Visual Impact Assessment for Highway Projects* (Federal Highway Administration 1988).

3.9.1 Study Methodology

Visual Sensitivity Assessment

Each of us views the outdoor environment differently based on who we are as individuals. Although visual impacts are challenging to gauge quantitatively, there are some common qualitative characteristics of beautiful (and not-so-beautiful) scenery on which most people can agree.

Assessing visual sensitivity involves predicting a general impact on the quality of views from a given viewpoint. A combination of three factors determines how sensitive a landscape scene is:

- The number and type of viewers;
- The viewing conditions; and
- The quality of the view.

For example, a dense residential area with unobstructed views of a regionally important and memorable scene would be very sensitive to objects or structures that would impede views. Conversely, a view from a seldom-traveled rural road where motorists have only distant, oblique views of wind turbines in an unremarkable setting would likely qualify as an area of low sensitivity.

The principal types of viewers in the KVVPP area who have predictably high levels of sensitivity to visual impacts include:

- Resident viewers;
- Roadway viewers (drivers and passengers); and
- Recreating viewers such as hikers, rock hounds, and mountain bikers.

Other types of viewers, such as outdoor workers, typically have a low sensitivity to changes in the visual landscape.

This analysis of visual sensitivity defines three levels as follows:

- High levels of sensitivity were assigned in those cases where turbines would be potentially visible within 0.5 mile or less from residential properties, heavily traveled roadways, or heavily used recreational facilities.
- Moderate levels of sensitivity were assigned to areas where turbines would be visible from 0.5 mile to 5 miles within the primary “view cone” of residences and roadways. “View cone” or “cone of vision” refers to the central area that the eye can see clearly without moving and is surrounded by the peripheral vision. In distinguishing between moderate and low levels of sensitivity in the 0.5-mile to 5-mile zone, contextual factors were also considered, including the viewing conditions in the immediate foreground of the view.
- Low levels of sensitivity were assigned to areas 5 miles or more from the closest turbine, where a wind power project would be a distant and a relatively minor element in the overall landscape.

Related Policies and Studies

Under the Kittitas County Comprehensive Plan (Kittitas County 2002a), the project area is designated as Rural, while under the County’s Zoning Code (Kittitas County 1991, as amended by Kittitas County 2002b), the project area is zoned Agriculture-20 and Forest and Range. No specific scenic or visual resource policies are contained in the Comprehensive Plan that would affect the proposed project.

Kittitas County prepared a scenic route corridor plan that includes SR 10. SR 10 is south of the project site along the Yakima River. A planning report for this corridor, titled the *Swift Water Corridor Vision Plan* (Kittitas County 1997), documents its scenic and cultural character and recommends road improvements and development of roadway amenities and interpretive installations. The report does not contain specific recommendations for visual impacts.

The Federal Highway Administration designated the 100-mile segment of I-90 beginning at the Seattle waterfront and extending east to Thorp as a National Scenic Byway in 1998. This highway segment is also a part of the Mountains-to-Sound Greenway. The Greenway, which consists of the corridor along I-90 from downtown Seattle to Thorp, is conceived of as a scenic, historic, and recreation corridor intended to function as a scenic gateway to the Seattle metropolitan area and a pathway to nature for the metropolitan area’s population.

In addition, US 97 in this area is a state-designated Scenic and Recreational Highway. Typically, this designation means that a scenic corridor management plan would be prepared to provide policy-level guidance in the local adoption of comprehensive plan policies, zoning, and other land use regulation. There is no scenic corridor management plan for US 97 and, therefore, no regulatory control of aesthetic impacts within the US 97 corridor. However, the scenic highway designation implicitly carries an additional level of care and scrutiny in the review of potential aesthetic impacts.

3.9.2 Affected Environment

Visual resources are the natural and built features open to view in the landscape. The combination of land, water, and vegetation patterns represent the natural landscape features that define an area's visual character, while built features such as buildings, roads, and other structures reflect human or cultural modifications to the landscape. These natural and built landscape features or visual resources contribute to the public's experience and appreciation of the environment.

Proposed Action

Regional and Local Landscape Setting

Geography

The KVVPP would be sited on ridges located along the northern edge of the Kittitas Valley, approximately 10 miles to the north and west of the City of Ellensburg. These ridges slope southward toward the valley from Table Mountain, a 6,359-foot-high peak that is part of the Wenatchee Mountain Range to the north. The ridges in the project area range in elevation from 2,160 to 3,445 feet and lie in the area defined by Swauk Creek on the west and Green Canyon on the east. The tops of the ridges have a gentle southward slope incised by steep canyons.

The project area has an open, windswept appearance. Most of the ridge tops on which the project facilities would be located are dry, rocky grasslands used for grazing. Trees and shrubs are found mostly along streams in the canyons. One exception is the forest of predominantly ponderosa pine in the higher elevation areas at the project's northern boundary.

Built Environment

US 97, a north-south route of regional importance, generally bisects the project area. The most visually prominent built features in the project area, in addition to US 97, are the arrays of electrical transmission lines in the Bonneville and PSE transmission corridors that cross the project area in an east-west direction. Although many portions of the project area are uninhabited, there are several clusters of rural residences on large parcels, most notably along the US 97 corridor just south of the project site, on ridges east of US 97, and along Bettas Road.

Some of the rural residences in and around the project area are accessible by private roads that branch off US 97. For example, Elk Springs Road is a private dirt road that extends along the top of the ridge where turbine string I is proposed. It is gated at US 97 and is accessible only to property owners with a key. Elk Springs Road is used to access residences and recreational properties located at dispersed locations along the ridge and on the forested slopes that lie north of proposed turbine strings G and H in an area referred to as "Section 35." Cricklewood Lane extends from US 97 into the canyon between the ridges where turbine strings I and J are proposed. Cricklewood Lane is not gated in the area from US 97 to the Bonneville transmission line corridor, but north of this area access is restricted by a locked gate.

Project Site Scenic Quality Assessment

To assess the scenic quality of the landscapes potentially affected by the proposed project, the analyses of views toward the project site from selected viewpoints includes an overall rating of the scenic quality prevailing in the existing views. Scenic quality ratings were developed based on observations in the field, photographs of the affected area, methods for assessment of visual quality, and research on public perceptions of the environment and scenic beauty ratings of landscape scenes. The final assessment of scenic quality was made based on professional judgment that took a broad spectrum of factors into consideration, including:

- Natural features, including topography, watercourses, rock outcrops, and natural vegetation;
- The positive and negative effects of human alterations and built structures on visual quality; and
- Visual composition, including an assessment of the vividness, intactness, and unity of patterns in the landscape, defined as follows:
 - Vividness refers to the memorability of the visual impression received by the viewer from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.
 - Intactness is the integrity of visual order in the natural and human landscape, and the extent to which the landscape is free from visual encroachment.
 - Unity is the degree to which the visual resources of the landscape join together to form a coherent and harmonious visual pattern.

Each viewpoint was assigned a final rating based on the rating scale summarized in Table 3.9-1. This rating scale incorporates landscape assessment concepts developed by the U.S. Forest Service and the U.S. Department of Transportation.

Viewpoints

To analyze the project's effects on visual resources, viewpoints were selected to characterize the aesthetic character of the project area. The existing views from these viewpoints are described below and illustrated with photographs. Most of the viewpoints are at publicly accessible locations where the most people would view the project. Individual viewpoints were chosen as being the most representative views for the different roads, population areas, and recreation areas where views of the wind turbines would occur. Figures 3.9-1 and 3.9-2 show the locations of these viewpoints from outside and within the project area, respectively.

Figure 3.9-1

Table 3.9-1: Landscape Scenic Quality Scale

Rating	Explanation
Outstanding Visual Quality	A rating reserved for landscapes with exceptionally high visual quality. These landscapes are significant nationally or regionally. They usually contain exceptional natural or cultural features that contribute to this rating. They are what we think of as “picture postcard” landscapes. People are attracted to these landscapes to view them.
High Visual Quality	Landscapes that have high quality scenic value. This may be due to cultural or natural features contained in the landscape or to the arrangement of spaces contained in the landscape that causes the landscape to be visually interesting or a particularly comfortable place for people. These landscapes have high levels of vividness, unity, and intactness.
Moderately High Visual Quality	Landscapes that have above average scenic value but are not of high scenic value. The scenic value of these landscapes may be due to human or natural features contained within the landscape, to the arrangement of spaces in the landscape, or to the two-dimensional attributes of the landscape. Levels of vividness, unity, and intactness are moderate to high.
Moderate Visual Quality	Landscapes that are common or typical landscapes with average scenic value. They usually lack significant human or natural features. Their scenic value primarily results from the arrangement of spaces contained in the landscape and the two-dimensional visual attributes of the landscape. Levels of vividness, unity, and intactness are average.
Moderately Low Visual Quality	Landscapes that have below average scenic value but not low scenic value. They may contain visually discordant human alterations, but these features do not dominate the landscape. They often lack spaces that people perceive as inviting and provide little interest in terms of two-dimensional visual attributes of the landscape.
Low Visual Quality	Landscapes that have below average scenic value. They may contain visually discordant human alterations, and often provide little interest in terms of two-dimensional visual attributes of the landscape. Levels of vividness, unity, and intactness are below average.

Source: Buhyoff et al. 1994; Federal Highway Administration 1988; and U.S. Forest Service 1995.

Figure 3.9-2

US 97 Corridor: Viewpoints 1 through 3

Landscape Description and Scenic Quality. US 97 divides the project area and is an important route between Ellensburg and Wenatchee. On an average day, 2,800 vehicles travel the segment of US 97 between Ellensburg and SR 970.

US 97 borders the Dry Creek wash as it passes through the flat and open upper extent of the Kittitas Valley. (Figure 3.9-3 shows the existing view from Viewpoint 1 at Ellensburg Ranches Road, looking north.) Along the stretch of highway approaching the project area from the south, northbound travelers are able to see the grass- and shrub-steppe-covered lower slopes of the ridges that define the valley's northern edge, as well as the forest-covered upper ridge areas. As travelers approach within a mile or less of the project area, the landscape consists of open shrub-steppe lands with dispersed rural residences that are generally highly visible because of the openness of the surrounding landscape. The most visually prominent features in this area are the lattice steel transmission towers on the Bonneville transmission corridor that crosses US 97 and the adjoining ridges along the southern edge of the project area. Along the segment of US 97 that extends from a point several miles south of the project area to the edge of the project area at the Bonneville transmission corridor, the existing visual quality can be generally be classified as moderately low.

As US 97 enters the project area, the corridor along Dry Creek becomes a well-defined valley through the ridges. The highway passes through this valley and up a long, steep slope to a crest at approximately 1,700 feet in elevation where it passes over one of the ridges. At the crest is a privately owned gravel pit and gravel storage area on the west side of the road. In this area, views for northbound travelers to the east are constrained by steep road cuts. (Figure 3.9-4 shows the existing view from Viewpoint 2 at US 97 north of the gravel pit, looking north.) The visual quality in this area is moderate, although farther north along US 97, a more rugged, forested, and visually intact landscape comes into view. In this area, the visual quality is moderately high to high.

Although the landscape in this area consists primarily of open shrub-steppe lands, there are clusters of ponderosa pine and other trees at scattered locations along the edge of Dry Creek. A single PSE power line carried on wood H-frame towers crosses this area. The existing visual quality in the area along US 97 extending from the Bonneville transmission corridor to the road's crest on the side of the ridge ranges from moderately low to moderate.

Near the intersection with the north end of Bettas Road, this ridge becomes the primary element in the cone of vision for roadway viewers. (Figure 3.9-5 shows the existing view from Viewpoint 3 at US 97 at the north end of Bettas Road, looking south.) South of the intersection with Bettas Road along the base of the ridge, views to the east and to the ridge top become more constrained. The view to the southwest ridge top, however, is more open. Along this segment of the highway, the most salient developed features in the southbound view are the road and road cuts, the Bonneville transmission lines, and the gravel facility at the top of the ridge. Along this segment of US 97, the visual quality of southbound views ranges from moderately high in Hidden Valley to moderate in the area farther to the south.

Figure 3.9-3: Viewpoint 1 – US 97 at Ellensburg Ranches Road looking north



Viewpoint 1: Existing view looking north on US 97 at Ellensburg Ranches Road



Source: Priestley 2005

Viewpoint 1: Simulated view looking north on US 97 at Ellensburg Ranches Road, for 80 410-foot turbines

Fig 3.9-4 Viewpoint 2: US 97 north of the gravel pit, looking north



Viewpoint 2: Existing view US 97 north of the gravel pit, looking north



Viewpoint 2: Simulated view US 97 north of the gravel pit, looking north
(no turbines would be visible)

Figure 3.9-5: Viewpoint 3 – US 97 at northern end of Bettas Road looking south



Viewpoint 3: Existing View US 97 at northern end of Bettas Road looking south



Source: Priestley 2005

Viewpoint 3: Simulated View US 97 at northern end of Bettas Road looking south,
for 80 410-foot turbines

After US 97 crosses over the crest near the gravel facility, views for southbound travelers open up to reveal a panorama to the southwest and then to the south across the ridges and the Kittitas Valley toward Manastash Ridge and other hills and mountains 20 miles or more in the distance. Views toward the ridges to the east where many of the turbines would be located are constrained to some degree by the road cuts. However views toward the ridge top to the west are more open and only partially screened by clusters of trees. Farther south along US 97, the proposed turbines would be out of the southbound traveler's cone of vision. The project's substations and O&M facility become prominently visible in the canyon area at the base of the slope. In this area, the landscape consists primarily of open shrub-steppe land, and the transmission towers in the PSE and Bonneville transmission corridors become prominent elements of the landscape. Along this segment of US 97, southbound views from the highway range from moderate to moderately high on the upper slopes to moderately low in the areas on the lower slopes where the many transmission lines are a dominant element of the view.

South of the Bonneville transmission lines at the southern end of the project area, some residences are dispersed along the highway corridor. Some of this development lies along Sagebrush Road and Ellensburg Ranches Road, private roads that serve a large-lot subdivision on the slopes to the west of the highway. In this area, there are over 30 lots, of which approximately half have been developed with residences. In general, views toward the project site from residences along both sides of the US 97 corridor have visual quality levels that range from moderately low to moderate.

Visual Sensitivity. For the section of US 97 extending from the intersection with the north end of Nacho Road to a point slightly north of the intersection with the north end of Bettas Road, the highway lies within 0.5 mile of the closest proposed wind turbine. In this area the sensitivity of viewers is rated high. Along the portions of the highway to the north and south of this road segment where travelers are in the zone between 0.5 and 2 miles from the closest turbine, the traveler sensitivity is considered to be moderate. For the most part, the sensitivity of the views from the rural residences in the US 97 corridor in the area south of the Bonneville transmission corridor can be considered moderate because most of these residences are 0.5 mile or more from the closest proposed turbine. The exceptions are several residences at the northern end of Sagebrush Road that lie less than 0.5 mile from proposed turbines E4 and E5. Because of their proximity to these proposed turbines, the visual sensitivity is high.

Ridges East of US 97: Viewpoint 4

Landscape Description and Scenic Quality. This viewing area encompasses the terrain east of US 97 and consists of long, north-south-trending ridges separated by narrow canyons. Most of this area is open in character and covered in grass and shrub-steppe vegetation, although the slopes at the northern end of the ridges are covered with ponderosa pine and other conifers. The most visually prominent developed features in this area are the transmission towers in the Bonneville transmission corridor that runs across the southern ends of the ridges, and the PSE and Bonneville transmission lines that run through the project farther to the north.

Figure 3.9-6 Viewpoint 4 – Ridges East of US 97



Viewpoint 4: Existing view looking south from Section 35 at upper end of Elk Springs Road



Source: Priestley 2005

Viewpoint 4: Simulated view looking south from Section 35 upper end of Elk Springs Road, for 80 410-foot turbines.

The lands in this area are predominantly used for grazing. However, the area also contains a number of scattered rural residences. Cricklewood Lane provides access to some of these residences. Although Cricklewood Lane is a private road, it is not gated in the area from US 97 to the Bonneville transmission line corridor. North of this area, a locked gate restricts access.

Approximately 35 residences and recreational properties are accessible by Elk Springs Road, a private road that is gated at US 97. Several residences are in dispersed locations along the ridge, with the largest single concentration in Township 20 North, Range 17 East, Section 35. This section has been divided into 32 lots ranging from 10 to 60 acres in size. Approximately 20 of these parcels have some kind of structure or a trailer on them. (Figure 3.9-6 shows the existing view from Viewpoint 4 at one of the residences in Section 35 on Elk Springs Road, looking south toward the project area.) The visual quality of the views in this area range from moderately low at the base of the ridges, moderate along the ridge tops, and moderately high to high in locations in Section 35 from which panoramic views to the south are available (see Figure 3.9-6).

Visual Sensitivity. Because portions of Cricklewood Lane and most of Elk Springs Road are in areas with open views that lie within 0.5 mile or less of proposed turbines, the views from these roads are considered sensitive. Because these are private, dead-end roads whose primary function is to provide access to abutting properties, the number of road users affected is assumed to be relatively small. Given the restricted access to these road segments and the small number of viewers, the sensitivity to visual effects is classified as low.

For the 11 residences located along Cricklewood Lane and the lower and middle sections of Elk Springs Road that are within 0.5 mile of the proposed turbines and which would have unobstructed views of them, the sensitivity of views is high. Field studies, aerial reconnaissance, and maps and photographs indicate that in Section 35 heavy tree cover provides partial to full screening of many of the views toward the area where the turbines would be located. Given this tree screening, it appears that there are five existing residences from which the proposed turbines would be potentially visible. Three of these residences lie within 0.5 mile of the proposed turbines, and views from these residences would be considered to have a high sensitivity. Because the other two residences in Section 35 from which the turbines would be potentially visible lie more than 0.5 mile from the closest proposed turbine, the visual sensitivity of views from those properties is considered to be moderate.

Bettas Road: Viewpoint 5

Landscape Description and Scenic Quality. The Bettas Road corridor extends west from the site of the proposed O&M facility and then north to the intersection with US 97. This area is shrub-steppe landscape. After passing over the crest of the ridge, Bettas Road descends into Horse Canyon, a small valley with a rural character. At the southern end of the valley, there is a cluster of five rural residences on ranchette parcels. Farther north along the road, two dwellings are associated with larger ranch properties. (Figure 3.9-7 shows the existing view from Viewpoint 5 in the northern portion of Bettas Road, looking north.) Except for Bettas Road and an existing Bonneville transmission line, this portion of the Bettas Road corridor is undeveloped. In the middle ground of the view, US 97 travels up the slope at the base of the ridge visible to the east.

Figure 3.9-7: Viewpoint 5 – the northern portion of Bettas Road looking north



Viewpoint 5: Existing view of the northern portion of Bettas Road looking north



Viewpoint 5: Simulated view of the northern portion of Bettas Road looking north; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

Along this portion of Bettas Road, the visual quality is moderately high, reflecting vivid topographic and vegetative conditions.

Visual Sensitivity. The sensitivity of views on Bettas Road is moderate. Although from most portions of the road turbines would be visible within 0.5 mile, the number of travelers affected is very low. The 2001 average daily traffic on Bettas Road was only 26 vehicles. Some views of the closest turbines would be constrained by the steep slopes along Bettas Road. All of the residences along the Bettas Road corridor are within 0.5 mile, or about 0.5 mile from the closest proposed turbine. From most of the residences, the visual sensitivity is high, but from several that are oriented toward views down the valley to the southwest rather than to views toward the ridgelines to the east and north, the sensitivity is moderate.

SR 10 Corridor: Viewpoint 6

Landscape Description and Scenic Quality. The project area is visible from SR 10. The section of SR 10 between Ellensburg and Cle Elum is a state-designated Scenic and Recreational Highway. The *Swift Water Corridor Vision Plan* (Kittitas County 1997) identifies measures to develop roadway improvements and amenities that would enhance the road's scenic qualities. Average daily traffic on SR 10 is 1,200 vehicles per day.

With the exception of several dispersed ranch dwellings and clusters of rural residences, the landscape consists of open grasslands and areas of riparian forest. A distinctive cultural element in this area is an old flume structure at the base of the bluffs just to the east of the road. Farther to the northwest, where the highway is at a higher elevation along the side of the bluff defining the river canyon, there is no development, and the landscape is characterized by rock outcrops, clusters of trees and shrubs, and views of the canyon. (Figure 3.9-8 shows the existing view from Viewpoint 6 at SR 10 between Morrison Canyon and Swauk Creek, looking east.) Along this segment of the highway corridor, the visual quality of views toward the project site ranges from moderate to moderately high.

Visual Sensitivity. The sensitivity of views from the highway to the project is high because several short segments of SR 10 are within 0.5 mile of the closest proposed turbine, the highway carries a moderately high level of traffic, and the road is a designated scenic and recreational highway.

The ridges where turbines are proposed are visible from residences along this portion of SR 10. The visual sensitivity of views from these properties is moderate because these residences are typically not in the foreground view and most are not oriented toward the ridge tops.

Most of the recreational use of the Yakima River along SR 10 is fishing, although the number of people who fish is apparently low because of poor river access. The sensitivity of views toward the project site from the recreational use areas is low to moderate because:

- The number of recreational users is relatively low;
- Most of the Yakima River is a mile or more from the closest proposed turbine; and
- Many views toward the project site are constrained by steep bluffs and trees along the river.

Figure 3.9-8: Viewpoint 6 – SR 10 Corridor between Morrison Canyon and Swauk Creek, looking East



Viewpoint 6: Existing view SR 10 between Morrison Canyon and Swauk Creek, looking east



Viewpoint 6: Simulated view SR 10 between Morrison Canyon and Swauk Creek, looking east; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

John Wayne Trail: Viewpoint 7

Landscape Description and Scenic Quality. The John Wayne Trail is a hiking, biking, and equestrian trail that has been developed in the Iron Horse State Park. The park was created on the former right-of-way of the Milwaukee Road Railroad. The John Wayne Trail extends 109 miles from North Bend to the Columbia River. In the project area, the trail has a wide gravel surface and is adjacent to a power line on wood poles. From most areas of the trail, the ridges on which the project would be developed are visible at a distance ranging from 1 to 5 miles. (Figure 3.9-9 shows the existing view from Viewpoint 7 on the John Wayne Trail at Taneum Road, looking north.) From most areas along the trail, the visual quality of views toward the project site would be rated moderately high.

Visual Sensitivity. Washington State Parks reports that in 2001, the portion of the John Wayne Trail extending from North Bend to Thorp had 163,532 visitors, the segment from Thorp east to Vantage had 21,079 visitors, and that most visits took place during the summer season. Trail use levels for the Thorp area are likely to be lower than the trail section near Snoqualmie Pass. The visual sensitivity of the trail is lower because it has a wide gravel surface and is adjacent to power lines. The trail's visual sensitivity, level of use, and the distance to proposed wind turbines give this viewpoint a low sensitivity to visual impacts.

Thorp: Viewpoint 8

Landscape Description and Scenic Quality. Figure 3.9-10 shows the existing view from Viewpoint 8 at Thorp Highway, looking north. The ridges on which the project is proposed are 3 miles farther to the north and form the backdrop of the view. The visual quality of the view toward the project site is moderate, reflecting moderate levels of vividness, unity, and intactness.

Visual Sensitivity. This viewpoint would qualify as low in visual sensitivity for travelers because:

- Traffic levels in this area are fairly moderate;
- The distance to the nearest wind turbines is approximately 3 miles; and
- The project area does not lie within the primary cone of vision of travelers.

Approximately 118 residences are in and near Thorp. Other structures and trees screen views of the ridgeline from many Thorp residences, although some have views of the ridgeline. However, because these ridgelines are distant, the sensitivity is moderate.

Figure 3.9-9: Viewpoint 7 – John Wayne Trail at Taneum Road, looking north



Viewpoint 7: Existing view of the John Wayne Trail at Taneum Road, looking north



Viewpoint 7: Simulated view of the John Wayne Trail at Taneum Road, looking north; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

Figure 3.9-10: Viewpoint 8 - Thorp Highway, looking north



Viewpoint 8: Existing view of the Thorp Highway, looking north



Viewpoint 8: Simulated view of the Thorp Highway, looking north; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

I-90: Viewpoint 9

Landscape Description and Scenic Quality. I-90 is about 2.5 miles south of the project site. The Federal Highway Administration designated the 100-mile segment of I-90 beginning at the Seattle waterfront and extending east to Thorp as a National Scenic Byway in 1998. Traffic on I-90 in this area averages 21,000 vehicles per day. From some areas along I-90, topography and trees in the foreground screen views toward the ridges on which the project would be developed. In many areas, however, the ridges are clearly visible in views across an open valley landscape. The views toward the project area from I-90 are at a right angle to the road and do not fall within the primary cone of vision of drivers.

Figure 3.9-11 shows the existing view from Viewpoint 9 at I-90 and Springwood Ranch, looking northeast. The view is approximately 2.5 miles from the closest proposed turbine location. In this area, the visual quality of views toward the project site is high, reflecting the high vividness attributable to the presence of the peaks of the Stuart Range in the far background of the view, and the view's relatively high levels of unity and intactness.

Visual Sensitivity. The sensitivity of views from this viewpoint is moderate. Although I-90 carries a high volume of traffic and is a designated National Scenic Byway, views toward the project area are not within the primary cone of vision of drivers, and appear in the far middle ground of the view.

Lower Green Canyon Road: Viewpoint 10

Landscape Description and Scenic Quality. Figure 3.9-12 shows the existing view from Viewpoint 10 along Lower Green Canyon Road, looking northwest. It represents views in the portion of the Kittitas Valley northwest of Ellensburg, where the project area is visible across the flat valley on the hills that frame the northwestern edge of the valley. In the upper valley, viewing distances to the project site range from 2 to more than 8 miles. From Viewpoint 10, the project site is approximately 5 miles in the distance. The upper valley is highly rural in character, and the landscape consists of large farms and ranches and some dispersed small-parcel, non-farm residences. In general, views from this area toward the project site have moderately high to high visual quality.

Visual Sensitivity. The sensitivity of this viewpoint to the effects of the proposed project is moderate. Although there are relatively large numbers of residential and roadway viewers in this area, the distance to the proposed turbines reduces the level of sensitivity.

Figure 3.9-11: Viewpoint 9 – I-90 and Springwood Ranch, looking northeast



Viewpoint 9: Existing view from I-90 and Springwood Ranch, looking northeast



Viewpoint 9: Simulated view from I-90 and Springwood Ranch, looking northeast; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

Figure 3.9-12: Viewpoint 10 – along Lower Green Canyon Road, looking northwest



Viewpoint 10: Existing view along Lower Green Canyon Road, looking northwest



Viewpoint 10: Simulated view along Lower Green Canyon Road, looking northwest; the simulation, based on the original project of 121 1.5-MW turbines (330 feet high), overestimates the visual impact because fewer turbines would be constructed.

National Forest Lands: Viewpoint 11

Landscape Description and Scenic Quality. In the project area, the Wenatchee National Forest includes the slopes of Table Mountain to the north and east of the project site. Table Mountain is a popular place for winter sports, hiking, camping, picnicking, and other recreational activities. Lion Rock, an area on Table Mountain that has notable panoramic views, would not have views of the project because of intervening trees and topography.

The National Forest lands closest to the project site are in Section 25, northeast of the large lot residential subdivision in Section 35 at the upper end of Elk Springs Road. This portion of the National Forest is about 1 mile from the closest proposed turbine. Because most of the land in Section 25 slopes into the canyon along First Creek, the project area is potentially visible only from an area of ridge along the southern edge of the forest. At this location, the visibility is reduced by dense forest to the south. The primary access from the valley into the Table Mountain area is via Reecer Creek Road, which becomes National Forest Primary Route 35 at the forest boundary in Section 33. Route 35 traverses Table Mountain in a series of switchbacks with broad views of the Kittitas Valley. (Figure 3.9-13 shows the existing view from Viewpoint 11 at Forest Service Road 35, looking southeast). In general, views from this area would have moderately high to high visual quality.

Visual Sensitivity. Visual sensitivity from this viewpoint would be moderately high because:

- From the road, views are frequent and generally open, with the project site visible in middle ground and foreground areas 3.25 to 6.5 miles to the southwest;
- The turbines would be seen against a backdrop of rural grassland and distant mountains in which there is currently little evidence of human development; and
- Even though much of the recreation in the Wenatchee National Forest occurs farther inside the National Forest boundaries, Forest Route 35 offers numerous opportunities for visitors to view the surrounding valley, whether they are in their vehicles, or stopped at one of the many pullouts on the road.

Robertson Property: Viewpoint 12

Landscape Description and Scenic Quality. This viewing area encompasses the terrain west and east of US 97 and consists of a long, north-south-trending ridge and views of Horse Canyon to the west. US 97 is not visible from this viewpoint. Most of this area is open in character and covered in grass and shrub-steppe vegetation, although a narrow canyon in the foreground view contains a stand of ponderosa pine. Forested low hills are visible in the distant view to the north. The only built features in this view are Bettas Road and several homes with outbuildings. (Figure 3.9-14 shows the existing view from Viewpoint 12 at the Robertson property, looking north-northeast). The scenic quality is intact because Bettas road is narrow and curves with the topography. Land in this general area is used mostly for grazing and contains only a small number of scattered rural residences. Bettas Road provides access to some of these residences. In general, views from this area would have high visual quality.

Figure 3.9-13: Viewpoint 11- Forest Service Lands



Viewpoint 11: Existing view Forest Service Lands looking southwest



Source: Priestley 2005

Viewpoint 11: Simulated view Forest Service Lands looking southwest, for 80 410-foot turbines

Visual Sensitivity. Nearby residences at this viewpoint are about 0.5 mile from the closest proposed turbines. The turbines would be located on a prominent ridge at roughly the same elevation as the viewpoint. The views from these residences are considered sensitive. The number of affected residents, however, is relatively small. Certain residences would have a high sensitivity depending on the orientation of their homes, proximity to the turbines, and topography. Given the small number of viewers, however, the sensitivity to visual effects is classified as moderately high.

Scenic Views of Regional Importance: The Stuart Range

The Stuart Range consists of a series of high snow-covered peaks in the Alpine Lakes Wilderness, approximately 20 miles northwest of the project area. The highest of these peaks is Mount Stuart, with an elevation of 9,416 feet. The elevations of the other major peaks in the range vary from 8,000 to 9,000 feet. The Stuart Range, a highly noticeable and memorable feature, is the most regionally unique feature in the project area landscape.

The Stuart Range is most visible from portions of the Kittitas Valley such as the view from I-90 at Springwood Ranch (Viewpoint 9, Figure 3.9-11) and the view from Lower Green Canyon Road (Viewpoint 10, Figure 3.9-12). The visual prominence of the Stuart Range in these views creates a high level of vividness and overall visual quality.

In the areas closer to the foothills, the peaks in the Stuarts are less visible, and in many places, they are not visible at all. For example, in the community of Thorp located a little over a mile south of the base of the foothills, only the tops of the peaks in the Stuart Range can be seen (Viewpoint 8, Figure 3.9-10). In areas at the base of the foothills, like those along US 97 in the immediate project vicinity, the Stuart Range is not visible at all.

Light and Glare

The primary source of light at the proposed project site and in the immediate project vicinity is from vehicle headlights on nearby roadways. Rural residential developments in the project area also contribute to the ambient light environment and, to a small extent, glare from window glass.

Offsite Alternatives

Alternative 1: Swauk Valley Ranch

The Swauk Valley Ranch site has an open, expansive appearance similar to the Kittitas Valley site. Steep rocky slopes define the northern, western, and southern boundaries of the site. The northern panhandle portion of the site is heavily forested. The existing electrical transmission lines that cross the site in an east-west direction are the most visually prominent built features on the site. Several rural residences are scattered across the site.

Figure 3.9-14 Viewpoint 12 - Robertson property, looking north-northeast



Viewpoint 12: Existing view at the Robertson property.



Viewpoint 12: Simulated view at the Robertson property, looking north-northeast, 80 410-foot turbines

The Swauk Valley Ranch is farther from I-90 than the Springwood Ranch site, but closer than the Kittitas Valley site, and is adjacent to SR 10. Visual impacts were not evaluated for individual viewpoints surrounding the Swauk Valley Ranch site. However, this alternative site is visible from both I-90 and SR 10, as well as from nearby residences.

Existing sources of light and glare in the Swauk Valley alternative site are primarily vehicle headlights on nearby roadways and light associated with residences, including glare from window glass.

Alternative 2: Springwood Ranch

The Springwood Ranch alternative site is located on the Thorp Prairie, a relatively broad and flat landscape within the Kittitas Valley, and is adjacent to the Yakima River. Although information regarding specific viewpoints is not available, the southeastern section of the Springwood Ranch alternative site is located directly adjacent to I-90 and the southwestern property line is generally within 0.5 mile of I-90 for its entire length. Views of the property from I-90 are generally unobstructed. SR 10 parallels the property for about 5 to 6 miles, and Springwood Ranch can be viewed from the Thorp Highway. Several homes are also present on or near this alternative site, and the site can be viewed from the community of Thorp.

Outdoor lighting and vehicle traffic associated with the ranch result in a minor source of light and glare. The local road network surrounding the site accounts for the majority of existing light and glare in the vicinity of Springwood Ranch. Other sources of light adjacent to the project site include reflected sunlight during the daytime and illuminated vehicle lights at night from traffic on I-90, Thorp Highway, SR 10, and Taneum Road. Outdoor lighting in Thorp and the residences in the surrounding area contribute to the local nighttime visual environment.

3.9.3 Impacts

Proposed Action

This analysis examines potential direct aesthetics and light and glare impacts during the construction, operations and maintenance, and decommissioning phases of the proposed KVVPP. Indirect impacts are not anticipated because the project is not expected to substantially induce regional growth to the extent that would result in significant changes to the offsite visual landscape.

For the proposed project, the primary concern is the potential aesthetic and light and glare impacts of the proposed wind turbines. Other project elements such as the O&M facility and substations, 13 miles of new gravel access roads, and additional power lines are discussed only where there is a likelihood that visual impacts would occur.

In both scenarios considered, it is the ability of the landscape in question to accommodate both the size and density of the wind turbines that would determine the resulting visual impacts. Given its dimensions, there is little that can be done to mitigate the visual impact of a wind turbine. Being available to the wind means being in a location that is open and highly visible.

Table 3.9-2 summarizes the existing scenic visual quality assessment for each viewpoint considered, as well as the expected level of visual impact.

Construction Impacts

Aesthetics

Onsite activities that would be required during project construction are described in Chapter 2. During construction, large earth-moving equipment, trucks, cranes, and other heavy equipment would be highly visible from nearby areas. At some times, small, localized clouds of dust created by road building and other grading activities may be visible at the site. Because of construction-related grading activities, areas of exposed soil and fresh gravel that contrast with the colors of the surrounding undisturbed landscape would be visible. In close-up views, particularly those seen by travelers on the segment of US 97 that passes through the project site and those seen from the closest residences, the visual changes associated with the construction activities would be highly visible and would have a moderate to high visual impact. From more distant locations, the visual effects would be relatively minor and would have little or no impact on the quality of views.

Light and Glare

During turbine erection, some days would require double shifts to allow for construction in low wind conditions. Therefore, some construction activities may occur during evening (dusk) or nighttime hours, and lighting may be needed. The effects of construction lighting would be temporary, lasting only during the specific activity period (for turbine erection, estimated at six months).

Operations and Maintenance Impacts

Aesthetics

The project has the potential to create high levels of visual impact at 2 of the 12 viewpoint locations analyzed. Not every potential view receptor in the project area has been documented. Selected viewpoints are representative of a variety and range of views in the project area. For example, some commenters during the EIS scoping process requested that visual impacts be described for the area along Reecer Creek Road, east of the project area. The existing and simulated views of the project from Reecer Creek Road are illustrated in Figures 3.14-3 and 3.14-4, respectively, in Section 3.14, Cumulative Impacts. The photos used for the simulations show the worst-case seasonal conditions for visual contrast between the wind turbines and the primarily green and brown landscape backdrop. The period with the least visual contrast is anticipated to occur when there is snow cover and gray skies.

This section rates potential levels of visual impacts from key project viewpoints through the use of simulations. Over the review period for this proposal, the Applicant has submitted several rounds of simulations to represent the visual impacts of the project. For example, the Draft EIS presented simulations of an “upper end scenario”, with 150 smaller turbines being constructed

(EFSEC 2003b). With the Applicant's commitment to cap the total number of turbines to 65 units, with a total height ranging from 330 to 410 feet, simulations representing the "upper end scenario" are no longer relevant, and have therefore not been reproduced in this EIS.

In November 2005, the Applicant also submitted simulations to reflect the project as revised down to a maximum of 65 turbines (Priestley 2005). This new round of simulations was based on the largest turbine being considered, with a hub height of 263 feet, a rotor diameter of 295 feet and a tip height of 410 feet. Since the Applicant has also committed to installing up to 65 turbines, these simulations would remain representative of the visual impacts even if the smaller 330 foot turbines were chosen, because the location and density of the turbines would not change significantly.

As indicated in the figure labels, some of the visual simulations presented in this EIS reflect the originally proposed 121-turbine project, with 1.3- to 1.5-MW (330 foot) turbines, or 80 3 MW (410 foot) turbines. In these simulations, the visual impact is conservatively overstated since fewer turbines will be constructed.

Viewpoint 1: US 97 at Ellensburg Ranches Road looking north

See Figure 3.9-3. From Viewpoint 1, approximately 30 turbines from strings I and J would be visible on the ridge tops at distances of 0.8 to 3 or more miles. Figure 3.9-3 illustrates the simulated views from Viewpoint 1 on US 97 at Ellensburg Ranches Road, looking north, for the most conservative scenario of a 65-turbine project, with 410-foot high turbines. At the distance depicted in the photo, the visual clutter of more turbines has more impact than the considerable scale of the larger turbines. Also, about half the turbines would be less noticeable where there is less contrast with the hillside background. The remaining half, however, would be silhouetted against the sky, increasing their visual impact. The presence of the turbines would reduce the scene's degree of intactness by introducing a large number of highly visible engineered vertical elements.

The potential visual impact from Viewpoint 1 would range from low to moderate.

Table 3.9-2: Summary of Existing Scenic Quality Assessment and Project Visual Impacts

Viewpoint	Existing Scenic Quality		Anticipated Level of Visual Impact
	Visual Quality	Visual Sensitivity	
Viewpoint 1: US 97 at Ellensburg Ranches Road Looking north (Figure 3.9-3)	Moderately Low	Moderate	Low to Moderate
Viewpoint 2: US 97 north of Gravel Pit Looking north (Figure 3.9-4)	Moderate to High	High	None
Viewpoint 3: US 97 at northern End of Bettas Road Looking south (Figure 3.9-5)	Moderate to Moderately High	High	Low
Viewpoint 4: Ridges east of US 97 (Figure 3.9-6)	Moderately High to High	Moderate	Moderate to High
Viewpoint 5: Bettas Road (Figure 3.9-7)	Moderately High	Moderate to High	Moderate
Viewpoint 6: SR 10 Corridor (Figure 3.9-8)	Moderate to Moderately High	High	Moderate
Viewpoint 7: John Wayne Trail (Figure 3.9-9)	Moderately High	Low	Low
Viewpoint 8: Thorp (Figure 3.9-10)	Moderate	Low to Moderate	Low
Viewpoint 9: I-90 (Figure 3.9-11)	High	Moderate	Low to Moderately Low
Viewpoint 10: Lower Green Canyon Road (Figure 3.9-12)	Moderately High to High	Moderate	Low
Viewpoint 11: National Forest Lands (Figure 3.9-13)	Moderately High to High	Moderately High	Moderately High
Viewpoint 12: Robertson Property (Figure 3.9-14)	High	Moderately High	Moderately High to High

Viewpoint 2: US 97 north of Gravel Pit looking north

See Figure 3.9-4. In the original layout described in the Draft EIS, nine turbines in turbine string G would have been visible from Viewpoint 2 on top of the ridge at distances ranging from 0.4 to 1 mile (EFSEC 2003b). These nine turbines have been removed in the revised KVVPP layout. The project would therefore not have any visual impact from this view point.

Viewpoint 3: US 97 at northern end of Bettas Road looking south

See Figure 3.9-5. Three turbines in turbine string G would be prominently visible from Viewpoint 3 in the driver’s cone of vision along the east side of the US 97. (See Figure 3.9-5) These turbines would be located on ridge tops at distances ranging from 0.9 to 1.2 miles from this viewpoint. Because the turbines would be seen against the sky at relatively close range, they

would be highly visible in this view and would reduce the visual unity to a degree that would substantially alter the scene's existing character.

Because the turbines being viewed are located further away from the Viewpoint the potential visual impact from Viewpoint 3 would be low.

Viewpoint 4: Ridges East of US 97

See Figure 3.9-6. Approximately 15 turbines would be visible from Viewpoint 4 looking south from a residence in Section 35 at the upper end of Elk Springs Road. (Figure 3.9-6 shows the simulated view from Viewpoint 4 at a residence in Section 35 on Elk Springs Road, looking south.) Three strings of turbines would be visible in the middle ground, and two additional strings would be visible in the far middle ground. Because of the elevated viewing position, these turbines would be seen against the ground surface backdrop. The contrast between the light color of the turbines and the darker color of the ground would create a moderate visual contrast, increasing the visibility of the turbines. Because of the elevated position of this viewpoint and its distance from the turbines, the turbines' apparent scale would be consistent with that of other features in the setting. The presence of the turbines would likely have a moderate effect on the vividness of this view, but would reduce its overall sense of unity and intactness.

The potential visual impact from Viewpoint 4 would be moderate to high.

Viewpoint 5: Bettas Road

See Figure 3.9-7. Ten or fewer turbines in turbine string G would be prominently visible in the driver's cone of vision along the east side of Bettas Road. (Figure 3.9-7 shows the simulated view from Viewpoint 5 in the northern portion of Bettas Road, looking north.) These turbines would be located in the ridge tops at distances ranging from 0.5 to 1 mile from this viewpoint. Because the turbines would be seen against the sky at relatively close range, they would be highly visible and would reduce the visual unity to a degree that would substantially alter the scene's existing character. The wind turbines would be arrayed uniformly along the ridgeline and would not necessarily create a substantial change in the setting's moderate visual quality.

The potential visual impact from Viewpoint 5 would not exceed moderate.

Viewpoint 6: SR 10 Corridor

See Figure 3.9-8. Fourteen or fewer turbines in turbine strings B and C would be visible on the ridgeline located 1.5 miles or more from Viewpoint 6 along SR 10 between Morrison Canyon and Swauk Creek. (Figure 3.9-8 shows the simulated view from Viewpoint 6 on SR 10 between Morrison Canyon and Swauk Creek, looking east.) The turbines would be seen against the sky. The presence of the long line of turbines may create a slight increase in the vividness of this view, may have a small adverse effect on the view's unity, and would have a more substantial effect on the view's intactness.

The potential visual impact from Viewpoint 6 would not exceed moderate.

Viewpoint 7: John Wayne Trail

See *Figure 3.9-9*. Fewer than 30 turbines in turbine strings A, B, and C and from strings on ridges farther to the north would be visible on the ridgelines located 2 miles and farther from Viewpoint 7 looking north along the Iron Horse/John Wayne Trail at Taneum Road. (Figure 3.9-9 shows the simulated view from Viewpoint 7 on the John Wayne Trail at Taneum Road, looking north.) The closer turbines would be seen against the sky. The more distant turbines would be seen against the slopes of distant hills, and under some lighting conditions, would contrast with the backdrop, increasing the visual impact. The visible turbines would have little effect on this view's vividness, but would reduce its unity and intactness to a slightly greater extent.

The potential visual impact from Viewpoint 7 would be low.

Viewpoint 8: Thorp

See *Figure 3.9-10*. Approximately 20 turbines in turbine strings A, B, and C and from strings on ridges farther to the north would be visible on the ridgelines located 3 miles and farther from Viewpoint 8 looking north from the Thorp Highway in the center of the community of Thorp. (Figure 3.9-10 shows the simulated view from Viewpoint 8 on Thorp Highway, looking north.) Most of the turbines would be seen against the sky. However, at this distance, they would have a relatively low visual impact. Some of the turbines would be seen in front of the Stuart Range. However, because of their relatively small size at this viewing distance, they would not likely detract from views toward the Stuarts. The visible turbines would have little effect on this view's vividness, unity, and intactness.

The potential visual impact from Viewpoint 8 would be low.

Viewpoint 9: I-90

See *Figure 3.9-11*. 20 turbines in turbine strings A, B, C, and E and from strings on ridges farther to the north and east would be visible on the ridgelines located 2.5 miles and farther from this viewpoint. (See Figure 3.9-11). Some of the turbines would be seen against the sky although the more distant turbines would be seen against the hillsides and under some lighting conditions would contrast with their backdrop, thereby increasing their visual impact. The visible turbines would have a minor effect on the vividness of this view but would decrease the apparent unity and intactness.

The potential visual impact from Viewpoint 9, using gray turbines, would be low.

Viewpoint 10: Lower Green Canyon Road

See *Figure 3.9-12*. Almost all of the project's turbines would be visible on the ridgelines in the background of Viewpoint 10, 5 miles or more from Lower Green Canyon Road. (Figure 3.9-12 shows the simulated view from Viewpoint 10 along Lower Green Canyon Road, looking northwest.) Most of the turbines would be seen against the slopes of the ridges and more distant

hills and under some lighting conditions would contrast with the background. At a distance of 5 miles or more, however, this contrast would have little effect on the overall visual impact. Consequently, because the prominence of the turbines in the view would be low, the turbines would have a minor effect on the vividness, unity, and intactness.

The potential visual impact from this viewpoint would be low.

Viewpoint 11: National Forest Lands

See Figure 3.9-13. Viewpoint 11 illustrates views of the project area from the southern portion of the Wenatchee National Forest on Forest Route 35. (Figure 3.9-13 shows the simulated view for the 330-foot turbine scenario from Viewpoint 11 on Forest Service Road 35, looking southeast.) As this road switches back and forth up the west slope of Table Mountain, the project site becomes increasingly visible. Because of the steep slopes, increasing elevation, and many pullouts on the forest access road, the project site is frequently visible against the broad rural landscape of the valley below. In the plateau areas to the north where recreation areas are located, trees generally screen views to the southwest toward the project site, making the project less visible to recreational visitors.

Much of the project would be seen from Reecer Creek Road and areas of the National Forest used for recreation. Given the moderately high to high scenic quality of this view, the impacts of the project on recreational users of forestlands would be moderately high.

Viewpoint 12: Robertson Property

See Figure 3.9-14. Turbine strings F and G would be visible from Viewpoint 12 (the Robertson property). String F is on the west side of US 97 and string G runs along a ridge on the east side of US 97. The closest turbines (about 0.5 miles away) in string F would appear in the more highly sensitive zone, although the remaining turbines in strings F and G would be visible at a moderately sensitive distance. Figure 3.9-14 shows the simulated view from Viewpoint 12 at the Robertson property, looking north-northeast, for the, 410-foot turbine scenario.)

The visual impact potential ranges from moderately high to high for the Robertson property (Viewpoint 12). The taller turbines would have comparatively less visual dominance in this scene because the viewpoint elevation is about the same elevation as the turbine sites.

Scenic Views of Regional Importance – The Stuart Range

Because the Stuart Range is northwest of the project site, the areas from which the project and the Stuart Range have the potential to be seen in the same view are in the region to the southeast of the project's proposed turbine strings. Review of mapped data and the simulations prepared for this project shows that the Thorp vicinity would be the most likely area for turbines to appear in the line of sight of views toward the Stuart Range (Figure 3.9-10). In views from areas farther to the west, such as the John Wayne Trail at Taneum Road (Figure 3.9-9), the Stuart Range would either not be visible at all or not in the line of sight of the turbines.

There is a potential for the wind turbines to appear in the line of sight of the Stuart Range in views from residences on the tops of the ridges southwest of the turbines. Some of the residences along Sagebrush Road and Ellensburg Ranches Road west of US 97 could have turbines in the line of sight toward the peak of Mount Stuart.

Most of the residential properties east of US 97 are north of the proposed turbine strings. Therefore, the turbines would not obstruct views of the Stuart Range from these parcels.

Light and Glare

Light.

The Draft EIS explained that to comply with the Federal Aviation Administration's (FAA) aviation safety lighting requirements, the project turbines must be marked with lights. The Draft EIS anticipated that white lights would be required during the day, and red lights at night. Under recently released guidelines, the FAA would no longer require daytime lighting of the turbines if turbines are painted a light color. The applicant is proposing to paint the turbines a light color. Nighttime lighting would be limited to the first and last turbine of every string, and to turbines located every 1000 to 1400 feet between the ends of the strings (Patterson 2005).

As a result of these FAA changes, the KVVPP would no longer install white daytime aviation warning lights, and the number of red nighttime aviation warning lights would be significantly reduced. Only 16 nighttime warning lights would be required as shown in Figure 3.9-15.

The FAA has already concluded that the project would not interfere with aviation operations (FAA 2002). After reviewing final project plans, the FAA would determine the exact number of turbines that would require lights.

The flashing red lights would be a new visual element into the project area's nighttime landscape. At present, the project site and surrounding area are relatively dark at night. The major sources of light in the area are outdoor lights at the residential properties and headlights on the surrounding roads. The flashing red lights would be most noticeable within 1 mile of the project and are likely to have an adverse effect on views from residential properties in these areas.

Other project facilities that would require outdoor lighting at night for operational safety and security include the proposed O&M facility and substations. These facilities would create sources of light in areas where there is no nighttime lighting other than vehicle headlights and would contribute to the overall increase of nighttime illumination in the project area. This impact would be the same regardless of the size of turbine ultimately chosen for the project.

Shadow flicker caused by wind turbines is defined as alternating changes in light intensity as the moving blade casts shadows on the ground and objects (including windows at residences). Section 3.4, Health and Safety, examines the potential effects of shadow flicker for residents near the proposed project and recommends measures for minimizing these effects.

Figure 3.9-15

Glare. The proposed project facilities, including turbines, substation equipment, aboveground electrical collection system, and O&M facility have the potential to be constructed of materials that could create a new source of glare in the project area.

Simulations were prepared to compare the impact of different colors for the turbines. Figure 3.9-16 illustrates simulations for gray and light brown finishes. Although the brown color reduces visual contrast in views where the turbines are seen against a landscape backdrop, it accentuates the visibility of the turbines in views where they are seen against the sky. Because the turbines are most frequently seen against the sky, particularly in close-range views where visual concerns are the greatest, the gray finish is recommended as the better choice for minimizing aesthetic impacts (see Section 3.9.4, Mitigation Measures). In addition, the brown color would have a significantly greater contrast when snow is on the ground.

Section 3.9.4, Mitigation Measures, summarizes the proposed mitigation measures to minimize potential glare impacts.

Decommissioning Impacts

Decommissioning would consist of removing above ground equipment such as turbine and meteorological towers and their associated foundations to a depth of 3 feet below ground. Wind turbine foundations below 3 feet would remain. The ground surface would be regraded to natural contours and revegetated to a natural condition.

For several years after decommissioning, site disturbance would be visible upon close examination. The visual impacts of those aboveground elements that are not removed would remain. During the decommissioning process, similar impacts to those experienced during construction would occur but to a lesser extent because less construction material would be removed than was delivered to the wind turbine sites.

Offsite Alternatives

Alternative 1: Swauk Valley Ranch

Under the Swauk Valley Ranch alternative, construction activity and operating turbines would be visible from I-90, SR 10, and from nearby residences. Although information from individual viewpoints is not available for this alternative, it is expected that high-level impacts would result from this alternative due to its location.

During project operations, the visual quality of expected future views would be affected by the size, color, and arrangement of the turbines. The additional impact of experiencing the turbine's strong vertical forms across the wide-open, horizontal space would affect rural residences. Overall, development of a wind farm on Swauk Valley Ranch would significantly change the aesthetic character of the local landscape.

The project would also have to comply with applicable FAA lighting requirements. The number of turbines requiring FAA lighting has not been evaluated at this time. Nighttime lighting of turbines and facilities would also be required. The required aviation marking lights would result

Figure 3.9-16: Comparison of a hypothetical simulated view with neutral grey and brown turbines.



Neutral grey turbines.



Brown Turbines

in significant additional impacts on nearby residents and passing motorists. Flashing red lights at night would be visible from I-90, SR 10, and nearby residences. Security lighting at an O&M facility and a project substation would have minimal impact on the nighttime visual environment if it were tied to motion sensors. Blade glint or glare from sunlight reflecting off moving blades could possibly be an annoyance to potential viewers late in the day.

Alternative 2: Springwood Ranch

Construction of the Springwood Ranch alternative would have a temporary but moderate visual impact on views from nearby residences and roads in the Thorp Prairie area. The construction-related visual impact from more distant viewpoints would be low.

The Springwood Ranch project would have significant visual impacts during operation. This alternative would be highly visible from I-90, with turbines located in middle ground views and breaking the skyline. Similar visual impacts would occur to views from SR 10 and the Thorp Highway. The size, color, and arrangement of the turbines would affect the visual quality of expected views. The additional impact of experiencing the turbine's strong vertical forms across the wide-open, horizontal space would affect rural residences. From all views, the turbine arrangement would appear cluttered and overwhelming because it would be unrelated to a topographic or geometric order, and would include many turbines in a continuous cluster (Gipe 2002). Overall, development of a wind farm on Springwood Ranch would significantly change the aesthetic character of the local landscape, especially as viewed from I-90, and high-level impacts would be expected.

The required aviation marking lights would result in significant additional impacts on nearby residents and passing motorists. Flashing red lights at night would be visible from I-90, the Thorp Highway, and SR 10, as well as from residences in Thorp and the immediate vicinity. Security lighting at an O&M facility and a project substation would have minimal impact on the nighttime visual environment if it were tied to motion sensors. Blade glint or glare from sunlight reflecting off moving blades could possibly be an annoyance to eastbound drivers on I-90 late in the day.

No Action Alternative

Under the No Action Alternative, the project would not be constructed or operated and the visual impacts described in this section would not occur. The No Action Alternative assumes that future development would comply with existing zoning requirements for the project area that is zoned Agriculture-20 and Forest and Range. According to the County's Zoning Code, the Agriculture-20 zone is primarily intended for farming, ranching, and rural residences. Permitted uses in the Forest and Range zone include logging, mining, quarrying, and agricultural practices as well as residential uses (Kittitas County 1991).

The visual character of the project area would remain rural assuming that land uses would continue to follow recent trends and that no area-wide rezoning would occur in the near future. However, even under current zoning, the rural character could slowly become more urban if large parcels are subdivided and residences are constructed on smaller lots.

The demand for electrical power in the region would increase and some other energy production facility would likely be constructed elsewhere in the region. The visual impacts of another facility are not predictable and would range from incompatible to acceptable depending on the type and location of the facility.

3.9.4 Mitigation Measures

Proposed Action

Mitigation of aesthetic and light and glare impacts could include a combination of methods. The goal of mitigation is to avoid, reduce, and compensate for impacts to the maximum extent practical. The most fundamental mitigation method is to completely avoid the impacts at a given location by either not constructing the project or constructing it at a different location. This option is discussed in Section 3.9.3, Impacts, No Action Alternative.

In current literature on the subject, a number of commonly accepted aesthetic and light and glare impacts are associated with wind power projects. Many of these impacts may be reduced if recommended planning and design methods are followed. The Applicant is proposing some of these impact-reduction methods, as summarized below.

- During the construction period, active dust suppression would be implemented to minimize the creation of dust clouds.
- When construction is complete, areas disturbed during the construction process would be restored to natural conditions.
- The wind turbine towers, nacelles, and rotors used would be uniform in size and design throughout the project.
- The turbines would have neutral gray finish to minimize contrast with the sky backdrop. Because the turbines are most frequently seen against the sky, particularly in close-range views where visual concerns are the greatest, the gray finish is the most effective choice for minimizing project aesthetic impacts.
- A low-reflectivity finish would be used for all surfaces of the turbines to minimize the reflections that can call attention to structures in a landscape setting.
- Because of the prevailing wind conditions and the high level of reliability of the equipment being used, the rotors would be turning approximately 80-85% of the time, minimizing the amount of time that turbines would appear to be not operating.
- The small cabinets containing pad-mounted equipment that would be located at the base of each turbine would have an earth tone finish to help them blend into the surrounding ground plane.
- The only exterior lighting on the turbines would be the nighttime aviation warning lighting required by the FAA. The warning lighting would be the minimum required intensity to meet the most recently adopted FAA standards. It is anticipated that daytime lighting of the turbines will not be required.
- Most of the project's electrical collection system would be buried.
- The 1.2-mile aboveground segment of the electrical collection system would include wood poles, low-reflectivity conductors, and nonreflective insulators. The aboveground segment would be located along two sets of existing overhead high voltage transmission lines.

- To the extent feasible, existing road alignments would be used to provide access to the turbines, minimizing the amount of additional surface disturbance required. The roads would have a gravel surface and would have grades of not more than 15% to reduce unsightly soil erosion.
- The O&M facility would have a low-reflectivity earth tone finish to reduce visual contrast with the surrounding landscape.
- The colors of the asphalt and gravel used for circulation and parking areas at the O&M facility would be selected to minimize contrast with the site's soil colors.
- Outdoor night lighting at the O&M facility and substations would be the minimum necessary for safety and security. All lights would be shielded to reduce offsite light trespass.
- All substation equipment would have a low-reflectivity neutral gray finish to reduce visual impact.
- All insulators in the substations and on takeoff towers would be nonreflective and nonrefractive.
- The control buildings located at each substation would have a low-reflectivity earth tone finish.
- The chain-link fences surrounding the substations would have a nonreflective, dark finish to reduce their contrast with the surroundings.
- In the areas surrounding the O&M facility and substations, naturalistic groupings of indigenous trees and shrubs would be established to provide partial screening and to help visually integrate the facilities into the landscape.
- An information kiosk and public viewing area would be constructed near the proposed O&M facility off Bettas Road. Signs would be provided to direct tourists to this viewing area (see Chapter 2). There is evidence from viewer survey results that people who have an understanding of the technology and characteristics of wind energy facilities are less likely to find views of turbines in the landscape objectionable.

During EIS scoping, concerns were raised about the project's aesthetic impacts. It was suggested that the County impose scenic setbacks from US 97 to protect the project area's viewshed.

Other commenters requested that the project compensate for lost sleep or loss of enjoyment of property caused by the proposed turbine lighting. Specific types of mitigation include methods to mitigate for light pollution at residences that do not have window coverings and methods to shield or somehow create a visual barrier between the tower lights and nearby residences. However, as noted below, attempts to screen or buffer views of the wind turbines should be carefully examined because a failed attempt to screen the turbines could have a greater negative impact than no attempt at all.

A number of additional mitigation measures included in the Draft EIS have been reviewed. The implementation of these measures was not deemed feasible, nor would it offer any guarantees in offsetting the visual impacts of the project. In particular planting vegetation barriers is not feasible given their probable low survival rate in the arid nature of the region. The applicant has already indicated that only a single type and size of turbine would be selected for the entire project. Foundations for turbines are generally very low profile, and must be constructed to meet industry safety standards; placing height limitations on this turbine component is necessary. Finally, the acquisition of conservation easements to mitigate visual impacts was also determined

not feasible because use the Applicant may not be able to acquire easements to appreciably mitigate the biggest impacts, and there is no practical means to gauge the potential effectiveness of this mitigation measure.

Offsite Alternatives

Alternative 1: Swauk Valley Ranch

Mitigation measures for the Swauk Valley Ranch alternative would be similar to those proposed by the Applicant for the proposed action. Mitigation measures implemented could include dust suppression and restoration related to construction, use of neutral colors and nonreflective finishes on project facilities to reduce contrast with surrounding areas, minimum lighting to meet FAA regulations and security concerns, location of electrical facilities underground, public education, vegetative screening, and other uniform design features. Additional mitigation measures appropriate to the specific project site could also be proposed. Some of those measures could be published recommendations from current literature about wind power project aesthetic impacts.

Alternative 2: Springwood Ranch

Mitigation measures for the Springwood Ranch alternative would be similar to those proposed by the Applicant for the proposed action and as described for the Swauk Valley Ranch alternative.

3.9.5 Significant Unavoidable Adverse Impacts

Much of the public testimony and written comments received on the proposed project reflects that for many viewers, the presence of the wind turbines represents a significant unavoidable adverse impact because it significantly alters the appearance of the rural landscape over a large area of the Kittitas Valley. The constant flashing of lights on the tops of turbines would similarly be considered a significant unavoidable adverse impact. For purposes of this analysis, the term “significant” is defined as levels of visual impact that are rated “moderately high” to “high” from any given viewpoint. Definition of the term “significant” in this context, however, is subjective and depends on many factors. For example, the degree to which impacts are adverse depends on the viewer’s location and sensitivity and the impact on view quality. In the final analysis, it is the comparative number of viewers most affected by the project that determines the overall impact. A project that significantly affects a small number of viewers may be offset by the fact that it may have a relatively low impact on a large number of viewers.