Black Rock
Wind Farm

Appendix J

Visual Impact Analysis

Black Rock Wind Farm

Visual Resources Technical Report

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Acronyms and Abbreviations

ac	acre
BMP	Best Management Practice
DEM	Digital Elevation Model
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
gen-tie (line)	generation tie line
GIS	geographic information systems
KOP	Key Observation Point
kV	kilovolt
m	meter
MW	megawatt
METs	meteorological towers
mi	mile
NLCD	National Land Cover Dataset
O&M	Operations and Maintenance
PSC	Public Service Commission
USGS	United States Geologic Survey
VIA	Visual Impact Analysis

Note:

Often, agency suggestions and guidelines are provided in US units of measure (e.g., acres [ac] feet [ft], or miles [mi]), and in other instances, agency guidance is provided in metric (aka SI, or System International) units (e.g., meters [m] or kilometers [km]). To convert an otherwise readily recognized agency standard (e.g., 10 mi or 1 km) to the other system may result in confusion. Accordingly, we provide measures in either system, using the original agency suggestion unchanged, and provide conversion to the other standard only when it makes sense to do so.

Glossary

These terms are included in Federal Highway Administration (FHWA) Guidelines for the Assessment of Highway Projects (FHWA 1988, 2015). Slight modifications in terminology and descriptions have been made to some terms to reflect the way the FHWA method is applied in this report.

Color	The light reflecting off an object at a particular wavelength that creates hue (green, indigo, purple, red, etc.) and value (light to dark hues).
Distance Zones	Distance zones are based on the position of the viewer in relationship to the landscape. They are measured from one static point, such as the location of a viewpoint. There are three defined distance zones: • Foreground: zone between the viewer and 0.25–0.5 mile from the viewer • Middleground: Extends from the back of the foreground zone (0.25-0.5 mile from viewer) to a point 3–5 miles from the viewer • Background: Extends from the back of the middleground zone to infinity
Form	The unified mass or shape of an object that often has an edge or outline and can be defined by surrounding space. For example, a high-rise building would have a highly regular, rectangular form whereas a hill would have an organic, mounded form.
Intactness	The integrity of visual order in the natural and human-built landscape, and the extent to which the landscape is free from visual encroachment.
Key Observation Point (KOP)	A viewpoint usually selected for use in a visual impact analysis because it is either critical or representative of the visual character of either the environment or the project. If simulations are prepared for an analysis, they are prepared for views from KOPs.
Landscape Type	Identified area within a project area that has similar visual features and homogeneous visual character and frequently, a single viewshed. Typically, the spatial unit or organizing principle used for assessing visual impacts.
Line	Perceived when there is a change in form, color, or texture and where the eye generally follows this pathway because of the visual contrast. For example, a city's high-rises can be seen silhouetted against the blue sky as a skyline, a river can have a curvilinear line as it passes through a landscape, or a hedgerow can create a line where it is seen rising up against a flat agricultural field.
Simulations	Two- or three-dimensional depictions of the visual character of a future state. Simulations range from artistic renderings to computer animations.
Texture	The perceived coarseness of a surface that is created by the light and shadow relationship over the surface of an object. For example, a rough surface texture (e.g., a rocky mountainside) would have many facets resulting in several areas in light and shadow and, often, with distinct separations between areas of light and shadow. Conversely, a smooth

	surface texture (e.g., a beach) would have fewer facets, larger surface areas in light or shadow, and gradual gradations between light and shadow.
Unity	The degree to which the visual resources of the landscape join to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.
Viewers	Those who occupy or will occupy a project site or lands within a project's viewshed can see the proposed project and travelers who would use it. • Neighbors: Viewers who occupy or will occupy land adjacent or visible to the proposed project. For a complex or controversial project, neighbors can be defined by land-use, including residential, retail, commercial, industrial, agricultural, recreational, and civic neighbors. • Travelers: Viewers who see the project, defined by the purpose of traveling, including commuting, hauling, touring, or exercising travelers, or by their mode of travel as motorists, bicyclists, or pedestrians.
Viewshed	The surface area visible from a location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail). The area in which the project would theoretically be visible as influenced by the presence or absence of intervening topography, vegetation, and structures.
Visual Character	The description of the visible attributes of a scene or object typically using artistic terms such as form, line, color, and texture.
Visual Quality	What viewers like and dislike about visual resources that compose the visual character of a particular scene. Different viewers may evaluate specific visual resources differently based on their interests in natural harmony (harmony is considered desirable; disharmony is undesirable), cultural order (orderly is considered desirable; disorderly is undesirable), and project coherence (coherent is considered desirable; incoherent is undesirable). Neighbors and travelers may have different opinions on what they like and dislike about a scene.
Visual Resources	Components of the natural, cultural, or project environments capable of being seen. • Natural Visual Resources: The land, water, vegetation, and animals that compose the natural environment. Although natural resources may have been altered or imported by people, resources that are primarily geological or biological in origin are considered natural. A grassy pasture with rolling terrain, scattered trees, and grazing cows, for example, is considered to be composed of natural visual resources, even though it is a landscape created by people. • Cultural Visual Resources: The buildings, structures, and artifacts that compose the cultural environment. These are resources constructed by people. • Project Visual Resources: The geometrics, structures, and fixtures that compose the project environment. These are the constructed resources that were or will be placed in the environment as part of the proposed project.
Vividness	The memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.

Executive Summary

Black Rock Wind Force, LLC (Black Rock), a subsidiary of Clearway Energy Group, LLC, proposes to construct a wind energy generating facility, known as Black Rock Wind Farm (BRWF), in Mineral and Grant Counties, West Virginia. Pursuant to West Virginia Code § 24-2-11(c), Black Rock is submitting a Siting Certificate to the West Virginia Public Service Commission for the construction and operation of the wind energy generating facility and associated interconnection and transmission facilities. This technical report evaluates potential effects on visual character and quality from development of the proposed Black Rock Wind Farm in Grant and Mineral counties, West Virginia. The Project will consist of up to 29 wind turbines, with a maximum nameplate capacity of 110 megawatts, on a ridge adjacent to, and surrounded by, other existing wind energy projects.

Stantec visual resources specialists identified areas of potential Project visibility and visual sensitivity, collected photographs of views toward the Project site from publicly accessible locations throughout the surrounding landscape, and identified nine viewpoints for use in the analysis of the Project's potential visual effects. Visualization specialists developed visual simulations that placed a photo-realistic model of the project into views from Key Observation Points and then evaluated the difference in visual quality between existing and proposed conditions, relying on the Federal Highway Administration Visual Impact Assessment method. This approach evaluates visual quality based on concepts of natural harmony, cultural order, overall coherence, and landscape composition and vividness. Potential contrast to visual character from the proposed Project was also identified and described as applicable in terms of form, line, color and texture.

The views used in the analysis represent three distinct landscape types: Ridge Overlook, Ridge Community and Corridor, and Valley Community and Corridor. These landscape types have distinct qualities in terms of expansiveness of views, land use, and typical viewers. Stantec's analysis concluded that visual quality would be reduced in the majority of views from each of the landscape types, but that this reduction would not be substantial. The most notable reductions in visual quality reflected instances where Project turbines would appear atop currently uninterrupted ridge skylines or where they would disrupt existing conditions by becoming the view's dominant feature and substantially alter the visual coherence observed under current conditions. Such effects would be reduced or even non-existent in instances where the Project would appear in the same view as an existing wind farm project or in views already displaying low visual coherence.

Contrast in visual character from the Project in certain views would relate to the visible contrast between the form and scale of the turbines and their surroundings, as well as to the introduction of the motion of rotating blades into views that are generally static or where activity and motion are intermittent.

1.0 INTRODUCTION

Black Rock Wind Force, LLC (Black Rock), a subsidiary of Clearway Energy Group LLC, is proposing the development of the Black Rock Wind Farm (BRWF, or Project) in Grant and Mineral counties, West Virginia. The Project will consist of up to 29 wind turbines, with a maximum nameplate capacity of 110 megawatts (MW), on a ridge adjacent to, and surrounded by, other existing wind projects including the 132-turbine, 264-MW NedPower Mount Storm Wind Farm to the immediate south and the 23-turbine, 55-MW Pinnacle Wind Farm to the north. The Project would also include access roads, underground and/or aboveground collection, generation tie-line, substation, interconnection switch yard, operations and maintenance building, and construction staging areas.

Pursuant to West Virginia Code § 24-2-11(c), Black Rock is submitting an application for Siting Certificate to the West Virginia Public Service Commission (WVPSC) for the construction and operation of the Project.

This technical report evaluates potential effects on visual quality from development of the Project. It assumes development of the Project with the largest class of turbine contemplated for the Project.

Visual resources are elements of a natural or built environment with aesthetic value based on visual quality and character. They may be formally identified by local, state, or federal governments or recognized by other institutions and organizations. They may also be components of a natural or built environment that contribute to a memorable or distinct landscape. A visual resources technical report evaluates the potential effects on visual resources from a proposed project based on the project's physical characteristics and potential visibility and the degree to which the project could alter existing visual quality and/or visual character.

2.0 PROPOSED PROJECT AND ENVIRONMENTAL SETTING

2.1 PROPOSED PROJECT

The Project would include the following: turbines and other permanent features such as access roads, underground and/or aboveground collection, generation tie-line, substation, interconnection switch yard, operations and maintenance building, and construction staging areas. Project engineering is currently underway. As such, this report only evaluates potential visual effects from the proposed turbines in views from the surrounding area. Up to 29 turbines are proposed, with hub heights of up to 127.5m and rotor diameters of up to 158m. The maximum height with rotor blades at their apex would be 206.5m. All potential turbine locations are reflected in the viewshed analyses produced for the project (Section 4.2).

2.2 SETTING

The Project site is located along the Allegheny Front, a northeast-southwest geological feature that generally divides two main physiographic provinces in the state, the Appalachian Plateau to the west and the Valley and Ridge Province to the east (West Virginia Geological and Economic Survey, 2017). The Valley and Ridge Province is a

series of long, folded mountains and valleys, and the Project site, while on the boundary of the Appalachian Plateau, displays valley and ridge characteristics. Communities of varying size and density are connected by a network of federal, state, and local roadways that traverse agricultural and developed valleys, extending into less populous mountain and ridgeline areas. The Project site is 10 miles south of Keyser, the Mineral County seat, and extends into the northern portion of Grant County, north of the community of Mount Storm. The wind turbines are located mostly on the primary ridge, perpendicular to the prevailing wind, in the area north and south of the intersection of U.S. Route 50 (U.S. 50) and State Route 42 N. The BRWF will be situated in select portions of privately-owned mountaintop land generally composed of uninhabited forested or timbered areas (see Figure 1a).

Three existing wind energy projects are in the vicinity of the proposed Project: NedPower Mount Storm Wind Farm, adjacent on the ridgeline to the south; New Creek Wind Farm, three miles to the southeast; and Pinnacle Wind Farm, five miles to the north. These projects are included in Figure 1a, along with existing projects further away: the Criterion, Fair Wind, and Roth Rock projects, between approximately 9-15 miles to the west; the Mountaineer Wind Project, approximately 16 miles to the southwest; and the Fourmile Ridge Project, approximately 19 miles to the north. In addition, NextEra's Mount Storm Wind Farm which has been granted a Siting Certificate but has not yet been constructed, will be located about four miles to the west, and Dan's Mountain Wind Farm is proposed for a location around 20 miles to the northeast.

The Project site consists of privately-owned lands that, along the main ridgeline, are wooded and consist mainly of chestnut oak, red maple, red oak, black oak, scarlet oak, sugar maple, and wild cherry. Trees reach up to 40 feet in height and are visible from lower valleys. To the west of the ridgeline are two additional off-ridge portions of the Project, each of which is less densely wooded areas that include reclaimed surface mines. The topography is diverse and steep in places, and elevation within the Project site ranges from 2,700 feet in the westernmost portion to 3,100 feet at the highest ridgetop turbine location.

3.0 METHOD

This assessment of potential effects to visual resources from the Project relies on and implements selected concepts from the Federal Highway Administration (FHWA) Visual Impact Assessment (VIA) for Highway Projects method (FHWA 2015). When fully implemented, the FHWA VIA process requires four phases: 1) an Establishment Phase defines the study area and builds an understanding of the conceptual character of the proposed project; 2) the Inventory Phase examines visual quality related to the project site, considering the relationship between components of the affected environment and the composition of the affected population; 3) the Analysis Phase evaluates impacts on visual quality from a proposed project; and 4) the Mitigation Phase defines the mitigation and enhancement efforts to be included in project design, typically after project alternatives have been evaluated and a preferred alternative selected. This report addresses the first three phases; typical mitigation approaches and Best Management Practices (BMPs) for wind energy projects are briefly discussed in Section 5.3.

Section 4, Affected Environment, describes the Project's study area, and Section 4.3, Visual Resources and Viewer Sensitivity, identifies affected populations, or viewers. An inventory of visual quality from representative viewpoints, and potential Project effects on visual quality are described in Section 5, Results and Discussion.

3.1 STUDY PROCEDURE

This section summarizes the primary steps undertaken in the production of this technical report.

3.1.1 Review of Project and Its Setting

Stantec visual resources specialists initiated the work to support this technical report by achieving a thorough understanding of the Project components and the setting within which they are proposed to be constructed and operated. They reviewed local plans and policies, along with pertinent aerial imagery and maps. The visual resources specialists identified important visual resources, including any state or locally-designated scenic roadways, designated scenic areas or vistas, and the location of residential, recreational, or cultural sites where those with views of the potential Project are likely to have heightened sensitivity to perceived changes in the visual environment.

3.1.2 Viewshed Analysis

A viewshed analysis is a geographic information systems (GIS)-based map that identifies, based on the maximum height of proposed components and surrounding topography, the theoretical visibility of a proposed project. The viewshed analysis identifies the locations within the visual study area where it may be possible to view the proposed wind turbines from eye-level (1.7m) vantage points. In its most basic form, a viewshed graphic's line-of-sight analysis between project components and ground elevations throughout the surrounding terrain does not account for intervening vegetation or structures and thus serves as an initial step in defining a project's visibility and informed selection of preliminary viewpoints in representative areas.

For this project, theoretical visibility was established for a radius of 10 mi, with the assumption that the region's ridge and valley topography would reduce the size of the actual viewshed. The initial viewshed informed selection of preliminary viewpoints in representative or visually sensitive areas. These preliminary viewpoints were validated in the field and served as the basis for site photography. Within the viewshed, Stantec identified landscape types—based on presumed landscape character, topography, and land uses—to inform a broad selection of preliminary viewpoints.

3.1.3 Site Photography and Selection of Key Observation Points

In October 2018, a Stantec visual resources specialist, accompanied by a Black Rock representative, conducted a photography site visit, documenting views toward the Project site from locations throughout the surrounding area. Atmospheric conditions ranged from sunny to mostly cloudy over the multi-day site visit, typical for the region during the fall.

Visual resources specialists photographed with a high-resolution, full-frame, 35mm Digital Single-Lens-Reflex camera with a fixed 50mm lens. A 50mm focal length is widely accepted as an industry standard for approximating the field of vision of the human eye. That is, a photograph of a landscape shot with a full-frame camera with a 50mm lens generally replicates what a person would see in a in a single frame of view.

Stantec collected photographs of the Project site from 34 viewpoints. These locations included preliminary viewpoints identified by the viewshed analysis, which were validated and retained or revised based on confirmation of Project site visibility. The visual resources specialists collected additional views to account for observed views and potentially

sensitive receptors. All photographs serve to document Project visibility and existing visual conditions within and near the Project site. Stantec documents viewpoint locations using a hand-held global positioning system device.

From the set of viewpoints photographed, Stantec identified nine views that represented the general ranges of viewer sensitivities, landscapes, and land uses in the Project area. Stantec submitted these views to Black Rock, which reviewed and concurred with their use as Key Observation Points (KOPs) in the formal visual analysis.

3.1.4 Preparation of Simulations

Visual simulations, in which a photo-realistic model of a project is placed into existing photographs, serve as the basis by which contrast between existing conditions and those with the project is evaluated. Using Autodesk 3ds Max™, Stantec visualization specialists built a three-dimensional model of the Project based on the layout and specifications provided by Black Rock. They then developed a simulated perspective (camera view) to match the geo-referenced location of each KOP, as well as the bearing and focal length of each photograph. Stantec obtained and used digital elevation model (DEM) data as the land base upon which existing elements in each view (e.g., buildings, vegetation, infrastructure) were modeled based on aerial imagery. They placed the Project model and existing elements into the DEM, then adjusted the camera and target location, focal length, and camera roll to align all modeled elements with the corresponding elements in the photograph within which the model was placed. Visual resources specialists reviewed simulations for photo-realistic quality and consistency with the Project plans and layout.

3.1.5 Assessment of Effects on Visual Resources

Relying on observations during the site photography and the resulting images of views toward the Project site, visual resources specialists evaluated the visual quality of existing conditions for each KOP. This process relied on the use of worksheets that focus key concepts of the FHWA method; it assessed natural harmony, cultural order, overall coherence, and landscape composition and vividness for each view, assigning a visual quality rating ranging from “very low” to “very high” (Appendix A). This assessment was replicated for the simulated images showing the Project as it would be seen from each KOP. Stantec established a visual quality rating for each view showing proposed conditions. The difference in visual quality rating for each view between existing and proposed conditions established the degree of contrast in visual quality from the Project. Potential sources of contrast related to visual character – described in terms of form, line, color, and texture – were also identified.

4.0 AFFECTED ENVIRONMENT

The Project’s affected environment includes the regulatory environment within which is would be permitted, the area within which it would likely be visible and the visual resources and landscapes it contains, and the typical viewers who would see it. Each of these is described in this section.

4.1 REGULATORY SETTING

Stantec did not identify any specific local, regional, or state policies related to visual or scenic resources that would be directly applicable to the proposed Project or its location. However, Chapter 5B of the West Virginia Code, the Economic Development Act of 1985, in establishing the West Virginia Outdoor Heritage Conservation Fund, states

that, "…West Virginia's rural character, natural wonders, scenic beauty and recreational opportunities combine to create an exceptional quality of life for its citizens" (West Virginia Legislature, 2019).

4.2 PROJECT VIEWSHED

A set of five figures was developed for this analysis and all are included as Figure 1. Figure 1a shows a viewshed analysis, based on the screening effect of topography alone for the maximum turbine height, which assumes blade tip at its apex for a 20-mile radius from the project, as required by PSC Siting Rules. Figure 1b shows the same for a 10-mile radius, within which the views used in this analysis are located. The 10-mile radius is the visual study area. Figure 1c shows a basic viewshed analysis for the visual study area, based on the screening effect of topography alone for each tower at hub height, where FAA lighting would be mounted. This provides a theoretical example of where aircraft warning lights would be visible throughout the surrounding landscape, without being obscured by vegetation. Figure 1d shows blade tip visibility along with the combined screening effect of mapped forest vegetation and topography within the visual study area, and Figure 1e shows the visibility of each tower at hub height accounting for the combined screening effect of mapped forest vegetation and topography.

Topographic viewshed maps were prepared using United States Geological Survey (USGS) Digital Elevation Model (DEM) data, coordinates, and dimensions of all proposed turbines, an assumed viewer height of 1.7 m, and ESRI ArcGIS® software with the Spatial Analyst extension. The viewshed analyses are based upon a 206.5-meter blade tip height, the corresponding appropriate FAA warning light height, and the location of all proposed turbines. The analyses run at blade tip height illustrate maximum potential day time visibility, while the analyses run at the height of the FAA warning light define maximum potential nighttime visibility based on an anticipated FAA lighting plan. The resulting topographic viewshed maps define the maximum area from which any turbine within the completed Facility could potentially be seen within the 10-mile study area, as well as within five miles and one mile of the Project.

The combined topographic and vegetation viewshed maps were prepared in the same manner as the topographic viewshed maps, except that a base vegetation layer was created using the most recent USGS National Land Cover Dataset (NLCD) to identify the mapped location of predominantly wooded areas within the 10-mile study area. The mapped locations of the forest land were assigned an assumed height of 40 feet and added to the DEM.

These maps are presented on the most recent edition ESRI world topographic map, at a scale of 1:329,472 for the 20-mile viewshed and 1:170,118 for the 10-mile viewshed. They indicate ranges of turbines visible (e.g., "heat mapping" or color coding) for 0, 1 – 5, 6 – 10, 11 – 15, 16 – 20, 21 – 25, and 26 – 29 turbines potentially visible.

4.3 VISUAL RESOURCES AND VIEWER SENSITIVITY

The visual resources near the Project site are primarily components of the Project's geologic and natural setting. The series of valleys and ridges that comprise the region's topography afford numerous opportunities for long, expansive views, or vista views. Designated overlooks within the ridge area, as well as informal overlooks (e.g., pull-outs along the side of mountain roads) provide for such views. Conversely, views of the ridges from the valley below as well as views that feature West Virginia's rural character within the valley itself, as identified in Section 4.1, are considered visual resources.

Public lands and recreational destinations are visual resources in that they frequently provide views toward a Project site. Such areas considered in this evaluation of the proposed Project include: Jennings Randolph Lake, Mount Storm Lake, New Creek Lake, and the Dolly Sodds Wilderness in the Monongahela National Forest.

There are no scenic byways in the vicinity of the proposed Project (FHWA, 2019).

Finally, cultural features – particularly historic churches, cemeteries, and schools or other institutions – have aesthetic value in that there may be interest to conserve views from these sites. Views from such features within the Project area were considered and documented as appropriate.

Potential viewers include the following, based on the FHWA definitions or neighbors and travelers (FHWA 2015).

Residential viewers: Residential neighbors live within viewing distance of the proposed project. Their visual preferences tend toward a desire to maintain the existing landscape as it is. Depending on their location, residential neighbors are often interested in cultural order and natural harmony, with less emphasis on project coherence unless it impacts their ability to appreciate the other two aspects of visual quality.

Recreational viewers: Recreational neighbors (or “recreationists”) provide or participate in recreation within the project viewshed. Recreation includes organized sporting events, indoor and outdoor leisure activities, and cultural events. The visual preferences of recreational neighbors tend to be focused on and associated with their recreational activity. They tend to prefer the status quo and are leery of visual encroachments that may cause adverse effects on the setting of their activity. Depending on the type of recreation, recreational neighbors are very interested in cultural order and natural harmony, with some emphasis on project coherence as it impacts their experience traveling to their recreational activity.

Tourists: Tourists travel on a highway, primarily for enjoyment, usually to a pre-determined destination. Tourist trips tend to be more adventuresome, cover longer distances, and take more time than commuting trips. Tourists frequently travel in groups with both a driver and passengers, and are equally interested in project coherence, cultural order, and natural harmony.

Workers: In agricultural areas, project viewers can include agricultural neighbors who are farmers of crops or herd animals and who often work in fields and pastures. Some are permanent; many are migratory but may return to the same area again and again over the years. Agricultural neighbors regard cultural order and natural harmony as critical components of the landscape. They are less interested in project coherence.

Commuters: Commuters are regular travelers of the same route. The frequency of the travel may vary, but there tend to be peaks—such as morning and evening rush hours and holidays. Commuters, like all travelers, are particularly interested in project coherence. They are also interested in cultural order and natural harmony to the extent that it contributes to wayfinding.

Residents, recreationists, and tourists are assumed to have moderately high to high sensitivity to visual change from the Project, based on the context of specific views. Workers and commuters are assumed to have more moderate sensitivity to visual change.

4.4 LANDSCAPE TYPES, KEY OBSERVATION POINTS, AND EXISTING VISUAL CHARACTER

To discuss the visual character of the existing landscape, and to frame the analysis of visual effects from the Project, three landscape types were identified within the Project viewshed: Ridge Overlook, Ridge Community and Corridor, and Valley Community and Corridor. These areas each have a shared, distinct landscape character along with interrelated visual elements, and their categorization reflects the broader physiographic region within which the Project site is located.

The KOPs selected to represent the range of visual settings for each landscape type are used as the basis for assessment of visual effects in Section 5. Here, the views from KOPs support the description of existing visual character in views toward the Project site. The worksheets in Appendix A include an assessment of visual character for each KOP. The location of each KOP is shown in Figure 2, which includes the blade-tip and vegetation viewshed shown in Figure 1d.

KOPs are located within the viewshed identified in Section 4.2 and collectively represent views by the range of viewer types defined in Section 4.3 likely to have views toward the Project. Table 1 lists the KOPs used in this analysis. Additional views supporting this discussion of visual character are presented further below.

Table 1. Landscape Types and Key Observation Points

Landscape Type / KOP	Approximate Distance from Nearest Project Turbine (miles)	Visual Resources	Typical Viewers
Ridge Overlook			
KOP 1 – Saddle Mountain Scenic Overlook	0.6	Designated overlook	Recreationists, tourists, commuters
KOP 2 – Pinnacle Peak	2.8	Overlook view	
KOP 3 – Corridor H Overlook	4.7	Designated overlook	
Ridge Community and Corridor			
KOP 4 – Sulphur City Church, Pinnacle Road at State Route 42	0.8	Cultural feature	Residents, commuters, workers
KOP 5 – State Route 42 -Mineral / Grant County Line	1.3	Rural mountain landscape	
Valley Community and Corridor			
KOP 6 – Preserve at New Creek Dam	1.7	New Creek Lake	Residents, recreationists
KOP 7 – Laurel Dale	2.1	Rural, agricultural valley landscape	Residents, commuters, workers
KOP 8 – Timber Lake Estates	3.0		
KOP 9 – Keyser – Heskett Bridge at State Line	9.8	Long-distance view of ridgeline	Residents, tourists, commuters

4.4.1 Ridge Overlook

Overlook views toward the Project site, both formal (designated) and informal (roadside pull-outs), are available throughout this portion of the Allegheny Front, where elevations reach 3,000 feet. Designated overlooks provide maintained areas for travelers to park and take in scenic vistas. Views from these locations are expansive and more level with the Project site than views from lower points on the mountainsides or from within valleys below. In the existing view from KOP 1 (see Figure 3a), which is located at the Saddle Mountain Scenic Overlook and shows the view to the south (Saddle Mountain is to the east), rounded and sloped land forms and ridgeline vegetation define the character of the natural environment. Development is generally sparse in these locations, often limited to roadway corridors or ridgetop infrastructure, such as communication towers and turbines associated with other nearby wind energy projects. Where the vantage afforded by elevation and unobstructed views allows for visibility of development, it is often subordinate to the view's natural features. The view from KOP 2 (see Figure 4a), atop Pinnacle Peak, includes the existing NedPower Mount Storm Wind Farm, the Mount Storm Power Station, and scattered residences within agricultural lands. All of these features are secondary to the spine of the ridgeline and foreground vegetation, which inform the view's natural character. Similar to the view from the Saddle Mountain Scenic Overlook, the view from the KOP 3, located at the Corridor H Overlook (see Figure 5a) is characterized by a natural environment segmented by a roadway, including spur roads and visible bank cuts. Turbines associated with two separate, existing wind farms are visible atop ridgelines that frame the view; the NedPower Mount Storm Wind Farm is visible in the left portion of the view and the New Creek Wind Farm in the right.

The collective visual character in these views is defined by the ridgeline forms and colorful vegetation, and it is further informed by the human-made elements in view: the strong linear roadways; vertical forms of utility poles, power plant stacks, and existing wind turbines with their angular rotors; and identifiable agricultural areas cut into woodlands. Character views toward the Project site from a designated overlook in Maryland near the West Virginia border and Dolly Sodds Recreation Area, below, further establish the overlook visual character described above. Long-distance ridgetop views appear mostly undeveloped, though existing wind farms are detectable.

Character View 1 (left): View to the east from the Captain Robert S. Brown Memorial Scenic Overlook along Mt. Zion Road in Maryland, approximately 6 miles from the Project site.
Character View 2 (right): View to the north from Dolly Sodds Recreation Area, nearly 16 miles away from the southern portion of the Project site. NedPower Mount Storm Wind Farm turbines are visible in the center of the view.

Typical viewers within the Ridge Overlook landscape type include recreationists and tourists who may be seeking out vista views in this portion of the Alleghany Front, as well as commuters traveling within the region.

4.4.2 Ridge Community and Corridor

Ridge Community and Corridor views are generally shorter in distance and less expansive than overlook views. While some established communities include public or commercial services, others are residential clusters near crossroads, often connected by winding, tree-lined roads from which views outside of the roadway corridor are generally narrow, intermittent, and of short duration. This landscape type is found mainly along the western slopes in this part of the Allegheny Front, between 2,000 and 3,000 feet in elevation. Foreground vegetation frames most views, obscuring visibility of lands in the middleground or background, including ridgelines. The view from KOP 4 (see Figure 6a) is an example of a scene in which visibility of the landscape beyond the nearby tree line is obscured. As such, visual character is defined by the vertical forms, verdant color, and varied texture of the trees, as well as structures in view (in this case, the clean lines and angular roof or the Sulphur City Church). In the view from KOP 5 (see Figure 7a), the ridgeline is partly visible beyond the trees. The verticality of the trees is offset by the horizontal form of the ridgeline and the flat farmland in the immediate foreground. Cultural features, including long-standing churches, and small, mountain pastoral settings, which are respectively shown in the views from KOP 4 and KOP 5, are the primary visual resources in the Ridge Community and Corridor landscape type.

Such landscape characteristics are found throughout the upland areas in the Project vicinity, as the additional character views below show. The semi-enclosed views within which Cross Church and the Dr. John Green historical marker are visible obscure visibility of any landscape features beyond the trees, including the ridgeline just over a half-mile away in the second view. The sloped nature of land is evident in the view of Cross Church. Given the varied topography in the area, the relatively low tree line in the view from U.S. 50 at the southern entrance to the community of Mount Storm obscures the west-facing slopes to the north. Mount Storm is at a higher elevation than some portions of the Project site, and trees and structures also shorten long-distance views.

Residents, commuters, and workers are the typical viewers with Ridge Community and Corridor landscape type views. Most views are likely to be characterized by varied vegetation and topography that keep views comparatively short, both in duration and distance.

Character View 3 (upper left): View to the southwest of Cross Church from West Virginia 46.

Character View 4 (above): View to the southeast from Pinnacle Road, at the Dr. John Green historical marker along the east side of the road.

Character View 5 (lower left): View to the northeast from the southern approach to the community of Mount Storm, approximately 0.1 mile southwest of the intersection of U.S. 50 and State Route 42.

4.4.3 Valley Community and Corridor

The valleys east of the Project site are characterized visually by the topographic contrast between valley floor and the steep, eastern slopes of the Front Knobs, and the irregular toes and bases of the Allegheny Front. Land use within the valley floor is predominantly agricultural – with livestock, grazing, field crops, and equipment evident – and rural residential. Small communities, the largest of which is Keyser, are aligned with the roadways that extend through the valley area, which is generally below 2,000 feet in elevation. Views from within the valley alternate between long-range and close-in based on topography, vegetation, and viewer orientation. In unobstructed, close views toward the ridgeline, its downward slope is the most prominently visible form, as seen in the view from KOP 6 (see Figure 8a). The skyline is formed by individually identifiable trees, which collectively are the view's primary source of color and texture and which extend into the foreground, appearing to stop at the New Creek Lake spillway. This pattern is evident throughout this landscape type. In views from KOP 7 (see Figure 9a) and KOP 8 (see Figure 10a), the ridgeline serves as backdrop to wooded slopes with clearly defined edges where human modification of the landscape is observable, typically visible as residences and/or farms. In each of these cases, utility lines cross portions of the view in the foreground, an additional linear feature and further evidence of human activity. In more populated areas, the built environment is the view's dominant feature, as in the view from KOP 9, at the crossing of the West Virginia – Maryland state line and the Potomac River (see Figure 11a). Buildings and infrastructure are the forms and sources of color that draw the viewer's eye, and the southern portion of the bridge that drops down into

Keyser is a co-dominant linear form with the more distant ridgelines. The view's elevated vantage point increases line-of-site with the ridgelines; as a result, their higher profile appears to frame the view.

The landscape includes cultural features such as Laurel Dale School House and Claysville Church, shown in character views below. Views toward these features and from their vicinity tend to be short, with only partial visibility to other portions of the valley or more distant ridgeline. Similarly, where a narrow view toward Traveler's Rest along U.S. 50 also allows for a view toward the Project ridgeline, such views are intermittent and of short duration, given the typical speed of highway travel.

Character View 6 (upper left): Laurel Dale School House as seen from the southbound lane of West Virginia 93. Adjacent vegetation and the structure itself block views toward the nearby ridgeline.

Character View 7 (above): Claysville Church just off of West Virginia 93. Partial views of the ridgeline in the background are available in this area.

Character View 8 (lower left): Traveler's Rest, from westbound U.S. 50.

A broad range of viewers experience this landscape type, from commuters traveling to Keyser or other employment centers and farm workers to recreationists fishing at New Creek Lake and tourists passing through the area. Residents are the most prevalent viewer type here.

5.0 RESULTS AND DISCUSSION

This section describes the components of the Project evaluated in this report and their potential effects to visual quality in each of the views just described. It summarizes the more detailed analysis in the worksheets included in Appendix A.

5.1 PROJECT EFFECTS TO VISUAL CHARACTER

A project's potential effects to existing visual character is described qualitatively in terms of identifiable contrast with regard to form, line, color, or texture, as applicable. Motion in the landscape is also considered for wind energy projects. The following discussions identify the most prominent sources of potential contrast given the Project and existing visual character described in Section 4.4, as identified in the worksheets in Appendix A.

5.1.1 Ridge Overlook

In Ridge Overlook views, the main source of visual contrast would be the addition to the view of strong, vertical/angular forms, relatively light in color and smooth in texture. The turbines would encroach upon existing skylines, which generally appear rounded and vegetated, with only occasional visibility of communication towers, other human-made features in view. The motion of spinning turbine rotors would be noticeable and, in some views, prominently so. However, ridge overlook views often include sources of motion under current conditions, either from existing wind turbines, billowing exhaust from power station stacks, or traffic. In some views, traffic would likely travel at a consistent speed. In views of intersections, motion would be inconsistent as vehicles come to stops then speed up again.

5.1.2 Ridge Community and Corridor

As with the overlook views, primary sources of visual contrast in Ridge Community and Corridor landscape type views would be associated with the appearance of new, highly visible forms along the existing skyline. In some locations, turbines would be unique forms in views, particularly given that the most prevalent vertical features in these areas are trees and utility poles. The contrast in close-in views would be strong, particularly since these landscape type views typically do not afford long-range visibility of existing wind farms in the broader area, nor do they provide more than sporadic opportunities to observe motion in the landscape associated with local activities or any consistent traffic flow. For this reason, the motion of the Project turbines, where visible, would also be a source of strong contrast.

5.1.3 Valley Community and Corridor

The strong contrast described for other landscape types would apply to Valley and Community Corridor views, as well, with two notable differences. First, the scale of the Project turbines would be accentuated by the lower vantage point of viewers, given the disparity in elevation between the ridgetop Project location and the valley viewpoints. Where they would appear as unique forms they would do so in a way that would augment a mostly natural-appearing skyline with the addition of mechanical structures. However, the second difference is that such structures already appear in many views from throughout the valley area. Project turbines would, in middleground and background views, often appear to expand an already existing area dedicated to power generation. In such views, motion from rotors would repeat similar motion elsewhere along the ridgeline or along a nearby ridgeline, from structures that would be nearly identical in form, color, and texture, if not size.

5.2 PROJECT EFFECTS TO VISUAL QUALITY

This section reports the assessment of change in visual quality between existing conditions in each of the KOP views and conditions with the Project as detailed in the worksheets in Appendix A. This evaluation was made based on comparison of the existing view (the "a" view of each KOP figures 3 – 11) and a view with the Project simulated (the "b" view of each KOP figure). The "c" view of each KOP figure includes a panoramic existing image for greater context, technical information about the photography, and additional information about the viewpoint orientation. Table 2 summarizes the assessed change in visual quality for views from each KOP.

Table 2. Existing and Simulated Visual Quality by Landscape Type

Landscape Type / KOP	Visual Quality in Existing View	Visual Quality with Project Simulated
Ridge Overlook		
KOP 1 – Saddle Mountain Scenic Overlook	Moderately Low	Moderately Low
KOP 2 – Pinnacle Peak	Moderately High	Moderate
KOP 3 – Corridor H Overlook	Moderate	Moderate
Ridge Community and Corridor		
KOP 4 – Sulphur City Church, Pinnacle Road at State Route 42	Moderately High	Moderate
KOP 5 – State Route 42 at Mineral / Grant County Line	High	Moderately High
Valley Community and Corridor		
KOP 6 – Preserve at New Creek Dam	Moderately High	Moderate
KOP 7 – Laurel Dale	Moderately High	Moderate
KOP 8 – Timber Lake Estates	Moderately High	Moderate
KOP 9 – Keyser – Heskett Bridge at State Line	Moderately High	Moderately High

Potential effects to nighttime views are discussed for each view. Current FAA regulations require lights on the nacelles of turbines on the perimeter of a wind energy facility and select turbines within the facility. A lighting plan has not yet been approved for the Project.

5.2.1 Ridge Overlook

Under current conditions, visual quality in Ridge Overlook landscape type views range from moderately low to moderately high. With the Project, visual quality would range from moderately low to moderate.

5.2.1.1 KOP 1 – Saddle Mountain Scenic Overlook

Existing visual quality in the view from KOP 1 is moderately low. The prominence of the highways visible in the foreground and the somewhat disorderly roadway corridor conveys to viewers that the scene is of a mountaintop intersection. These features encroach on the natural harmony in the view to the south from this designated overlook, though it should be noted that the intended view from this location is to the east, toward Saddle Mountain.

With the Project simulated (see Figure 3b), the visual quality of the view would be reduced but remain moderately low. While the turbines would be memorable features, they would serve as a backdrop to the view's natural components along the nearby ridgetop and the foremost natural portion of the view would now appear enclosed. The collection of turbines appears atop the ridgeline and outside of the already somewhat disorderly roadway corridor in views to the south. The overall coherence of the view with the Project would be reduced with the Project adding a prominently visible use that does not exist in current views.

Viewers at KOP 1 would be in close proximity to the Project, which would result in turbines appearing out-of-scale with their surroundings despite the viewer's mostly level position relative to the Project. A purpose of overlooks is to afford views of long duration, typically of an expansive vista view or toward a specific focal point. This overlook does both, and the Project would not fall within those views. However, it would be prominent from this vantage point and the cluster of turbines seen laterally, particularly when rotors are spinning, would likely attract viewer attention. Recreationists and tourists, potentially at KOP 1 for the explicit purpose of taking in views, could be particularly sensitive to the Project.

5.2.1.2 KOP 2 – Pinnacle Peak

Existing visual quality in the view from KOP 2 is moderately high. The ridgeline and slopes toward valley areas are a clear demonstration of the broader physiographic region within which the Project site exists. The mountain landscape appears mostly undeveloped, though the ridgeline spine serves as a focal point directing viewers toward the existing wind farm and power station in the more distant center of the view.

With the Project simulated (see Figure 4b), the visual quality of the view would be reduced to a moderate level. Project turbines would be prominently visible in the center of the view, and they would extend above the existing, distant skyline. Off-ridge turbines would also be visible from this location, in the right half of the view, on the ridge's western slope. Existing wind turbines would remain visible, as would the Mount Storm Power Station. As such, the Project would appear in this view to draw the portion of the landscape dedicated to power generation closer to the viewer, but in a limited portion of the view.

The nearest Project turbines would be just under three miles away from viewers at KOP 2. The viewer's level position relative to the Project, along with the lateral view down the ridgeline, would result in a view experience in which the Project would appear neither looming nor horizontally out of scale. Views from the Pinnacle Peak lookout are potentially long in duration, and the view toward the Project site is part of a 360-degree view available in this location. While new turbines could be seen as an expansion of the segment of the landscape already containing a wind farm, particularly when the rotors of all projects are spinning, recreationists and tourists potentially at KOP 2 for the purpose of experiencing the expansive ridgeline view could be sensitive to the change resulting from the Project.

5.2.1.3 KOP 3 – Corridor H Overlook

Existing visual quality in the view from KOP 3 is moderate. While there is a natural harmony within the densely wooded areas, the prominently visible highway corridor, including evident bank cuts and spur roads, appears to segment the wooded area, adding an element of disorder to the view. Turbines associated with two separate, existing wind farm projects – NedPower Mount Storm Wind Farm, closer and in the left side of the view; and New Creek Wind Farm further away and along the right side of the view – are clearly visible. Both the roadway corridor and the turbines are likely to attract viewer attention.

With the Project simulated (see Figure 5b), the visual quality of the view would be slightly reduced but remain moderate. Project turbines would be partially visible along a portion of the ridgeline in the center of the view. This would expand the portion of the existing skyline along which wind turbines are visible under current conditions, and the rotation of blades apparently absent towers, which would not be visible from this location, could warrant additional attention.

The Corridor H Overlook provides viewers with expansive views to the north, east, and south. The entire ridgeline visible to the east is occupied by New Creek Wind Farm turbines. Views to the south are longer in distance and include layers of ridgelines to the southeast. Viewers looking in the direction of the Project from KOP 3, therefore, are habituated by existing conditions to the visibility of wind turbines. Even in the longer duration views afforded by a formal overlook, recreationists and tourists, who are typically more sensitive to visual change than most other viewers, would not be likely to observe substantial change in this view, in which blades would be detectable at an angle, along a ridgeline approximately five miles away and away from the prominent view, which is to the south.

5.2.2 Ridge Community and Corridor

Under current conditions, visual quality in Ridge Community and Corridor landscape type views range from moderately high to high. With the Project, visual quality would range from moderate to moderately high.

5.2.2.1 KOP 4 – Sulphur City Church, Pinnacle Road at State Route 42

Existing visual quality in the view from KOP 4 is moderately high. This view has a straightforward composition, in which a community building is situated along the side of a mountain highway with a wooded area as a backdrop. Outside of the road corridor there are few other structures; thus, the church is the view's most memorable feature and its presence within the adjacent setting provides an intact view.

With the Project simulated (see Figure 6b), the visual quality of the view would be reduced to moderate. Project turbines would be at least co-dominant with the church as memorable features, and the effect of them jutting above the wooded area would introduce a slight disorder to the view, reducing overall coherence with the Project in place.

The proximity of the Project – as close to the viewpoint as 0.75 mile – would increase the scale at which the turbines are observed by viewers at KOP 4. Travelers and commuters would have short-duration views of the turbines from this location, but nearby residents and anyone parked near the church would likely have longer exposure and thus be more sensitive to potential changes to the visual environment.

5.2.2.2 KOP 5 – State Route 42 at Mineral / Grant County Line

Existing visual quality in the view from KOP 5 is high, due primarily to the high degree of natural harmony between land and vegetation and the subjugation of human-made structures to the view's natural elements. Aside from the structure visible within the trees in the center of the view, the farm land in the immediate foreground registers more as an extension of the view's natural qualities from this vantage point, not as a managed landscape.

With the Project simulated (see Figure 7b), the visual quality of the view would be reduced to moderately high. While the view's natural harmony would remain intact, its overall coherence would be altered by the broadside vantage point of comparatively unique structures placed across the entire view, approximately 2.5 miles away. They would

become the view's focal point, appearing orderly and as a backdrop to the existing scene, but altering the quality of the view.

The viewer experience of the Project from KOP 5 and its vicinity would be one of mostly partial or intermittent views toward a collection of structures that, while appearing as a mostly ordered backdrop, would be substantial alterations to the built environment, particularly when rotors are spinning. Residential views toward the Project would be of long duration, with exposure related to the presence of any intervening vegetation. Commuters and travelers would have more intermittent views from KOP 5 and its vicinity; winding roads and mature vegetation result in sporadic visibility of the ridgeline in this area.

5.2.3 Valley Community and Corridor

Under current conditions, visual quality in Valley Community and Corridor landscape type is moderately high. With the Project, visual quality would range from moderate to moderately high.

5.2.3.1 KOP 6 – Preserve at New Creek Dam

Existing visual quality in the view from KOP 6 is moderately high. This is a highly ordered view, with a mostly natural appearing ridgeline and slope yielding to the New Creek Dam bank and spillway. While of visual interest, the spillway and the evident scarring from its attendant grading undermine the visual quality of the view. A wooded area containing mature, colorful trees defines the skyline, provides vividness across the entire view, and appears to stop abruptly at the edge of the spillway.

With the Project simulated (see Figure 8b), the visual quality of the view would be reduced to moderate. Project turbines would be partially visible along a portion of the ridgeline in the right side of the view, extending into the center of the view, where they would be increasingly obscured by the ridgeline. The addition of these structures, approximately two miles away, would alter the skyline in this view. Further, it would place the natural-appearing portion of the view – the wooded slope and ridgeline – between two human-made, horizontally-oriented features (the spillway and the row of turbines). While maintaining some sense of order and intactness, the overall coherence of the view would be diminished.

KOP 6 was selected in part to represent the view of recreationists at New Creek Lake, where fishing was observed during site photography. Where unobstructed, views would be of long duration, as they would be for residential viewers in the vicinity. Both recreationists and residential viewers are typically sensitive to changes to the visual environment. In views from KOP 6, as in other views where some turbines appear partially visible, rotating blades spinning in and out of visibility just along the horizon could draw as much viewer attention as turbines for which the entire nacelle and part of the tower is visible.

5.2.3.2 KOP 7 – Laurel Dale

Existing visual quality in the view from KOP 7 is moderately high. The natural order that characterizes the view results in a high degree of natural harmony: clearly discernible layers of vegetative forms and types extend across the view, serving as backdrop to hilled and flat agricultural lands. The pastoral setting includes a utility line that is visible above the skyline, and which is typical in views throughout the valley. The qualities apparent here are of a utilitarian landscape with a generally undeveloped, natural-appearing ridgeline serve as a backdrop.

With the Project simulated (see Figure 9b), the visual quality of the view would be reduced to moderate. Project turbines would be visible along the entirety of the ridgeline from Laurel Dale, within 2.5 miles of the viewpoint. Relegation to the view's backdrop would add a sense of cultural order, but it would alter the view's skyline and make for a less coherent scene, compared with existing conditions. Project turbines would become a memorable element of the view, if not the most memorable element.

Residents, agricultural workers, and commuters along the valley's roadways are the three primary viewer type represented by KOP 6. Project turbines would be highly visible in unobstructed views. The rural residential and agricultural setting within the valley floor would remain intact, as would the portion of the backdrop formed by the wooded slopes. The skyline, toward which viewers have an inferior vantage point already, would be altered and residential viewers could be sensitive to not only a subtle looming effect but also the effects of viewing the broad side of the Project, in which it would appear in many views to occupy the entire skyline, particularly when rotors are spinning.

5.2.3.3 KOP 8 – Timber Lake Estates

While representing slightly different viewers, the visual quality of views toward the Project under both existing and proposed conditions is the same for KOP 8 as it is for KOP 7. Existing visual quality in the view from KOP 8 is moderately high. A sloping, ridgeline appears beyond a mostly natural-appearing foreground and middleground, though the delineation between valley floor and foothills is exacerbated by the area's agricultural use. This view also includes structures and utilities that are subordinate to the view's natural harmony, but which are evidence of human activity, nonetheless. In the left side of this view, NedPower Mount Storm Wind Farm turbines are discernible along the horizon.

As with the view from KOP 7, with the Project simulated, the visual quality of the view from KOP 8 would be reduced to moderate (see Figure 10b). Project turbines would extend across the view, except for a gap along the ridgeline near the center of the view. This break in the turbines would slightly reduce the cultural order compared to a view in which turbines were visible consistently along the skyline.

This view approximates that of nearby residents, many of whom would have limited exposure to the Project due to intervening vegetation. Nevertheless, the view from KOP 8 is a mostly unobstructed one toward the broad side of the Project. Residents with this or similar views are likely to be highly sensitive to this visual change. Other viewers, such as tourists or commuters, would have more intermittent views from the roadway and would likely be habituated to the presence of wind turbines along ridgetops from other projects in the vicinity.

5.2.3.4 KOP 9 – Keyser – Heskett Bridge at State Line

Existing visual quality in the view from KOP 9 is moderately high. This is a long-distance view toward the Project, with the City of Keyser in the foreground, framed by two ridgelines. Despite the ridgelines and the vegetation visible throughout the city, the natural harmony of the view is secondary to the built environment with regard to both visual character and quality. The foreground area appears in view as a generally ordered, gridded layout, with distinct zones (e.g., commercial, institutional). Wind turbines associated with Pinnacle Wind Farm are visible along the ridgeline in the right of the view and NedPower Mount Storm Wind Farm turbines are discernible along the distant ridgeline in the left half of the view.

With the Project simulated (see Figure 11b), the visual quality of the view would not change. Turbines would be discernable in the center of the view, along a ridgeline nearly 10 miles away. Given that such structures would not encroach upon any existing view features, and that they would appear similar to existing wind turbines much closer to the viewer than the Project would be, no change to visual quality was quantifiable.

Viewers within Keyser – residents, tourists, or commuters – would experience the Project in much the same way that they likely experience the much more proximate Pinnacle Wind Farm. Turbines would appear in limited views, where the street grid, structures, and trees permit. The spatial relationship between viewpoint and Project, in concert with the distance between the two, would result in visible turbines appearing clustered in the distance, and rotor motion during operation would be absorbed into an active, urban environment.

5.3 POTENTIAL BEST MANAGEMENT PRACTICES

Utility-scale wind projects appear in landscapes at a scale that does not allow for application of most mitigation strategies intended for general development projects. Their footprint is large, and their form and height make them prominent because they typically are not sited near similarly scaled structures, save for instances where other existing wind energy projects are nearby and visible in views. As such, suggested mitigations like screening, camouflage/disguise, or developing at a low profile are not practical. Relocation and downsizing also are not practical measures for mitigating impacts from wind energy projects since such projects typically require precise locations and layouts to maximize wind resources and contracts with utilities or other off-takers that have agreed to purchase the power the project will generate. Typical mitigation measures are not effective for wind power projects and likely were not intended for developments of such scale.

Nevertheless, several measures, considered Best Management Practices, can be considered to reduce the visual impacts of the proposed Project turbines:

- Use of nonreflective paint finishes for turbine towers and blades, to the extent practicable, and subject to industry standards and requirements to comply with the FAA's lighting and marking standards.
- Limiting or minimizing the visual effects of lighting to the maximum extent practicable in compliance with FAA requirements. Project lights typically used to comply with FAA requirements will, to some extent, be shielded from ground-level views due to a constrained (3 to 5 degree) vertical beam.
- Shielding and hooding lighting fixtures, except those required by the FAA for aviation safety purposes; orienting them toward the ground so that direct rays of light do not shine onto neighboring properties or otherwise become a source of light pollution.
- Use of sensors and switches to keep proposed project facility lights off when not required.

6.0 CONCLUSIONS

Development of the Black Rock Wind Farm Project would reduce visual quality in publicly-accessible, representative views toward the Project site, but not substantially so and not in every view. Modest reductions in visual quality were

assessed in six of the nine views evaluated in this report, spanning three distinct landscape types: two of the three Ridge Overlook views, both of the Ridge Community and Corridor views, and three of the four Valley Community and Corridor views indicated reduced visual quality with the presence of the Project. Such effects were generally related to instances where Project turbines would appear atop currently uninterrupted ridge skylines or where they would become the view's dominant features, thus substantially affecting the visual coherence observed under current conditions.

In views lacking coherence under current conditions, or where Project turbines would appear within a landscape already inclusive of wind farms or other power generating structures, effects to visual quality were assessed to be less substantial, and not consequential enough to alter the existing level of visual quality.

With regard to visual character, the Project would generally create strong contrast in the landscape under one or both of the following conditions: where Project turbines would be visible from some locations – typically where no existing wind farms are visible – in a form and at a scale entirely unique to the view; and in relatively static views, where the motion of rotating blades would be prominent and draw viewers' attention.

Project turbines would contribute a degree of vividness and visual interest to certain views. However, potential encroachment upon natural-appearing skylines would undermine any such effect, as would their addition to views with a high degree of existing coherence but little ability to absorb features at the scale of the proposed turbines.

7.0 REFERENCES

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