1 PROJECT OVERVIEW AND BACKGROUND

1.1 Introduction

This Draft Environmental Impact Statement (DEIS) evaluates the impacts of the Proposed Action and 3 alternatives (a total of 4 alternatives) relating to the U.S. Fish and Wildlife Service's (USFWS or the Service) proposed issuance of an Endangered Species Act (ESA) Section 10(a)(1)(B) Incidental Take Permit (ITP) for the Beech Ridge Wind Energy Project (Project) Habitat Conservation Plan (HCP) The HCP is a component of the proposed action in this DEIS. It is intended to provide a plan to avoid, minimize, and mitigate, to the maximum extent practical, the incidental take of two federally endangered species, Indiana bat (*Myotis sodalis*) and Virginia big-eared bat (*Corynorhinus townsendii virginianus*), resulting from the implementation of covered activities in the HCP. The Applicant has designed the HCP mitigation strategy to offset the impacts of take. This strategy would implement actions identified in the recovery plans of the Indiana bat and Virginia big-eared bat by reducing threats of human disturbance and habitat loss off-site (through land acquisition, easements, and/or cave-gating and land management).

Beech Ridge Energy, LLC (BRE), a wholly owned subsidiary of Invenergy, LLC, owns and operates the Project. The Project is located in Greenbrier and Nicholas counties, West Virginia (Figure 1-1), approximately 5 miles (mi) northwest of the town of Trout, approximately 7 mi north-northwest of Williamsburg, and approximately 9 mi northeast of downtown Rupert.

The Project consists of several primary components, including wind turbines, access roads, transmission and communication equipment, storage areas, and control facilities. Construction and operation of 100 turbines on the Project site has been divided into 2 phases of development (described in Sections 1.2 and 1.3).

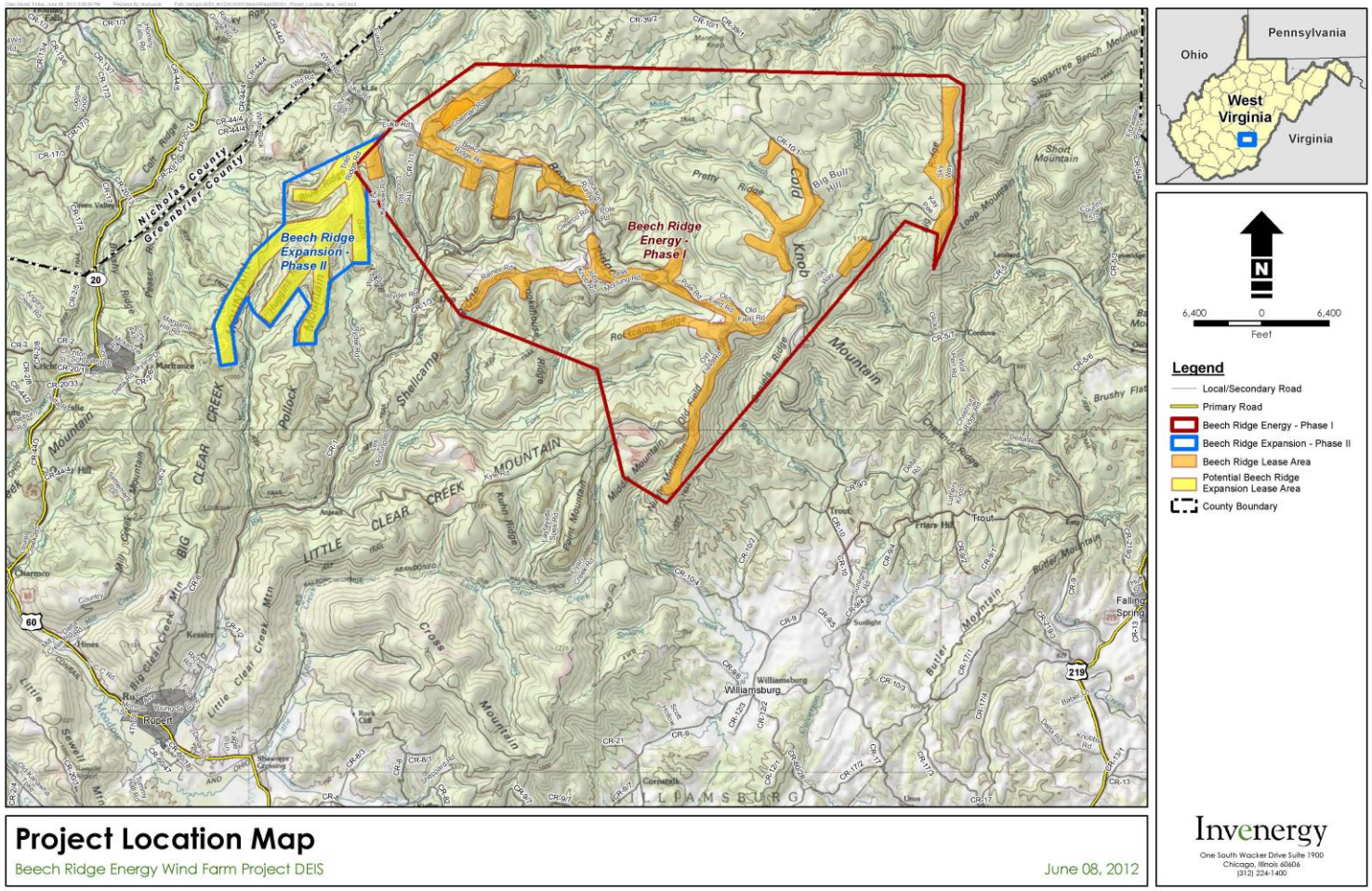
The Project is located on a 63,000-acre tract owned by a commercial timber company. BRE has leased approximately 6,860 acres and additional road rights-of-way (ROW) from this landowner (Figure 1-1). Only a small portion of the 6,860-acre Project area will host wind project facilities. It is anticipated that the area of direct land use for the 100 turbines, access roads, substation and operations and maintenance (O&M) facility will be approximately 71 acres. BRE has acquired the necessary land rights to construct and operate the existing 67-turbine portion of the Project, its associated facilities, and the necessary land rights to develop the 33 additional turbines in the expansion area.

In August 2006, the West Virginia Public Service Commission (WVPSC) granted BRE a siting certificate to construct the Project. The Project, as initially approved, included up to 124 1.5-megawatt (MW) turbines totalling 186 MW of nameplate generating capacity.

On June 10, 2009, Animal Welfare Institute, Mountain Communities for Responsible Energy, and David G. Cowan, brought an action seeking declaratory and injunctive relief against BRE and Invenergy, LLC, alleging the Project would "take" endangered Indiana bats in violation of the ESA.

The Court held a trial on October 21-23 and 29, 2009 (U.S. District Court, District of Maryland, Case No. RWT 09cv1519, Animal Welfare Institute, et al., plaintiffs v. Beech Ridge Energy LLC, et al., defendants). At the time of the trial, BRE was completing foundations for 67 turbines, stringing transmission lines in agreed upon areas, and erecting 40 turbines. At that time, BRE had not applied for an ITP, which would have allowed for the incidental take of an endangered species. Based on available information, BRE had concluded that take of listed species was not likely.

Figure 1-1. Timber company property and Beech Ridge Energy Wind Project leased lands, Greenbrier and Nicholas Counties, WV.



The District Court ruled that BRE's construction and operation of wind turbines (67 turbines planned by the end of 2010 and up to 57 additional turbines to be built at a later date) would violate Section 9 of the ESA unless and until Defendants obtain an ITP. The Court enjoined BRE from building additional turbines beyond the 40 already constructed and restricted turbine operation to the bat hibernation season (November 15 – March 31) until such time as BRE obtains an ITP. The Court also invited the parties to confer on whether they could agree on terms for further turbine construction and operation while BRE pursued an ITP.

Rather than appeal the District Court's decision, BRE entered into a settlement agreement with the Plaintiffs that permitted Project construction and operation. Under the terms of the settlement agreement reached with the Plaintiffs on January 23, 2010, BRE agreed to the following:

a) BRE would abandon 24 of the original 124 turbines proposed that are closest to known bat hibernacula, limiting the Project to up to 100 turbines with up to 186 MW of generating capacity;
b) Prior to receipt of an ITP, BRE may operate the 40 turbines already constructed (of which were permitted by the December 8, 2009 Court Opinion and Order) only during the Indiana bat hibernation period (i.e., from November 16 to March 31 of each year), and during daylight hours at other times of the year (i.e., between one-quarter hour after sunrise and one-half hour before sunset);
c) Prior to receipt of an ITP, BRE may finish constructing the 27 turbines that were initiated prior to the court hearing; these 27 turbines would be subject to the same time-of-year and time-of-day restrictions as set forth for those turbines described in b); and
d) BRE would seek an ITP to address the construction of the remaining 33 turbines and operate the existing 67 turbines plus the 33 proposed turbines during nighttime hours from April 1 to November 15.

In summary, BRE began constructing the initial 67-turbine Project (Phase I) on April 15, 2009, and the Project first began generating electricity in March of 2010. All 67 Phase I-turbines were on-line and operating by August 15, 2010. Phase I operation and Phase II construction are subject to the operation restrictions described in Item b) and Item c) above, respectively.

The location of Phase II turbines is controlled by the settlement agreement. Phase II turbines are to be built on the western portion of the leased lands, which include ridges not selected for siting the original 124 turbines. Hence, much of Phase II was not part of the original application to the WVPSC. Therefore, Phase II of the Project will have to undergo review by the WVPSC as a modification to the existing certificate. Other state, federal, and local approvals for the expansion area are in progress. Most of BRE's proposed Phase II planning area falls outside the bounds originally stipulated in the January 23, 2010, settlement agreement with the Plaintiffs. However, on November 15, 2011, the District Court approved a revision to the settlement agreement to include these new areas proposed by BRE for Phase II turbines. This DEIS analyzes the Project based on BRE's proposed Phase II location as approved by the Court stipulation and revision.

Consistent with the court order and settlement agreement, BRE has indicated its intent to pursue an ITP. Section 10(a)(1)(B) of the ESA authorizes the Service to issue ITPs to non-federal land owners and holders of leases for the take of endangered and threatened species, provided that, among other requirements, the take will be incidental to otherwise lawful activities, will not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and will be minimized and mitigated to the maximum extent practicable.

1.1.1 Modification of Stipulation

In January 2012, BRE sought modification to the stipulation and requested technical assistance from the Service (Appendix L). With the Service's assistance, BRE developed a take minimization strategy for limited Project operations of the existing 67 turbines during the period of April 1, 2012, through November 15, 2012, or until an ITP issued (whichever occurs soonest). On February 17, 2012, the District Court

Judge approved BRE's proposed strategy. (See Animal Welfare Institute v. Beech Ridge Energy LLC, Case No, 8:09-cv-0519-RWT, Order Granting Joint Motion for Approval of Modification of Stipulation, Docket. No, 98 (D. Md. Feb. 16, 2012) in Appendix L.)

This strategy involves the following:

1. Beginning on April 1, 2012, implement turbine operations as follows:
    a. Operate turbines with cut-in-speeds (the minimum wind speed at which the wind turbines start to generate usable electricity) of 6.9 meters/second (m/s) during the period from April 1 through November 15 from 0.5-hour prior to sunset until 0.25-hour after sunrise; and
    b. Feather (pitch the angle of) turbine blades so there is only minimal rotation (<2 revolutions per minute [rpm]) at wind speeds below turbine cut-in speeds.
2. Implement appropriate monitoring to detect the unlikely take of ESA-listed species; and
3. In the event take is detected, discontinue nighttime operations described above during the period of April 1 to November 15 until the final ITP is issued.

Based on an independent review of the best available scientific and commercial information, the Service concluded in a letter dated January 30, 2012, that the above operational modifications during this short time period will produce effects that are not likely to adversely affect listed bat species (see copy of letter in Appendix L).

The modified stipulation includes a monitoring strategy to be conducted by a qualified biologist that will search all operating turbines every 2 days. This monitoring effort includes carcass removal and searcher efficiency trials that are intended to determine the effects that searcher and environmental biases have on estimated mortality rates. BRE will share with the Service and Plaintiffs the results of trials and monitoring. BRE will provide monthly monitoring reports from May through December 2012.

The circumstances of the modified stipulation affect the existing condition of the Project area with regard to the following resources.

Noise: During the period from April 1 to November 15, 2012, turbines will be operating on those nights when the wind speed is 6.9 m/s or greater. Hence, turbines will be generating operational noise at night in 2012 during this period, compared to previous years (2010 and 2011) when turbines did not generate operational noise at night from April 1 to November 15.

Bat Resources: In 2010 and 2011, the risk of mortality for all bats was fundamentally zero because turbines were turned off when bats were active. In 2012, curtailment at 6.9 m/s is anticipated to reduce mortality of all bats by at least 76%. Although it is unlikely that the limited operations protocol in 2012 will kill listed bats (few individuals would be exposed to the turbines), there is still a risk to unlisted bats that are more numerous than listed bats and thus have greater potential exposure to the turbines. Unlisted bat fatalities have occurred at wind power projects on nights when wind speeds exceeded 6.9 m/s (Stantec 2010b, 2011). Thus, in 2012 we assume that limited operations will result in mortality levels roughly equally to 24% of the regional average fatality of all bats when turbines are operating normally. One must account for this risk to unlisted bats, particularly the risk to the tree-roosting migratory bats, which have been observed to sustain much higher rates of mortality relative to cave-dwelling bats.

Avian Resources: There is a possibility that the limited operations protocol in 2012 will increase the risks to night-time migrating birds as compared to the risks associated with no night-time operations during the April 1 through November 15 period. However, results of studies currently do not suggest that take minimization strategies for bats also reduce bird mortality. For the purposes of this DEIS, the Service does not assume that the implementation of the 6.9-m/s strategy reduces collision risk for birds. Hence, we do not assume that the limited operations protocol implemented in 2012 will increase bird mortality as compared to those years (2010 and 2011) when turbines did not operate at night from April 1 to November 15.

These short-term effects are not part of the proposed future federal action of issuing an ITP. The effects are ongoing (will have already occurred or will continue to occur) until an ITP is issued, or until November 15, 2012, whichever occurs first. For purposes of this EIS, we therefore analyze these short-term past and present effects as cumulative effects in chapter 5.[4]

1.2 Beech Ridge Energy Project Description – Phase I (Existing 67-Turbine Project)

Provided here is a brief description of the BRE Phase I Project. Section 5.4 contains a detailed description of the Phase I Project as it relates to cumulative effects.

As stated above, Phase I of the Project consists of 67 wind turbines that are already constructed and operating. Forty turbines were constructed and operating by April 1, 2010. An additional 27 turbines were constructed and operating by August 15, 2010. Pursuant to the District Court's order, settlement agreement (refer to Section 1.1), and modified stipulation (refer to section 1.1.1), these 67 turbines currently operate under restrictions from April 1 through November 15. From November 16 through March 31 (winter months when bats are hibernating), the turbines operate unrestricted.

A transmission line that connects the Project to the existing electric power grid was constructed between April 2009 and April 2010. It extends approximately 14 mi northwest from the Project to Allegheny Power's Grassy Falls Substation north of the community of Grassy Falls in Nicholas County, West Virginia.

1.2.1 Phase I General Location

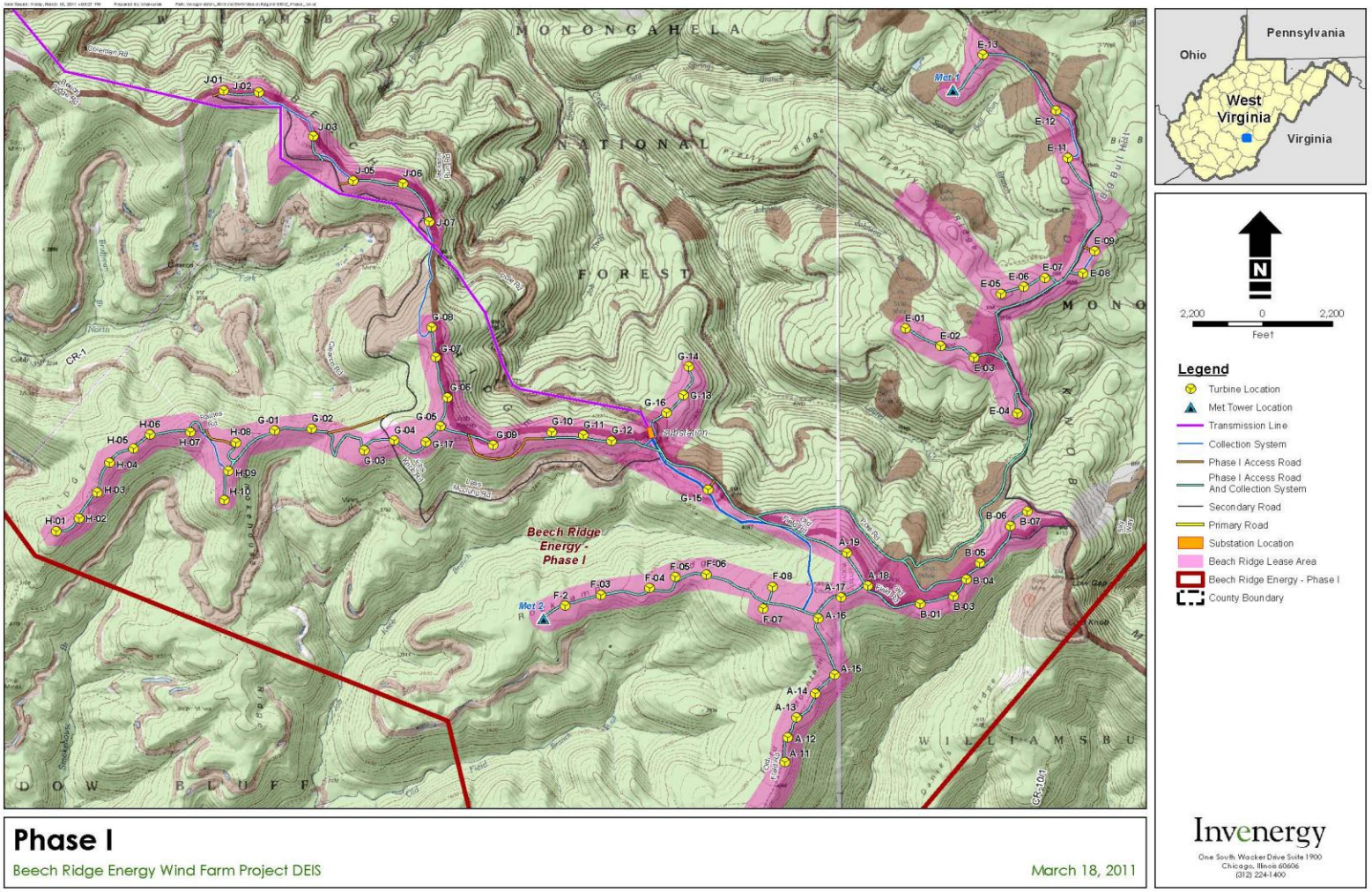
Phase I is located primarily along Beech Ridge (Figure 1-2). It is bounded on the west by Clear Creek Mountain, on the south by Old Field Mountain, on the east by Cold Knob, and on the north along County Road 10/1 just past Big Bull Hill.

1.2.2 Phase I General Components

Phase I is composed of several primary components, including wind turbines, access roads, transmission and communication equipment, storage areas, and control facilities. These components are discussed below.

[4] The Council on Environmental Quality (CEQ) and Department of Interior DOI regulations for implementing the National Environmental Policy Act (NEPA) define cumulative effect as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfFederal) or person undertakes such other actions.

Figure 1-2. Beech Ridge Energy Wind Project Phase I Location, Greenbrier and Nicholas Counties, West Virginia.



1.2.2.1 *Wind Turbines*

Phase I includes 67, 1.5-MW General Electric (GE) turbines (Figure 1-3). The GE 1.5-MW turbine is a 3-bladed, upwind, horizontal-axis wind turbine. The turbine rotor and nacelle are mounted on top of a tubular tower. The machine employs active yaw control to position the rotor to face the wind, active blade pitch control to regulate turbine rotor speed, and a generator/power electronic converter system attached to a variable speed drive train to produce a nominal 60 hertz [Hz], 575 volts (V) or 690 V of electric power.

Rotor, Hub, and Nacelle
The rotor consists of 3 blades attached to a hub. The rotor blades are constructed of fibreglass and epoxy or polyester resin. The cast iron hub connects the rotor blades to the main shaft and transmits torque. The hub is attached to the nacelle, which houses the gearbox, generator, brake, cooling system, and other electrical and mechanical systems.

The GE 1.5 MW SLE wind turbine uses a maximum 77-meter (m, 252 feet [ft]) rotor diameter with a rotor swept area of approximately 4,654 square meters (m^2, 50,095 square feet [ft^2]). The rotor speed is from 11.0 to 22.2 rpm, and all rotors rotate in the same direction.

Towers
The 67 GE 1.5-MW SLE turbine nacelles are mounted on freestanding monopole tubular steel towers with a hub height of 80 m (262 ft). The maximum height of the rotor is 118 m (387 ft) above ground.

Foundations
The turbine towers are connected by anchor bolts to an underground concrete and rebar foundation. Geotechnical surveys and turbine tower load specifications dictate final design parameters of the foundations. Throughout the 67-turbine phase, BRE used a typical spread footer, which has a footprint similar to the tower diameter at grade but may spread out below grade.

Access Roads
The Project is accessed using existing county public roadways, privately-owned timber roads, and existing upgraded or newly constructed all-weather access roads. The main access route for the Project, including equipment deliveries, is via County Route 1 north from Rupert to Clearco. Phase I includes approximately 16 mi of roads, including approximately 8 mi of new upgrades to existing roads and 8 mi of newly constructed roads.

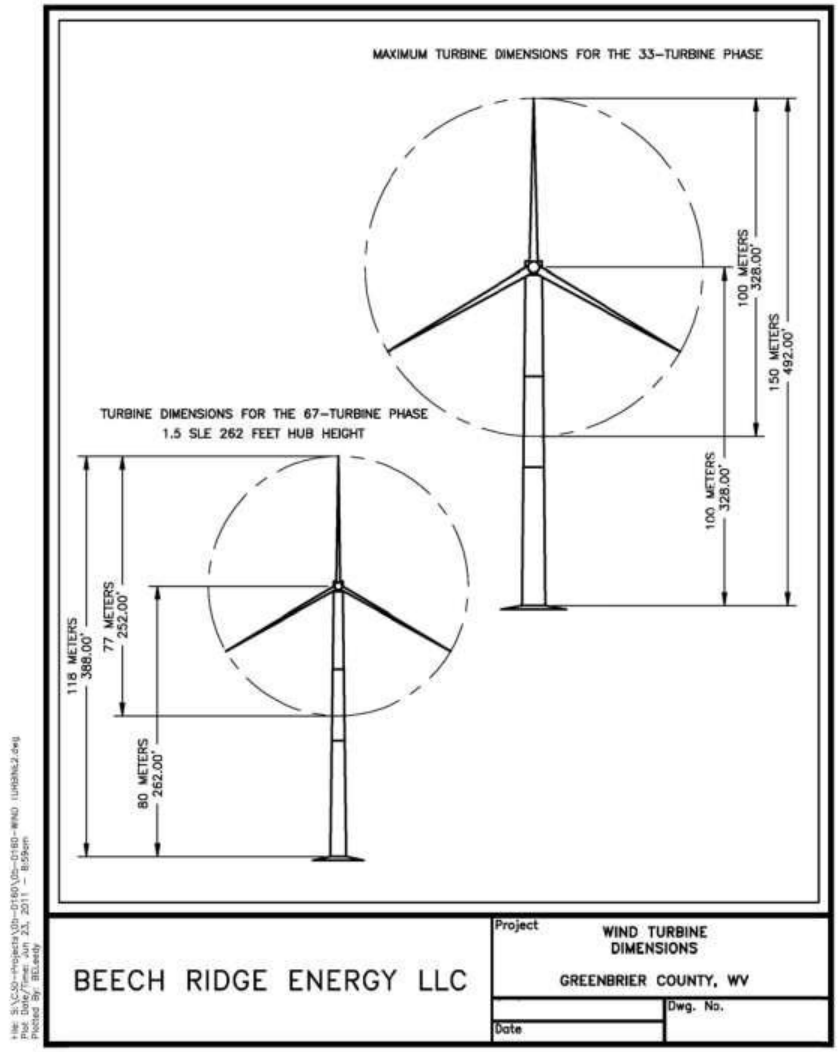
1.2.2.2 *Communications and Collection System*

Inside the base of each turbine tower, a control panel houses communication and electronic circuitry. At the base of each turbine, a step-up transformer is installed to raise the voltage from 575 V or 690 V to collection line voltage of 34.5 kilovolts (kV). Generated electricity moves through an underground collection system to the Project substation.

1.2.2.3 *Substation and Operation and Maintenance (O&M) Facility*

The Project 34.5-kV/138-kV substation is owned by BRE; substation construction and operation meet industry standards. The substation is similar to substations used on transmission systems in the region. The substation houses those electrical facilities to step-up medium voltage power from the collection system to high voltage for delivery to the 138-kV transmission line.

Figure 1-3. GE 1.5 MW SLE Turbine.



The Project O&M building is located separately from the Project 34.5/138-kV substation. The O&M building contains all necessary plumbing and electrical collections needed for typical operation of offices and a maintenance shop. Electric, water, telephone, and septic system utilities are provided on-site.

1.2.2.4 *Meteorological Towers and Transformers*

Two permanent, guyed, 80-m (262-ft) meteorological (MET) towers were erected for the 67-turbine phase. MET towers were installed on 1-m (3 ft) diameter pier foundations. Transformer foundations were constructed using standard cut-and-fill procedures and pouring concrete in a shallow slab or using a precast structure set on appropriate depth of structural fill.

1.2.2.5 *Transmission Line*

From the Project substation, the Project's 138-kV overhead transmission line runs northwest into Nicholas County where it ties into the existing Allegheny Power Grassy Falls Substation located on State Route 20. The Grassy Falls Substation is referred to as the Point of Interconnect and is the location where energy generated by the Project connects to Allegheny Power's existing transmission system.

1.3 Beech Ridge Energy Project Description – Phase II (Proposed – 33-Turbine Project)

Phase II of the Project consists of an additional 33 proposed turbines; 47 possible turbine locations have been identified, 14 of which are alternates to provide options for avoiding impacts to sensitive resources. The final 33-turbine phase will be constructed pending issuance of the ITP. Construction of the additional 33 turbines should be completed within 2 years of the issuance of the ITP. Commercial operation of the final 33 turbines is expected to occur immediately upon completion of construction.

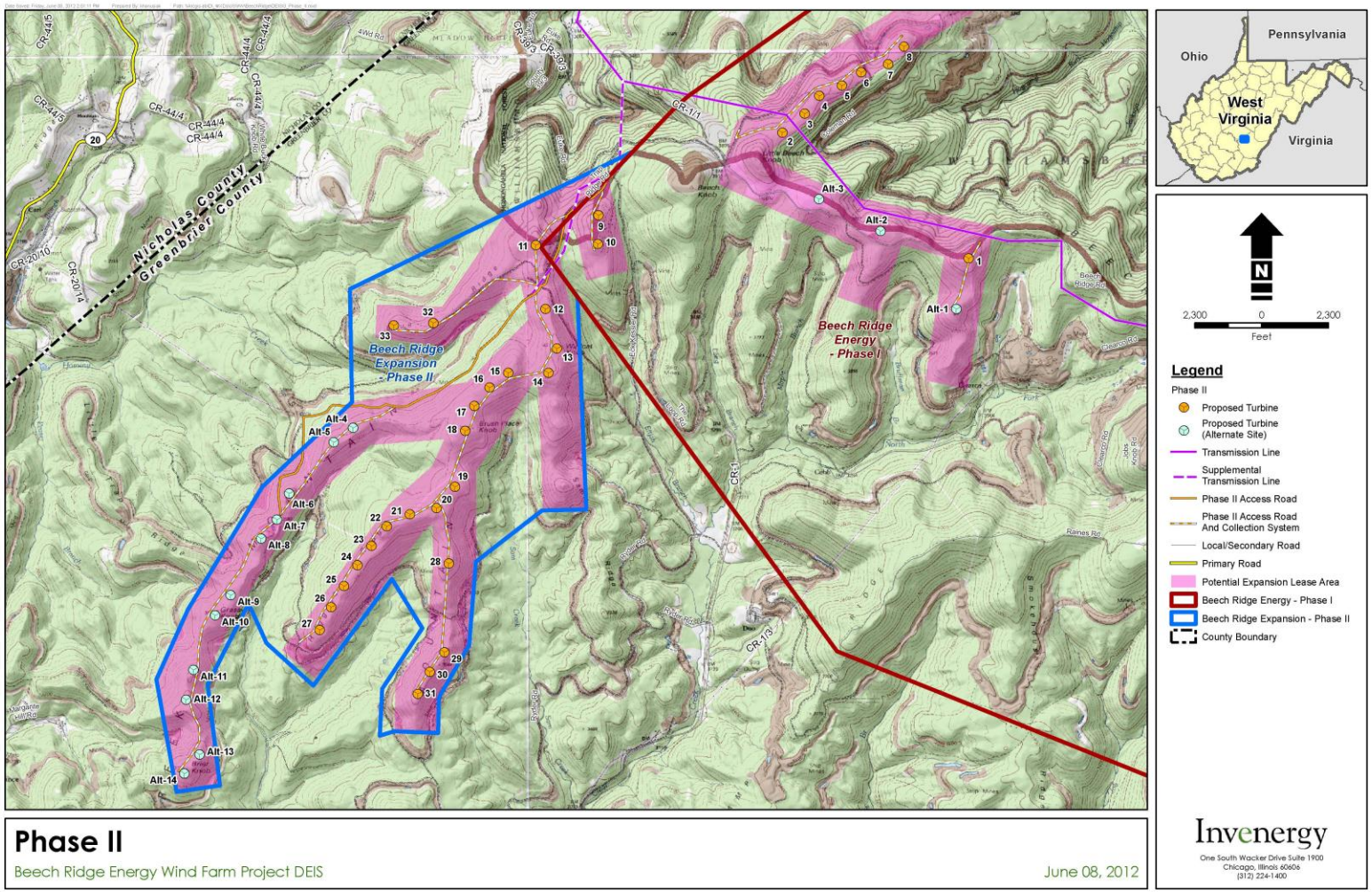
1.3.1 Phase II General Location

Phase II of the Project is located just west of Phase I and is proposed to be constructed primarily along Clear Creek and Pollock Mountain ridgelines (Figure 1-4). Construction of Phase II is expected to convert 124 acres of habitat (from mostly forested habitat to grass/shrub habitat that eventually will undergo natural succession back to forest habitat) and permanently remove 21 acres of existing habitat (see Table 3-1).

1.3.1.1 *Phase II General Components*

Phase II is composed of several primary components, including wind turbines, access roads, transmission and communication equipment, storage areas, and control facilities. These components are discussed below.

Figure 1-4. Beech Ridge Energy Wind Project Phase II Location, Greenbrier County, West Virginia.



Wind Turbines
Turbine model type for Phase II will be selected after issuance of the ITP. Although anticipated to be very similar to Phase I turbines, the turbine model selected for the 33 additional turbines will be based on current turbine prices, turbine efficiency based on detailed wind reports for that specific area, turbine availability, and turbine ability to feather blades[5] and change the cut-in speed.[6] The nacelles for the 33 additional turbines would be mounted on monopole towers with a maximum hub height of 100 m (328 f). The maximum height of the 33 Phase II wind turbines with a blade extending straight up is 150 m (492 ft). This DEIS analyzes impacts based on turbine specifications provided in Chapter 3 and additional planning information provided by BRE.

Access Roads
Approximately 6 mi of existing roads will be upgraded and 4 mi of new roads will be constructed for Phase II. Existing roads will be upgraded and new roads will be constructed in accordance with industry standards for wind project roads and local building requirements.

Communications and Collection System
Underground electrical and communications cables will be placed in approximately 4-ft deep trenches, primarily located along the Project access roads and within the access road disturbance area.

Turbine Towers, Meteorological Towers, and Transformers
Phase II turbine towers will be anchor-bolted to concrete foundations. Up to 2 additional permanent, self-supporting (unguyed) MET towers will be erected for Phase II. Transformer foundations will be constructed using standard cut-and-fill procedures and by pouring concrete in a shallow slab or using a precast structure set on appropriate depth of structural fill.

1.4 Proposed Project Potential Effects to Listed Species

The proposed Project consists of 2 distinct phases of construction and operation. Decommissioning of both phases may occur simultaneously or by phase. This DEIS examines the impacts associated with both Project phases, 67 constructed and operational turbines and 33 proposed turbines, and the operation of the 100-turbine Project as a whole. Impacts from both phases are clearly identified, and impact analysis was performed in light of the Purpose and Need stated in Chapter 2.

During the operational life of the Project, approximately 25 years, actions associated with the proposed Project are reasonably anticipated to result in the incidental take of the Indiana bat and Virginia big-eared bat, both listed as endangered under the ESA. Take of either bat could occur as a result of operation of the proposed Project. Wind turbines are known to kill a large number and variety of bats; however, many bat fatalities go undetected during post-construction monitoring due to high scavenger removal rates and low searcher efficiency rates. The rarity of Indiana bats compounds this problem, making searches for them difficult, especially at wind power projects located on forested ridgelines. The first documented mortality of an Indiana bat occurred in September 2009 at the Fowler Ridge Wind Farm in Benton County, Indiana, during the fall migratory period (Johnson et al. 2010). A second Indiana bat fatality was documented at this same facility in September 2010 (Good et al. 2011). A third Indiana bat fatality was documented at the North Allegheny Wind Power facility in Blair and Cambria counties, Pennsylvania, during September 2011 (USFWS 2011d).

[5] Feathered blades are pitched, or rotated, so that the rotor edge points directly into the wind, reducing blade rotation speeds to less than 2 rpm to minimize risks to bats and birds. No all turbine designs provide the feathering capability. Turbines that do not feather whenever wind speeds are below cut-in speed will spin freely at more than 2 rpm and increase collision risk. Similar to Phase I turbines, BRE has committed to selecting turbine designs for Phase II that include feathering capability when winds are below the cut-in speed provided by BRE's Curtailment Plan, i.e. 4.8 m/s.

[6] Cut-in speed is the minimum wind speed at which a wind turbine starts to generate usable power; this is around 3-4 m/s for turbines similar to those constructed and proposed for the Project. Increasing wind speed can eventually begin to pose risks to the turbine. Conversely, the cut-out speed, usually about 25 m/s, is the wind speed at which the braking system is applied to prevent damage to the turbine.

1.4.1 Indiana Bat Seasonal Habitat Use and Home Range

Indiana bat maternity colonies appear to show fidelity to a general home range within and between years (Sparks et al. 2004). The distance from the roost to foraging areas may be constrained by the need to return periodically once the young are born (Henry et al. 2002) since lactating females return to the roost 2 to 4 times during the night (Butchkoski and Hassinger 2002, Murray and Kurta 2004). In general, the distance from the roost to foraging areas varies from 0.3 mi to 5.3 mi (USFWS 2007). In Michigan, the mean distance from the roost to the nearest edge of an activity center was 1.5 mi from the day roost (n=13; range 0.3 mi to 5.3 mi; Murray and Kurta 2004). Eleven females in Indiana used foraging areas on average 1.9 mi from their roosts (range 0.5 mi to 5.3 mi; Sparks et al. 2005). Menzel et al. (2005) found no difference between home ranges of male and female Indiana bats between May and August in Illinois. Mean home range of the 11 bats in the study was 358 acres (0.56 mi^2). The mean home range of 24 females in the Champlain Valley of Vermont and New York was 205 acres (0.32 mi^2; Watrous et al. 2006). Due to the different approaches in these investigations, it is difficult to make definitive statements about the home ranges of female Indiana bats during the summer (Lacki et al. 2007). Some variability in these home range estimates is likely attributed to differences in habitat quality among the study sites, as well as to differences in the methodologies employed for these foraging studies

Indiana bats return to the vicinity of the hibernacula in late summer and early fall where they exhibit a behaviour known as “swarming.” This involves large numbers of bats that fly in and out of cave entrances from dusk to dawn. During the swarming period, most Indiana bats roost within approximately 1.5 mi of the cave, suggesting that the forests around caves provide important habitat prior to hibernation (USFWS 2007); a few bats roost in the cave during the day (Cope and Humphrey 1977). During the swarming period, bats engage in mating and gain fat stores vital for winter survival. While females enter the hibernaculum soon after arrival at the site, males remain active for a longer period and may also travel between hibernacula; both of these behaviours have the potential to increase mating opportunities for males (USFWS 2007).

Available data indicate Indiana bats predominately swarm at hibernacula in which they overwinter, but individuals will also visit and swarm at other hibernacula, as well as at non-hibernacula sites such as caves, mines, rock crevices/shelters and cliff faces (Cope and Humphrey 1977, LaVal and LaVal 1980 as cited in USFWS 2007). Thus, swarming activity also refers to bats moving between and among nearby hibernacula and/or swarming sites. Based on radio-telemetry data, it is reasonable to assume that swarming Indiana bats may be exposed to wind turbines that are sited within 10 mi of most Priority 3 or Priority 4 hibernacula[7] (USFWS 2011a). This 10-mi buffer zone is intended to delineate areas where bats are foraging, roosting, and mating near their hibernacula and to capture local movements among nearby hibernacula and swarming sites. Additionally, migrating bats may be exposed to wind turbines at distances beyond the typical foraging range of swarming bats.

1.4.2 Indiana Bats in the Project Area

There are no known summer maternity roosts or winter hibernacula that support Indiana bats within the Project area. The nearest known active Indiana bat hibernacula are located 9.3 mi and 12.9 mi from the nearest turbine. Calls matching those made by Indiana bats have been recorded by a limited number of acoustical detectors placed on the project site during summer 2005[8i] and 2010 (Young and Gruver 2011). Because the Project area and adjacent landscape contains suitable habitat and is located within the range of migrating, foraging, and roosting Indiana bats, Indiana bats are assumed to be present, and the risk of take at some time during the life of the Project is reasonably anticipated. BRE has requested a permit for take of 70 Indiana bats over the term of the 25-year permit. The BRE Project expansion also

[7] Priority 1 hibernaculum have ≥ 10,000 individual Indiana bats
Priority 2 hibernaculum have 1,000 - 9,999 individual Indiana bats
Priority 3 hibernaculum have 50 – 999 individual Indiana bats
Priority 4 hibernaculum have 1 - 49 individual Indiana bats

[8] See pages 53-61 in the Memorandum Opinion for Animal Welfare Institute et al. v. Beech Ridge Energy, LLC; District Court of Maryland case no. RWT 09cv15119.

will necessitate further tree removal to clear areas for turbines. Trees provide potential roosting habitat for Indiana bat.

1.4.3 Virginia Big-Eared Bats in the Project Area

Virginia big-eared bats form summer maternity colonies and winter roosts predominantly in caves but also in abandoned mine portals. There currently are no records of Virginia big-eared bats in the Project area or Greenbrier County. The closest known areas occupied by Virginia big-eared bats are a cluster of 4 mine portals in Fayette County, located 27.5 to 30 mi west of the Project area. Virginia big-eared bats do not usually migrate far between summer and winter habitat. The greatest movement recorded between summer and winter roosts was 19.8 mi (C. Stihler, unpublished data in Piaggio et al. 2009). While the likelihood of Virginia big-eared bats occurring in the Project area is currently low, this could change over time if new maternity areas or winter roosts become established. Therefore, as a precaution to cover themselves for take authorization in case the range of the species changes, BRE has requested a permit to take 14 Virginia big-eared bats over the term of the 25-year permit.

1.4.4 Estimating Take of Endangered Bats in the Project Area

The HCP analyzes and describes the likely direct and indirect effects of the Proposed Action on Indiana bats and Virginia big-eared bats. The ranges of estimated take were developed using a combination of on-site surveys, information from other wind projects, and available scientific literature. Because of the low detection rate of the Indiana bat, BRE used the little brown bat (a more common species killed at wind power projects) as a surrogate indicator to bracket the range of estimated take of the less common Indiana bat.

During years 1-3 after ITP issuance, BRE will conduct intensive monitoring studies designed to detect bat mortality and to establish the ratios of Indiana bat take and Virginia big-eared bat take to mortality of all bat fatalities. Thereafter, during years 4-25, BRE will implement a surrogate approach (using all bats, little brown bats, or other bats as surrogates) to monitor take of covered species using ratios developed during the first 3 years of intensive study. A surrogate approach to monitoring in years 4-25 is reasonable given the difficulty of detecting a rare event and the fact that a surrogate approach will provide adequate monitoring levels to insure the Project is in compliance with authorized take limits over the term of the permit.

The HCP also describes what measures will be taken by the Applicant to avoid, minimize, and mitigate take to the maximum extent practicable, in accordance with Section 10 of the ESA. Avoidance and minimization measures have been incorporated into the site design and configuration of the proposed wind facility. Additionally, the Applicant is proposing to provide funding to implement off-site conservation measures to mitigate for residual take that is not avoided.

The HCP includes a post-construction monitoring protocol that will measure the effectiveness of minimization and avoidance measures and estimate the take of Indiana bats. The monitoring protocol allows for the implementation of adaptive management approaches to reduce uncertainty associated with proposed minimization and mitigation measures; that is, modifications to minimization, mitigation, and monitoring measures that may be needed to achieve goals based on the results of post-construction monitoring. In other words, the HCP will allow for alteration and refinement of minimization techniques through time as understanding of impacts to bats from the proposed Project increases. Minimization techniques include turbine operational curtailment measures to reduce bat mortality.

Under the Proposed Action, the Service is considering issuing an ITP that would require implementation of the HCP and associated Implementing Agreement (IA). The proposed ITP would authorize take associated with construction of up to 33 turbines and associated infrastructure, operation of all 100 turbines with up to 186 MW of generating capacity, and decommissioning of the Project.

This DEIS serves as the NEPA compliance document for the Service's proposed ITP; it analyzes the effects of implementation of the Proposed Action alternative and 3 other alternatives, including a No-Action Alternative.

1.5 Regulatory and Legal Framework

1.5.1 Federal Regulatory Requirements

1.5.1.1 *National Environmental Policy Act*

NEPA requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

The Service's consideration of an ITP application and the associated HCP is defined as a federal action, which means the Service must comply with NEPA (see discussion under ESA below).

The extent of NEPA review required depends upon whether any Significant Effects to the human environment may result from the proposed action. In this context, the human environment includes biological, physical, and socio-economic elements.

The Service has determined that an Environmental Impact Statement (EIS) is an appropriate level of review for this Project given: (1) the potential for significant cumulative effects to bats and birds, and visual effects to cultural resources; and (2) the potential for controversy over environmental effects, as reflected during the 2009 trial, with viewpoints of scientists ranging from low to high risk to listed bats (Animal Welfare Institute et al. v. Beech Ridge LLC et al., U.S. District Court, District of Maryland, Case No. RWT 09cv1519). This DEIS evaluates impacts of the proposed federal action, as well as a range of alternatives to that action (including the No-Action Alternative).

The preparation of this DEIS conforms to NEPA, as well as its implementing regulations promulgated by both the CEQ and the DOI.

1.5.1.2 *Endangered Species Act*

The Service is responsible for implementing and enforcing federal wildlife laws, including the ESA. Federally-listed threatened and endangered species and designated critical habitat are governed by the ESA of 1973, as amended (16 United States Code [USC] §§ 1531–1544) and the Service's implementing regulations at 50 CFR Parts 13 and 17. The Service is authorized to identify species in danger of extinction and provide for their management and protection. The Service also maintains a list of species that are candidates for listing pursuant to the ESA.

ESA – Sections 7, 9, and 10

Section 9 of the ESA prohibits certain activities that directly or indirectly affect endangered species. These prohibitions apply to all individuals, organizations, entities, and governmental agencies subject to United States jurisdiction.[9] Under the ESA and its associated implementing regulations, a variety of acts are prohibited. For the purpose of the DEIS and the underlying proposed permit, the most relevant is the prohibition on the take of wildlife species listed under the ESA. The ESA defines the term take to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these acts (16 USC 16 U.S.C § 1532(19)). The Service's implementing regulations further define the terms "harass" and "harm."[10] Take of listed wildlife is illegal unless otherwise authorized by the Service (see permitting and consultation below in descriptions of Section 10 and Section 7 of the ESA).

[9] See 16 USC § 1532(13) defining the term "person."
[10] Pursuant to 50 CFR § 17.3:

With respect to endangered plants, analogous prohibitions make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or to remove and reduce to possession any such plant species from areas under federal jurisdiction. In addition, for endangered plants, the ESA prohibits malicious damage or destruction of any such species on any area under federal jurisdiction, and the removal, cutting, digging up, or damaging or destroying of any such species on any other area in knowing violation of any state law or regulation, or in the course of any violation of a state criminal trespass law.

Section 10 of the ESA, among other things, authorizes the Service to issue permits (ITPs) to incidentally take ESA-listed species. Entities pursuing activities that could result in the take of federally-protected species may apply for an ITP, which protects them from such liability.

The ESA and the Service's implementing regulations prescribe the process by which ITP applications must be submitted and approved. A person wishing to obtain an ITP must submit an application on a form provided by the Service, along with the following required information:

1. A complete description of the activity sought to be authorized;
2. The common and scientific names of the species sought to be covered by the permit, as well as the number, age, and sex of such species, if known; and
3. A conservation plan that specifies:
    a. The impact that will likely result from such taking;
    b. What steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances;
    c. What alternative actions to such taking the applicant considered and the reasons why such alternatives are not proposed to be utilized; and,
    d. Such other measures that the Director may require as being necessary or appropriate for purposes of the plan.

To approve a permit, the Service must determine if the applicant satisfies the general permitting criteria in 50 CFR Part 13 and also find that:

> (A) The taking will be incidental;
> (B) The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such takings;
> (C) The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided;
> (D) The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;
> (E) The measures, if any, required under paragraph (b)(1)(iii)(D) of this section will be met; and
> (F) He or she has received such other assurances as he or she may require that the plan will be implemented.

In making his or her decision, the Service shall also consider the anticipated duration and geographic scope of the applicant's planned activities, including the amount of listed species habitat that is involved and the degree to which listed species and their habitats are affected.

Harass in the definition of "take" in the Act means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.
Harm in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

Section 7 of the ESA states that any federal agency that permits, licenses, funds, or otherwise authorizes activities must consult with the Service to make sure its actions will not jeopardize the continued existence of any listed species. The consultation process can be either informal or formal. Issuance of an ITP is a federal action subject to section 7 of the ESA. This means the Service must conduct an internal (or intra-Service) formal section 7 consultation on permit issuance. The regulations governing consultation are found at 50 CFR Part 402.

Informal Consultation. Under Section 7of the ESA, federal agencies may informally consult with the Service in determining whether any action the agency carries out, funds, or authorizes (e.g., through a permit) may affect a listed endangered or threatened species. If after discussions with the Service it is determined that the proposed action will not affect, or may affect but is not likely to adversely affect, any listed species in the project area, the informal consultation is complete and the proposed project moves ahead. If it appears that the agency's action may adversely affect a listed species, that agency may then prepare a biological assessment to assist in its determination of the project's effect on a species.

Formal Consultation and the Biological Opinion. When a federal agency determines through a biological assessment or other review, that its action is likely to adversely affect a listed species, the agency submits to the Service a request for formal consultation. During formal consultation, the Service and the agency share information about the proposed project and the species likely to be affected. Formal consultation begins after receipt of complete information needed for the consultation. The Service has 90 days after initiation of formal consultation to formulate a draft biological opinion on whether the proposed activity will jeopardize the continued existence of a listed species. The action agency and Service have 45 additional days to review and finalize the biological opinion (or a total of 135 days to complete the formal consultation process). The Service's biological opinion evaluates the direct, indirect and cumulative effects of the action, the anticipated take, and whether a species' existence will be jeopardized by the proposed action. The biological opinion typically also contains reasonable and prudent measures designed to minimize the impacts of the taking, as well as terms and conditions and conservation recommendations. The Service's regulation identifies an action agency's obligations to incorporate certain measures into their decision-making processes.

This proposed Project is subject to the ESA because the construction and operation of the proposed Project is anticipated to take federally-endangered Indiana bats and Virginia big-eared bats. The Service is considering issuing an ITP under Section 10 of the ESA to authorize this take, which would otherwise be prohibited under Section 9 of the ESA. Prior to issuing an ITP, the Service must internally conduct an ESA Section 7 analysis of the ITP to ensure it will not jeopardize the continued existence of the species. It must also make independent findings regarding the above-listed permit issuance criteria.

1.5.1.3 *Clean Air Act (CAA)*

The concentration of a pollutant in the atmosphere depends on the amount of pollutant released, the nature of the source, and the ability of the atmosphere to transport and disperse the pollutant. The main determinants of transport and dispersion are wind, atmospheric stability or turbulence, topography, and the existence of inversion layers.

Federal standards, known as the National Ambient Air Quality Standards (NAAQS), (United States Environmental Protection Agency [USEPA] 2011) represent the maximum allowable atmospheric concentrations of air pollutants. These standards were developed for 6 "criteria" pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter less than 10 microns in aerodynamic diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), and sulphur dioxide (SO2). The NAAQS are summarized in Table 1-1. These represent safe levels that allow for avoidance of specific adverse human health effects associated with each pollutant.

Table 1-1. West Virginia and National Ambient Air Quality Standards.

Pollutant	Averaging Time	National Ambient Air Quality Standards[1]	
		Primary[2]	Secondary[2]
Ozone (O_3)	8-hour[3] 1-hour[4]	0.075 ppm 0.12 ppm	0.075 ppm 0.12 ppm
Carbon dioxide (CO)	8-hour[5] 1-hour[5]	9 ppm 35 ppm	9 ppm 35 ppm
Nitrogen dioxide (NO_2)	Annual average	100 μg/m^5	100 μg/m^5
Sulfur dioxide (SO_2)	Annual arithmetic mean 24-hour[5] 3-hour[5]	0.03 ppm 0.14 ppm --	-- -- 0.5 ppm
Particulate Matter (PM_{10})	Annual arithmetic mean[6] 24-hour[7]	-- 150 μg/m^5	-- 150 μg/m^5
$PM_{2.5}$	Annual arithmetic mean[8] 24-hour[9]	15 μg/m^5 35 μg/m^5	15 μg/m^5 35 μg/m^5

Source: USEPA (2011).
[1] West Virginia has adopted the NAAQS as the state ambient air quality standards.
[2] ppm = parts per million; μg/m^3 = micrograms per cubic meter; -- = not applicable
[3] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor over each year must not exceed 0.075 parts per million (ppm) (effective May 27, 2008).
[4] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than 1.
[5] Exceeded more than once per calendar year.
[6] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).
[7] Not to be exceeded more than once per year on average over 3 years.
[8] To attain this standard, the 3-year average of the weighted annual mean respirable particulate matter less than 2.5-micron size concentrations from single or multiple community-oriented monitors must not exceed 15 micrograms per cubic meter.
[9] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 micrograms per cubic meter (effective December 17, 2006).

1.5.1.4 *Clean Water Act (CWA)*

Applicable CWA Sections that set out specific provisions and protection of water resources include Sections 401, 402 and 404.

Section 401
This section includes the requirement for state certification for water quality protection under the federal CWA. In West Virginia, water quality certificates are administered by the West Virginia Department of Environmental Protection.

Section 402
Federal water quality requirements were first instituted with the passage of the Water Pollution Control Amendments of 1972, also known as the CWA. Title IV of the CWA, Permits and Licenses, created the system for permitting wastewater discharges known as the National Pollutant Discharge Elimination System (NPDES) permit program. These permits place limits on the amount of pollutants that may be discharged from a point source (a discrete conveyance such as a pipe) to U.S. waters and state waters. Permit discharge limits are set at levels to be protective of both aquatic life and human health in the waters that receive the discharge. NPDES requirements are described in Section 402 of the CWA. Under the current NPDES program, all facilities discharging pollutants from any point source into waters of the U.S. are required to obtain an NPDES permit. In West Virginia, the NPDES program is administered by the WVDEP.

Section 404. Under the CWA, potential impacts to wetlands and other jurisdictional water bodies are treated in a 3-step sequence – avoid, minimize, and mitigate. Project proponents "must take all appropriate and practicable steps" to avoid adverse impacts. Thereafter, they must make similar efforts to minimize those impacts. Compensatory mitigation is allowed only after all practicable efforts to avoid and minimize impacts have occurred. "Practicable" is defined as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" (33 Code of Federal Regulation [CFR] 332.1). Avoidance and minimization of impacts are most effectively achieved during planning and project design.

Wetlands and Waters of the U.S.
Waters of the U.S. are identified through a complex legal definition found in 40 CFR 230.3(s), and in addition to wetlands, include navigable waters, lakes, stream, and tributaries. Waters of the U.S. and wetlands are protected under Section 404 of the CWA as noted above and under Executive Order 11990, Protection of Wetlands, U.S., 1977. Waters of the U.S. and associated wetlands are under the jurisdiction of U.S. Army Corps of Engineers (USACE), and any discharge of dredged or fill materials into these features are subject to permitting by the USACE.

Non-jurisdictional waters of the U.S. and isolated wetlands are not subject to permitting by USACE under Section 404; however, all federal agencies are required to avoid and minimize wetlands impacts to the extent possible per Executive Order 11990.

Floodplain Management
Executive Order 11988 directs federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Invasive Species Prevention and Management
Executive Order 13112 was issued in 1999 to enhance federal coordination and response to the problems associated with invasive species. Executive Order 13112 defines an invasive species as one that is not native to the region or area whose introduction (by humans) causes or is likely to cause harm to the economy or the environment, or harms animal or human health. The goal of this Order is to prevent the introduction of invasive species, provide for their control upon introduction, and to minimize the economic, ecological, and human health impacts caused by invasive species.

1.5.1.5 *Migratory Bird Treaty Act (MBTA)*

The MBTA (16 USC 760c-760g), as amended, implements protection of all native migratory game and non-game birds with exceptions for the control of species that cause damage to agricultural or other interests. According to 50 CFR § 10.12, a migratory bird means any bird, whatever its origin and whether or not raised in captivity, which belongs to a species listed in the Service's regulations[11], or which is a mutation or a hybrid of any such species, including any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof. In total, 836 bird species are protected by the MBTA, 58 of which are currently legally hunted as game birds.

The MBTA prohibits the take any migratory bird, part, nest, egg, or product. Take, as defined in the MBTA, includes by any means or in any manner any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof.

The MBTA does not explicitly include provisions for permits to authorize incidental take of migratory birds. Executive Order 13186 (Jan. 10, 2001), however, provides requirements for all federal agencies to incorporate considerations of migratory birds into their decision-making, including the conservation of

[11] FWS maintains its official list of migratory birds, as recognized under the 4 Migratory Bird Treaties to which the United States is a signatory: 50 CFR § 10.13.

migratory birds, the proper evaluation of them in NEPA documents, and avoidance, minimization and mitigation of migratory birds impacts and take where appropriate.

The Service has and continues to provide wind power developers guidance in making a good-faith effort to comply with the MBTA. In March 2012, the Service released its Land-Based Wind Energy Guidelines (LWEG) (Service 2012) which were developed after considering public comments and recommendations from the Wind Turbine Advisory Committee. These new guidelines are now in effect and replace interim guidelines published by the Service in 2003. The new guidelines encourage project proponents to address risks to species of concern from wind energy projects, including collisions with wind turbines and associated infrastructure; fragmentation of large habitat blocks into smaller blocks that may not support species of concern; displacement and behavioural changes; and indirect effects such as increased predator populations or introduction of invasive plants.

The LWEG use a tiered approach for assessing potential adverse effects to species of concern and their habitats. The tiered approach is an iterative decision-making process for collecting information in increasing detail; quantifying the possible risks of proposed wind energy projects to species of concern and their habitats; and evaluating those risks to make siting, construction, and operation decisions. During the pre-construction tiers (Tiers 1, 2 and 3), developers work to identify, avoid, and minimize risks to species of concern. During post-construction tiers (Tiers 4 and 5), project operators: 1) assess whether predictions made about risk in earlier tiers are true, 2) assess whether actions taken in earlier tiers to avoid and minimize impacts are successful in achieving the goals, and 3) when necessary, take additional steps to compensate for those impacts to species of concern determined by the Service to be significant.

The Service urges voluntary adherence to the LWEG and communication with the Service when planning and operating a wind power facility. While it is not possible to absolve individuals or companies from MBTA or Bald and Golden Eagle Protection Act (BGEPA) liability, the Service's Office of Law Enforcement focuses its resources on investigating and prosecuting those who take migratory birds without identifying and implementing reasonable and effective measures to avoid the take. The Service will regard a developer or operator's adherence to the LWEG, including communication with the Service, as appropriate means of identifying and implementing reasonable and effective measures to avoid the take of species protected under the MBTA and the BGEPA.[12]

The LWEG do not prevent the Service from referring violations of law for enforcement when a company has not followed the guidelines. The Chief of Law Enforcement or more senior official of the Service will make any decision whether to refer for prosecution any alleged take of such species, and will take such adherence and communication into consideration fully into account when exercising discretion with respect to such potential referral. Each developer or operator will be responsible for maintaining internal records sufficient to demonstrate adherence to the LWEG.

Although the guidelines leave decisions up to the developer, the Service retains authority to evaluate whether developer efforts to mitigate impacts are sufficient, to determine significance of impacts, and to refer for prosecution any unlawful take that it believes to be reasonably related to lack of incorporation of Service recommendations or insufficient adherence with the guidelines.

BRE began developing an Avian Protection Plan (APP) for the project before the LWEG were finalized. In developing its APP, BRE has relied to some degree on the Federal Advisory Committee's (FAC) recommendations, as well as other prior-existing Service guidance.[13] After the LWEG were finalized, the

[12] With regard to eagles, this paragraph will only apply when a project is not likely to result in take. If Tiers 1, 2, and/or 3 identify a potential to take eagles, developers should consider developing an Eagle Conservation Plan and, if necessary, apply for a take permit.

[13] In response to increasing wind energy development in the United States, the Service released a set of voluntary interim guidelines for reducing adverse effects to fish and wildlife resources from wind energy projects for public comment in July 2003. After the Service reviewed the public comments, the Secretary of Interior established an FAC in March 2007 to provide recommendations to revise the guidelines related to land-based wind energy facilities. The FAC submitted its recommendations to the Secretary in March 2010. The Service considered the FAC's recommendations in drafting Service land-based wind power guidelines. A draft of these guidelines were made available for public comment in February 2011. After considering over 30,000 public comments, the Service

Service recommended that BRE revise its APP to more closely follow the LWEG risk prediction, validation, and decision framework. The APP included in Appendix B of this DEIS reflects BRE's efforts to do so. The LWEG note that projects already under development or under operation are not expected to start over or return to the beginning of a specific tier. Instead, these projects should implement those portions of the guidelines relevant to the current phases of the project. Phase I of the Project is already constructed and operating (67 turbines), whereas Phase II planning (33 turbine expansion area) is far along. Therefore, portions of the Project fall within Tier 3 (pre-construction field studies) and portions within Tier 4 (post-construction monitoring) phases of the LWEG. Tier 3 field studies to predict project impacts for the Phase II 33-turbine expansion area have either been completed or in some cases are continuing (e.g., additional raptor surveys), whereas Tier 4 post-construction fatality monitoring at the existing Phase I 67-turbines has begun and is being planned for the future operation of the entire 100-turbine project.

1.5.1.6 *Bald and Golden Eagle Protection Act*

The BGEPA (16 USC 668-668d, 54 Stat. 250) as amended, provides for the protection of the bald eagle and golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. BGEPA prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." BGEPA provides civil and criminal penalties for persons who violate the law or regulations.

Under 50 CFR 22.3, disturb is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behaviour, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behaviour." The BGEPA's definition of disturb also addresses effects associated with human-induced alterations at the site of a previously used nest during a time when eagles are not present. Upon an eagle's return, if such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment, then this would constitute disturbance.

In fall 2009, the Service established rules (50 CFR 22.26 and 22.27) authorizing limited legal take of bald and golden eagles and their nests "when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided." Such authorization is provided in the form of a permit issued by the Service, consistent with the regulatory criteria. The final rule notes that wind power is an industry sector for which programmatic permits for recurring long-term take are appropriate.

In January 2011, the Service issued draft "Eagle Conservation Plan Guidance: Module 1 – Wind Power" concerning wind power, for public review. While still in draft form, and subject to future revisions, the Service is implementing these draft guidelines and encourages the regulated community to follow them. The executive summary explains that the draft guidance:

> *. . . provides recommendations for the development of Eagle Conservation Plans (ECPs) to support issuance of eagle programmatic take permits for wind facilities. Programmatic take permits will authorize limited, incidental mortality and disturbance of eagles at wind facilities, provided effective offsetting conservation measures that meet regulatory requirements are carried out. To comply with the permit regulations, conservation measures must avoid and minimize take of eagles to the maximum degree, and, for programmatic permits necessary to authorize ongoing take of eagles, advanced conservation practices (ACPs) must be implemented such that any remaining take is unavoidable. Further, for eagle management populations that cannot sustain additional mortality, any remaining take must be offset through compensatory mitigation such that the net effect on the eagle population is, at minimum, no change. The Draft Eagle Conservation*

finalized these guidelines in March 2012. In addition to developing these national land-based windpower guidelines, the Service issued a paper in August 2010 providing guidance for development of project-specific APPs for renewable energy facilities.

> *Plan Guidance interprets and clarifies the permit requirements in the regulations at 50 Code of Federal Regulations (CFR) 22.26 and 22.27, and do not impose any binding requirements beyond those specified in the regulations.*

In April 2012, the Service published proposed changes to its eagle permit regulations related to length of permits and permit processing fees (77 Federal Register 22267). In addition to seeking comments on these regulatory changes, the Service also is currently seeking public comments on future improvements to this permit program.

1.5.1.7 *Cultural Resources – History, Archaeology, Native American Consultation*

A number of laws, regulations, executive orders, and guidelines establish the need and process for considering historic properties and the cultural heritage of Native Americans and others in the planning process for federal undertakings. In addition to NEPA, applicable federal laws and regulations are listed below.

Antiquities Act of 1906 (P.L. 59-209; 16 USC 461-471)
This was the federal enabling legislation for the setting aside and protection of "historic landmarks, historic and prehistoric structures and other objects of historic or scientific interest."

Historic Sites Act of 1935 (P.L. 74-292; 16 USC 461-471)
This Act expanded the role of the DOI in determining and protecting "historic and archaeological sites, buildings and objects." In addition, a policy to protect nationally significant properties was initiated. Out of this law came the National Historic Landmark (NHL) program. The NHL program recognizes the importance of sites and areas across the country from battlefields to mining districts and others associated with our heritage.

National Historic Preservation Act of 1966 (NHPA), as amended (P.L. 89-665; 16 USC 470, as amended; 80 Stat.915)
This NHPA mandates that all federal agencies must consider the effects of their projects and programs on cultural resources listed or eligible for inclusion in the National Register of Historic Places (NRHP). Later amendments include P.L. 91-243, P.L. 93-54, P.L. 94-422, P.L. 94-458, P.L. 96-199, P.L. 76-244, and P.L. 96-515. Section 106 of the NHPA requires federal agencies to consult with the State Historic Preservation Office (SHPO), Native American Tribes, and other interested parties on the effects of their undertakings on historic properties. The intent of Section 106 is not to stop projects. It is to ensure that federal agencies fully consider historic preservation issues and the views of the public during project planning. If adverse effects to cultural resources cannot be avoided, the Section 106 process also affords the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. Provisions of the NHPA are implemented through 36 CFR 800. Section 110 of the NHPA protects NHLs.

Archaeological and Historic Preservation Act of 1974
This Act preserves significant historical and archaeological data from loss or destruction. The Secretary of the Interior will be notified of any adverse effect on archaeological or historical properties, and a data recovery or mitigation program will be implemented if appropriate.

American Indian Religious Freedom Act of 1978
Consultation will be made with Native American traditional religious leaders to protect and preserve Native American cultural and religious practices under this Act.

Archaeological Resources Protection Act of 1979, as amended (P.L. 96-95; 93 Stat. 721; 16 USC 470a)
This Act supersedes the 1906 Antiquities Act and provides that prior to excavations on federal or Native American lands, permits for archaeological investigations must be obtained.

Native American Graves Protection and Repatriation Act of 1990

This Act requires consultation with appropriate Native American tribes for activities on federal lands before excavation or removal of cultural items. This Act also provides for repatriation of items from federal agencies and federally assisted museums.

1.5.1.8 *Farmland Protection Policy Act (FPPA)*

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. Farmland includes prime farmland, unique farmland, and land of state-wide or local importance.

1.5.1.9 *Environmental Justice*

Executive Order 12898 requires federal agencies to incorporate consideration of environmental justice in minority populations and low-income populations as part of the NEPA evaluation process for federal actions or federally funded projects.

The purpose of the Order is to ensure that minority and low-income communities do not suffer a disproportionate share of adverse environmental impacts resulting from actions that are not offset by project benefits. Executive Order 12898 also requires that these parties have adequate access and opportunity to participate in project planning by receiving information, attending meetings, or providing input into public decisions. Our outreach strategy for the environmental justice community during the scoping and public comment phases of our permitting process are described in Section 1.7 of this DEIS.

1.5.2 West Virginia Regulatory Requirements

Below are state and local regulations applicable to the BRE development.

1.5.2.1 *Power Generator Siting*

In West Virginia, the WVPSC administers the rules for siting all power projects, including wind energy (150 CSR 30). The WVPSC application process includes the consideration of environmental effects of the proposed development on multiple resources, including biological and socioeconomic resources. At the conclusion of the siting process, the WVPSC may issue a siting certificate containing conditions that must be implemented as a part of project construction and operation.

1.5.2.2 *Water Quality*

The West Virginia Department of Environmental Protection (WVDEP) oversees regulations and permitting associated with water quality, air quality, waste (hazardous and solid), and land (mining, oil and gas). The principal water quality law in the state is the West Virginia Water Pollution Control Act (WPCA). The WPCA designates the West Virginia Office of Water Resources (WVOWR), within the WVDEP, as the water pollution control agency for the state. The WVOWR is charged with preserving the integrity of the state's water resources. These water resources include streams, lakes, rivers, wetlands, and groundwater.

Generally, any applicant for a federal permit or license to conduct an activity that may discharge into state waters (including groundwater) must obtain a certification from the WVDEP. The WVDEP may grant, add conditions, deny, or waive certification. The federal permit or license will not be granted if WVDEP denies certification. The USACE CWA Section 404 general permits require state certification.

<u>Section 401</u>
Section 401 of the CWA requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the state. States are authorized to issue Certification under Section 401 of the CWA. Applicants must receive State 401 Water Quality Certification before they can receive a permit from the federal agency. The purpose of the certification is to confirm that the discharge of fill materials will comply with the state's applicable Water Quality Standards.

The WVDEP Division of Water and Waste Management together with the WVDNR certify physical alterations under section 401 of the CWA and state water quality standards.

This program also serves to protect wetlands in the State of West Virginia [Title 46, Series 1, Legislative Rules Governing Water Quality Standards]. In the State of West Virginia, “state waters” are defined as all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands. "Wetlands" mean those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. It should be noted that the state definition of wetlands includes both jurisdictional and non-jurisdictional wetlands as compared to the USACE jurisdiction definitions.

Section 402 - National Pollutant Discharge Elimination System (NPDES)
Under the delegated NPDES permit program, most point source discharges of pollutants into state waters require a discharge permit from the WVOWR. West Virginia’s point source pollution discharge permit program is broader than the federal NPDES program. West Virginia regulates discharges into all state waters, including groundwater. State law also requires a permit not only for discharge, but also for the construction of a disposal system. The West Virginia Natural Streams Preservation Act requires a separate permit for certain designated streams.

1.5.2.3 *Air Quality*

West Virginia Air Pollution Control Act 35 charges the WVDEP with regulating air quality in the state. The WVDEP adopts and enforces air quality standards, emission control requirements, and other air regulations. The West Virginia clean air program follows the requirements of the federal CAA. The USEPA and WVDEP work cooperatively to enforce these requirements.

1.5.2.4 *Threatened and Endangered Species*

The West Virginia Division of Natural Resources (WVDNR) includes oversight related to wildlife and habitats statewide; however, West Virginia does not have state threatened and endangered species legislation. As required by federal law, West Virginia affords protection to species on the Service‘s list of federally threatened and endangered species.

1.5.2.5 *West Virginia Department of Transportation*

Appropriate highway access permits and roadway load impact mitigation are required for all wind energy projects. These permits and mitigation requirements are handled by the West Virginia Department of Transportation (WVDOT) Division of Highways.

1.5.3 Greenbrier and Nicholas County Regulations

Greenbrier County Building Permits, as well as County Road and Access Permits, are required. Nicholas County Building Permits, as well as Road and Access Permits, also may be applicable to this type of project.

1.6 Consultation and Regulatory Compliance History

1.6.1 Federal Permitting

The proposed Project began under the assumption that there was no federal action requiring NEPA review or compliance. As a result, the following permitting and coordination occurred prior to the current Notice of Intent (NOI) to prepare a DEIS for the Beech Ridge ITP and HCP (dated July 22, 2010).

1.6.1.1 *Federal Aviation Administration*

Notice of Proposed Construction or Alteration within 6 mi of a Public Aviation Facility and structures over 200 ft required completion of 7460 Proposed Construction or Alteration Forms. BRE has an approved lighting plan for Phase I and will develop a lighting plan for Phase II to be submitted for Federal Aviation Administration (FAA) approval.

1.6.1.2 U.S. Army Corps of Engineers

For the constructed Project, the USACE issued a Nationwide Permit 12 under Section 404 of the CWA on July 12, 2006 for the transmission line.

Field surveys for Phase II were completed between September 21 and October 1, 2010. The results of the field surveys identified 10 streams (5 perennial, 4 ephemeral, and 1 intermittent) and 5 wetlands. Of the 5 wetlands, 0.44 acre was determined to be jurisdictional, and 0.66 acre was determined to be isolated in nature. The USACE has reviewed and accepted the results of the delineation. The exact locations of the 33 turbines have not been mapped. Once the layout for Phase II has been finalized, results of the field surveys and a summary of impacts will be submitted to the USACE, and the required authorizations/permits will be obtained. BRE intends to avoid all wetlands and streams to avoid the necessity of a Section 404 permit.

1.6.1.3 *U.S. Fish and Wildlife Service, Elkins Field Office*

BRE's consultant first contacted the Service about the prospective BRE project in June 2005. Over several years, the Service provided technical assistance to BRE and its consultants through numerous exchanges of e-mails, conference calls, and letters regarding pre- and post-construction wildlife surveys, risk assessments, measures to avoid and reduce impacts, and permitting options. A summary of key correspondence and events follows.

During the project planning phase, the Service wrote four letters to BRE regarding impacts of the proposed project on endangered species, non-listed bats, migratory birds, and wildlife habitat (two letters dated March 7, 2006, an August 10, 2006, letter, and a July 31, 2007 letter). The Service recommended 3 years of pre-construction and a minimum of 5 years of post-construction wildlife surveys, adaptive management strategies to test ways to reduce bird and bat mortality, and more robust bat survey methods than the mist-net study results provided. Given the presence of 8 hibernacula containing roughly 500 Indiana bats within 30 miles of the proposed turbines, the Service concluded there was a reasonable likelihood of take of the endangered Indiana bat during the 20+ year operational life of the project. BRE was informed of the voluntary ESA section 10 ITP process but chose not to pursue an application.

On August 28, 2006, the WVPSC issued a citing certificate for the project, approving construction of up to 124 turbines.

On June 5, 2007, BHE sent a letter to the Service regarding certain WVPSC conditions and requested written confirmation from the Service that BRE was in compliance with rules and laws under jurisdiction of the Service. BHE further stated that BRE did not anticipate its project would take listed species; nevertheless, BRE would prepare a monitoring plan that would identify processes to be implemented in the unlikely event of such take. BHE requested Service concurrence with BRE's opinion that both the post-construction-monitoring plan and adaptive management plan were outside the regulatory purview of the Service and that no additional endangered species studies would be required.

On July 31, 2007, the Service responded to the June 5, 2007, letter from BHE, disagreeing that post-construction monitoring and adaptive management was outside the purview of the Service. The letter discussed the Service's independent regulatory authority regarding the take and liability provisions of the ESA and the MBTA, as well as the availability of permits. The Service expressed continuing concerns about annual and cumulative mortality of migratory bats and birds and lack of multiple years of preconstruction surveys.

In June 2009, the Animal Welfare Institute and others commended litigation against BRE alleging failure to obtain an ITP. Following a trial in October 2009, District Court Judge Roger Titus ruled for Plaintiffs on December 8, 2009, that BRE's construction and operation of wind turbines would violate section 9 of the ESA "unless and until Defendants obtain an [ITP]." The Judge encouraged the parties to seek a settlement agreement, which was signed on January 23, 2010. The settlement agreement reduced the size of the project, and allowed additional phase I turbines to be constructed but restricted turbine operations to avoid take of Indiana bats until an ITP was obtained.

Since initiating the HCP process with the Service in January 2010, BRE, its consultants, and the Service have regularly interacted throughout the ITP application process through conference calls, meetings, e-mails, and exchanges of draft documents for review and comment. In addition to ESA issues, the Service has continued to discuss with BRE compliance with the MBTA and BGEPA throughout all phases of HCP development. Given the framework of the governing wildlife laws, there are a variety of ways that the applicant could address impacts to protected species (e.g., compliance with the Service's BGEPA guidelines; including these species in the HCP; applying for a BGEPA permit, should take be anticipated; developing an Avian Protection Plan (APP) consistent with Service's Land-Based Wind Energy Guidelines (USFWS 2012c). Here, BRE elected to address migratory birds and eagles in an APP. Unlisted bats are not addressed in the APP, but are addressed in the HCP as an indirect benefit of implementing actions to avoid, minimize, monitor, and mitigate effects to the Indiana bat and Virginia big-eared bat.

BRE began working on developing an APP in 2010. The APP has been discussed on numerous occasions, including meetings on October 6 and 7, 2010; January 25, 2011; March 17, 2011; and April 7, 2011. BRE, Blanton and Associates, Inc., and the Service held a conference call on February 7, 2011, to discuss the APP outline, scope, and content. A draft APP was provided to the Service on June 27, 2011, and the Service provided comments on September 26 and November 9, 2011, which were discussed during a call between BRE and the Service on November 17, 2011. BRE submitted a revised APP to the Service in January 2012. Informal discussions occurred during February and March 2012, followed by submittal of written comments on the APP from the Service on April 25, 2012. These comments included a recommendation to make the APP tie more closely to tracking Best Management Practices (BMPs), Tier 3 (pre-construction) and Tier 4 (post-construction) study recommendations, and decision frameworks in the Service's Land-based Wind Power Guidelines released in March 2012. The current version of the APP (see Appendix B) includes many of the BMPs in the LWEG, follows many of the Tier 3 and 4 study recommendations, and follows the decision framework in the guidelines.

1.6.2 State of West Virginia

1.6.2.1 *Public Service Commission*

On August 28, 2006, the WVPSC issued an Order granting a siting certificate to BRE for construction and operation of 124 turbines at the Beech Ridge Project site: Beech Ridge Energy LLC, No. 05-1590-E-CS, 2006 W.Va. PUC LEXIS 2624, at 178-187. The certificate includes a number of conservation measures that must be implemented by BRE (pages 87-91 of the Order). Additional conservation measures have been developed by BRE in consultation with the Service during preparation of this HCP and are presented in Section 5.0 of this DEIS.

As a part of its siting certificate, BRE is required to file with the WVPSC: (1) a verified statement indicating that all pre-construction conditions and requirements of the certificate have been met and (2) evidence of any necessary environmental permits or certifications, including letters from Service, WVDNR, SHPO, and West Virginia Division of Culture and History (WVDCH) outlining what action BRE needs to take to be in compliance with applicable requirements. BRE has filed statements with the WVPSC for Phase I of the Project and will file an ITP and related documents with the WVPSC upon issuance.

On February 13, 2009, the WVPSC authorized construction of the Project, concluding that BRE had satisfied the pre-construction conditions set forth in the January 11, 2007 Order denying the reconsideration requests. However, because much of Phase II of the Project was not part of the original application to the WVPSC, Phase II will have to undergo review by the WVPSC as a modification to the existing certificate. Other state, federal, and local approvals for the Phase II expansion area are in progress.

In working toward meeting the requirements to modify the siting certificate, and to adequately characterize the 33-turbine expansion area, BRE has completed surveys and provided data to the Service relating to wetlands and streams (Potesta 2005a, 2005b, 2010) and bat use of the area (Young and Gruver 2011). A summary of bat use survey results are presented in Sections 3.2.1.8 and 3.2.2.8 of this DEIS. Within the expansion area, as required by the WVPSC, BRE has completed a pre-construction spring avian migration study, and avian and bat risk assessments (Young et al. 2012b, 2012c). BRE has also completed a literature, database, and field analysis, including a viewshed analysis for architectural resources (Saratoga Associates 2011) within 5 mi of the expansion area as required by the WVPSC. These documents are included in Appendix E of this DEIS.

As a part of its siting certificate, BRE also is required to consult with a Technical Advisory Committee (TAC) whose membership is open to the WVPSC, the Service, West Virginia Department of Natural Resources (WVDNR), the Bat and Wind Energy Cooperative (BWEC), a statewide environmental organization, a statewide bird group, and a private or academic institution with experience in avian issues. The siting certificate requires BRE to consult with the TAC regarding, among other things, 3 years of post-construction bat mortality and adaptive management studies after operations commence. To maintain an independent regulatory enforcement role, the Service has chosen not to participate in the Project TAC.

1.6.2.2 *State Historic Preservation Office Consultation*

In the original proposed Phase I Project, there was no identified federal action and no formal consultation under Section 106 of the NHPA. However, pursuant to the rules governing energy siting certificates, BRE addressed effects to cultural resources (150 CSR 30-3.1.o). BRE coordinated with the WVDCH SHPO for Phase I of the Project. In 2008, BRE and the WVDCH signed a Memorandum of Agreement (MOA) to address adverse visual effects to 20 historic buildings eligible for the NRHP and identify archaeological survey requirements.

To mitigate effects to historic resources as per the MOA, BRE will provide a one-time monetary funding of up to $10,000 or in-kind service of equivalent value for future assistance in historic preservation-related activities. Preservation activities are to focus on the affected communities.

As per the MOA, archaeological surveys were completed for Phase I of the Project. All archaeological resources were either avoided by project redesign or determined by the SHPO to be not eligible for the NRHP.

In working toward meeting the requirements to modify the WVPSC siting certificate for the Phase II expansion areas, BRE has also completed a literature, database, field analysis, and assessment of effects, including a viewshed analysis, for architectural resources (Saratoga Associates 2011, Gray and Pape 2012.) within 5 mi of the expansion area.

1.6.2.3 *Department of Environmental Protection*

Two Stormwater Pollution Prevention Plans (SWPPP) were prepared and approved for Phase I of the Project. These site registration applications were submitted to the WVDEP under an existing NPDES permit.

The first SWPPP for Contract No. 1 was dated May 2007 and included approximately 14.2 mi of transmission line, a new substation, the construction staging area, and approximately 42 wind turbine

towers and related access roads. The associated permit is NPDES Storm Water Construction General Permit No. WV0115924 dated July 18, 2007.

The second SWPPP for Contract No. 2 was dated February 2008 and included approximately 72 wind turbines and related access roads. The associated permit is NPDES Storm Water Construction General Permit No. WV0115924 dated July18, 2008.

Please note that the 2 SWPPPs address a spatial area for construction and associated ground disturbance rather than an exact number of turbines. Therefore, the number of turbines noted for each permit do not sum to 124, the number of turbines originally authorized by the WVPSC in 2006. The Project has been reduced from 124 to 100 turbines; however, a portion of the current proposed Phase II expansion area lies outside the boundaries of the existing SWPPPS. Therefore, they will need revision and approval prior to construction of the Phase II expansion area.

1.6.2.4 *Public Lands Corporation*

A Stream Activity Permit license agreement was executed on January 19, 2007, for the original Project. It will be modified or amended to cover Phase II prior to construction.

1.6.2.5 *Department of Transportation: Division of Highways*

A construction agreement was executed on January 14, 2009, for the original Project. It also will be modified or updated, if necessary, to address Phase II prior to construction.

1.6.3 Greenbrier County

1.6.3.1 *Planning and Permit Department*

Building permits for Project construction were finalized for the original project on January 14, 2009. It will be modified or updated to address Phase II prior to construction.

1.6.3.2 *Highway Department*

Road and driveway access location approval was obtained for the original project and the construction agreement with WVDOT included Greenbrier County. This agreement was executed on January 14, 2009. It also will be modified or updated to address Phase II prior to construction.

1.7 Scoping and Public Interaction

Scoping is an important component of assessing the effects of a proposed federal action. Therefore, public participation was actively sought in the development of this DEIS. During scoping, the public, federal and state regulators and cooperating agencies, and other stakeholders identify issues, concerns, and opportunities to guide the ensuing NEPA review process. The public comment phase on the DEIS provides additional opportunity to inform these stakeholders and seek their input to better inform agency decisions. This section of the DEIS describes the scoping process conducted for the Proposed Action, as well as our outreach strategy for informing and seeking stakeholder input during the scoping and public comment phases of this DEIS, including the environmental justice community.

NEPA (40 CFR 1501) and the DOI's NEPA implementing regulations (43 CFR 46.235) both specify the intents and purposes for the public scoping process. Upon making the decision to prepare an EIS, scoping is initiated through an NOI published in the Federal Register. Scoping is used to:

- Invite affected federal, state, and local agencies, any affected Indian tribe, the proponent of the action, and other interested persons to participate in the DEIS planning process;
- Determine the scope and significant issues to be analyzed in depth in the DEIS;
- Identify and eliminate from detailed analysis those issues that are not significant or have been covered by prior environmental review;

- Allocate DEIS assignments to lead and cooperating agencies with the lead agency retaining responsibility for the EIS;
- Identify other public environmental assessments relevant to but not part of the DEIS scope;
- Identify other types of permits, environmental review, and consultation requirements and conduct these reviews concurrently and as part of the DEIS process; and
- Identify relationships among the lead agency's timing of the DEIS preparation and schedules associated with other planning and decision making.

The Service's formal scoping process began July 22, 2010, with the publication of the NOI to announce the initiation of a 30-day public comment period, intent to conduct a NEPA analysis, and a public informational meeting (75 FR 42767-42770). An additional Notice was published August 27, 2010, to announce the Service's extension of the public comment period an additional 30 days (75 FR 52778).

During project scoping for this DEIS, the Service distributed a press release to 16 media outlets (including local community, regional, and national outlets), notified 32 individual interested parties by letter, and created a project-specific web site for disseminating current and historical information on the project to the public and to solicit scoping comments via a dedicated Service e-mail address. The Service also solicited comments from 2 U.S. Congressman and 1 U.S. Senator, the Governor, 3 state Congressman, 2 state Senators, and 6 local governments. The new release was picked up by the Associated Press, national public radio, local, state, and national newspapers, as well as many web-based media outlets used by the wind industry and environmental community.

A scoping meeting was held in Rupert, West Virginia, on August 9, 2010, from 6 to 9 PM. Rupert is the town closest to the Project and is within driving distance of numerous small, local communities. BRE assisted in spreading word of the meeting to the local community through a network of local community members who had worked on construction of Phase I of the Project. The Service, BRE, and Stantec all had personnel on-hand to facilitate the meeting. Forty-two individuals from the general public (primarily local community members) attended the meeting and were provided information about the Project through 4 interactive poster stations, a pamphlet, and a 1-hour long presentation, followed by a question and answer session. This session was filmed and aired on a local television station. The posters, pamphlet, and presentation were specifically designed to succinctly summarize the Project and permitting process in plain English. Attendees were encouraged to provide substantive written comments relating to the Project.

A similar strategy is being used to solicit stakeholder involvement during the public comments phase of this DEIS: Federal Register publication, press release, and letters to known interested parties identified during scoping. Public meetings will be held if requested and will be tailored to the needs and desired meeting format identified by the requestors. Electronic copies of the DEIS, HCP and associated documents will be available on the internet (at www.regulations.gov), and hard copies will be available at local libraries. To reach the local environmental justice community, the Service will focus its outreach efforts to articles in local community newspapers, and distribution of flyers at local gathering places such as churches, libraries, and community centers. BRE workers at the existing facility will also use word-of-mouth to spread news about the public comment period in the local community.

In addition, during May 2012, prior to Service publication of the Federal Register Notice, BRE made its HCP and IA available on the company's website for early public review and comment. BRE sent letters to individuals on the mailing list developed by the Service for the DEIS and published a notice in local newspapers of the availability of the HCP and IA. Comments received by BRE on the HCP and IA will be transmitted by BRE for inclusion in the Service's administrative record.

1.7.1 Issues Raised in Scoping

During the scoping period, 69 comment letters were received from individuals and the following entities: Friends of Blackwater, Virginia Wind, Allegheny Front Alliance, Allegheny Highlands Alliance, Friends of Beautiful Pendleton County, Brooks Bird Club, Midland Trail Scenic Highway, West Virginia Forestry

Association, and West Virginia Manufactures Association. The comment letters suggested addressing environmental (e.g., wildlife, climate), socioeconomic (e.g., human health, cultural, economic costs), and energy issues (e.g., reliability, safety and security, and quality and quantity). Issues raised during scoping are described in a Scoping Report provided in Appendix H. The results are summarized briefly below, with the percentage of comments on a topic noted in parentheses.

A) Environment Issues
   - Bats (84%)
   - Overall environment (73%)
   - Birds (67%)
   - Other flora and fauna (64%)
   - Alternatives and cumulative effects (55%)
   - Pre/post construction research, monitoring, and adaptive management (48%)
   - Climate (10%)

B) Socioeconomic Issues
   - Human health (47%)
   - Human safety and security (6%)
   - Cultural (43%)
   - Economic costs (40%)
   - Tourism (14%)
   - Property values (10%)

C) Energy Issues
   - Quality and quantity of energy production (32%)
   - Energy reliability (13%)

D) Consultant Qualifications (4%)

By far, the most substantive comments addressed wildlife and environmental issues. Wildlife occurrence in the Project area, use of the Project area, direct mortality from turbines, and loss of habitat were the primary issues cited for all wildlife species (ESA-listed and unlisted species). Issues cited regarding the overall environment were similar and ranged from forest fragmentation, to wetland and watershed impacts, to the loss of high elevation habitats.

Substantive comments also were raised regarding alternatives and cumulative effects analysis. These comments included recommendations that the Service fully assess all viable alternatives; and that cumulative effects analysis take into account the Project's impacts when viewed in conjunction with other wind projects in the eastern U.S. (especially the Appalachian corridor), non-wind projects such as timber harvests, mining, commercial and residential development, and impacts such as White Nose Syndrome (WNS) in bats and West Nile Virus in birds.

Nearly half of all comments also cited the need for thorough preconstruction surveys to determine exactly what ecosystem components will be impacted. These comments also identified the need for effective post-construction monitoring and adaptive management to minimize any such impacts.

Substantive socioeconomic issues cited included concerns about potential increases in human disease due to decreases in bat populations (i.e., due to increased pest populations such as mosquitoes and agricultural pests); noise, light, and shadow flicker impacts on human health caused by the turbines; and ice throws associated with turbines (i.e., safe set-backs). Cultural issues cited for inclusion into the DEIS focused primarily on the impacts a wind facility will have on the aesthetics (beyond visual) of the area and how those aesthetics are tied to the wellbeing of the local community. Forty percent of comments provided to the Service also cited the need for a thorough assessment of the economic impacts of the Project to include job creation, taxes, subsidies, grants, and grid tie-in costs.

Most substantive comments regarding energy issues cited a need to assess the cost of wind energy production versus traditional energy sources, including an analysis of the reliability of wind power production and difficulties associated with managing grids that include wind generated power. Many comments also noted wind as a clean renewable energy resource that lowers our dependence on foreign sources of energy.

Three comments cited concern about Stantec's credibility to conduct a thorough examination of the data, issues, and research, and to compile an unbiased, Service-approved EIS.