EXECUTIVE SUMMARY

This Draft Environmental Impact Statement (DEIS) evaluates the impacts of implementing 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). As part of its application for an ITP, Beech Ridge Energy LLC (BRE or Applicant) submitted a 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[2] of 2 federally-listed endangered species, Indiana bat (*Myotis sodalis*) and Virginia big-eared bat (*Corynorhinus townsendii virginianus*), resulting from the implementation of Covered Activities in the HCP.

Under the Proposed Action, the Service would issue a 25-year ITP for Covered Activities associated with the proposed Project that may result in the take of Indiana bats and Virginia big-eared bats. Under the Proposed Action, the Applicant has designed the HCP to include avoidance and minimization measures for reducing the level of take of endangered bats. Measures address adjustments to Project operations to reduce the incidence of bat-turbine interactions. The HCP also includes a mitigation strategy to offset the impacts of take of endangered bats. 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).

Components of the proposed Project include: 100 wind turbines, access roads, transmission and communication equipment, storage areas, and control facilities. During its operational life, 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. The proposed ITP would authorize take associated with construction of up to 33 turbines and associated infrastructure, operation of 100 turbines, and decommissioning of the Project.

The Project, as described in the West Virginia Public Service Commission (WVPSC) Application and Siting Certificate, originally consisted of the construction and operation of 124 turbines on Beech Ridge in Greenbrier and Nicholas counties, West Virginia. As a result of a lawsuit, as reflected in the January 26, 2010, settlement agreement, the Project was reduced to 100 turbines. Of these 100 turbines, 67 are built and currently operating pursuant to the judicial order and a modified stipulation to the settlement agreement.

PURPOSE AND NEED FOR FEDERAL ACTION

The proposed HCP and ITP are necessitated because take of the Indiana bat and Virginia big-eared bat is reasonably anticipated during the 25-year duration of the ITP. An ITP is required to legally take listed species incidental to these otherwise lawful activities. Consistent with the requirements of the ESA, BRE commits to a range of conservation measures proposed to minimize and mitigate the effects of take of these two listed bats. Thus, the HCP, if approved, and the ITP, if issued, are designed to avoid and minimize take of these two species in the course of carrying out the proposed covered activities, but also to authorize the limited, unavoidable take that may occur, as well as to mitigate the impact of such take.

The Service is the lead agency for this EIS. This EIS has been developed for the following purposes: (1) evaluate the impacts of the proposed issuance of an ESA Section 10(a)(1)(B) ITP based upon implementation of the HCP; and (2) protect and conserve the two listed bats (Covered Species) and their habitat for the continuing benefit of the people of the United States.

[2] The ESA and implementing regulations prohibit the "take" of threatened and or endangered species. 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 must decide whether to issue or deny the permit. If the permit issuance criteria contained in Section 10(a)(1)B) of the ESA are satisfied, the Service is required to issue the permit to the Applicant. Within these guidelines the Service may decide to issue a permit conditioned upon implementation of the HCP as submitted by the applicant, or to issue a permit conditioned upon implementation of the HCP as submitted together with other measures specified by the Service. If the ESA's criteria are not satisfied, the Service is required to deny the permit request.

PUBLIC SCOPING

The Service's formal scoping process began on July 22, 2010, with the publication of a Notice of Intent (NOI) in the Federal Register. The NOI announced the initiation of a 30-day public comment period, intent to prepare an EIS pursuant to the National Environmental Policy Act (NEPA) , and a public informational meeting (75 Federal Register 42767-42770). An additional Notice was published August 27, 2010, to announce the Service's extension of the public comment period for an additional 30 days (75 Federal Register 52778). The Service distributed a press release to 16 media outlets (including local community, regional, and national outlets), notified 32 individual known 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 held a scoping meeting in Rupert, West Virginia, on August 9, 2010. 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 has carefully considered the public comments received during the scoping processes and incorporated identified issues, as appropriate, into the DEIS. 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).

AGENCY CONSULTATION

During scoping for this EIS, the Service informally coordinated with other potentially interested Federal and State agencies and Tribes. The U.S. Forest Service, U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency (USEPA) declined to be consulting agencies pursuant to this EIS.

The Service currently is consulting with the State Historic Preservation Officer of the West Virginia Division of Culture and History and interested Tribes pursuant to Section 106 of the National Historic Preservation Act (NHPA). This review is on-going, and a final decision on effects to cultural resources will not be made until the Section 106 consultation is completed.

Per the Service's request, the USEPA commented on the preliminary DEIS in September 2011. The USEPA provided written comments on the draft and provided further guidance during a conference call on September 19, 2011. Pursuant to NEPA, the Service has provided this DEIS to the USEPA for their review during the public comment period.

ALTERNATIVES

No-Action Alternative

Under the No-Action Alternative, the existing 67-turbine Project would operate as indicated in the Court Order and Settlement Agreement. Turbines would be turned off from 30 minutes after sunset to 15 minutes after sunrise from April 1 through November 15. Thus the Project would be operated in such a manner that no take of endangered or threatened species would occur, thus precluding the need for an ITP. BRE would forego the added benefits associated with the addition of Phase II (construction and operation of the proposed 33 turbines). There would be no risk to Indiana bats or Virginia big-eared bats associated with Project operations. BRE would not implement steps to obtain off-site conservation to mitigate the potential take of Indiana bat and Virginia big-eared bat. Thus Alternative 1 would have an overall neutral effect on the Indiana and Virginia big-eared bat: no take would occur, and no mitigation or

other conservation measures would be implemented specifically for Indiana or Virginia big-eared bats. In addition, there would be no unlisted bat mortality because turbines would not operate at night during the bat active season.

Under these operating restrictions, the existing 67 turbines with a nameplate capacity of 100.5 Megawatts (MW) would generate up to approximately 639,000 megawatt-hours (MWh) per year. Regardless of whether an ITP is issued, BRE has indicated they would implement a research, monitoring and adaptive management plan (RMAMP), and an Avian Protection Plan (APP) under this alternative. Together these plans would monitor bird and bat mortality, determine the effectiveness of operating restrictions in reducing such mortality, and respond to significant bird and bat mortality should it occur by implementing techniques that are proven effective and economically feasible in reducing such mortality.

Alternative 2: Proposed Action – ITP with Full Implementation of Habitat Conservation Plan
Under Alternative 2 (Proposed Federal Action), the Service would issue a 25-year ITP that would authorize incidental take of Indiana bat and Virginia big-eared bat. Covered Activities are: 1) construction of 33 turbines and associated infrastructure (Phase II), 2) operation of 100 turbines (the existing 67 Phase I turbines plus the 33 additional Phase II turbines), and 3) eventual decommissioning of the entire project. BRE would implement an HCP that includes:

1. measures to reduce take of listed bats (turbine feathering at low wind speeds and raised cut-in speed[3] of 4.8 meters/second (m/s) (10.7 miles per hour, mph) for 12 weeks of the year during late summer and fall);
2. off-site conservation measures for the listed bats; and
3. a RMAMP to test and measure the effectiveness of turbine operations in reducing listed bat mortality.

Under Alternative 2, turbine operating restrictions imposed by the court order, settlement agreement, and modified stipulation would be lifted and more energy would be generated than the No Action Alternative. Alternative 2 has the potential to generate up to approximately 1,542,000 MWh of electricity per year with operating restrictions.

Under the Proposed Action, 33 additional turbines will be constructed upon issuance of the ITP. Construction will likely be completed within 2 years after ITP issuance, and commercial operation will be expected to commence upon completion of construction. About 124 acres of land will be disturbed during construction of the 33 additional turbines. The operational footprint of Phase II will be approximately 21 acres. Together with Phase I, the complete 100-turbine Project will affect 71 acres for the life of the Project. BRE predicts that the ITP will need to be in effect for 25 years to address the time from start of Phase II Project construction through decommissioning of all phases.

Covered Activities
Activities covered under the ITP will include the following:

1. Operation of the existing 67 turbines and to-be-constructed 33 turbines (100 turbines) for up to 25 years of the life of the Project. The physical operation of the turbines (spinning rotors and associated changes in air pressure in the rotor-swept area) may result in the take of covered species.
2. Construction of 33 additional turbines and associated infrastructure, including, but not limited to, roads, staging areas, and a concrete batch plant. Construction activities may take Indiana bats if such construction involves destruction of a tree with roosting Indiana bats.

[3] Turbine blades will be "feathered" or turned so that blades rotate less then 2 revolutions per minute (rpm) at wind speeds below the cut-in-speed. The cut-in-speed is the wind speed at which the generator is connected to the grid and produces electricity. Without feathering, turbine blades normally operate at full rpm in wind speeds below cut-in-speed, and thus pose greater mortality risk to bats.

3. Conversion of 124 acres of forested lands to grass/shrublands. An additional 21 acres will remain un-vegetated for the life of the Project. Habitat conversion may affect suitable foraging habitat for Indiana bat.
4. Maintenance and decommissioning of the 100-turbine Project (and all associated facilities, including, but not limited to, the substation and transmission line). It is possible that maintenance or decommissioning activity (e.g., tree removal for safety reasons) could result in take of covered species, but this is unlikely.

Take of Covered Species
While testing the Curtailment Plan, BRE estimates the 100-turbine Project could take the following numbers of Indiana bats:

- up to 5 Indiana bats per year during years 1-3;
- up to 2.5 Indiana bats per year during years 4-25; and
- the aggregate take of up to 70 Indiana bats during the permit term (5 bats x 3 years + 2.5 bats x 22 years = 70 bats).

While testing the Curtailment Plan, BRE estimates the 100-turbine Project could take the following numbers of Virginia big-eared bats:

- up to 1 Virginia big-eared bats per year during years 1-3;
- up to 0.5 Virginia big-eared bats per year during years 4-25; and
- the aggregate take of up to 14 Virginia big-eared bats during the permit term (1 bat x 3 years + 0.5 bats x 22 years = 14 bats).

As described in BRE's RMAMP, during years 1-3, BRE will develop baseline bat mortality estimates from fully operational turbines to measure success of significantly reducing mortality of covered species and all bats in an effective manner consistent with the best available science.

For this Project, BRE is requesting authorized take of an aggregate of 70 Indiana bats and 14 Virginia big-eared bats (based on adjusted fatality estimates) over the Permit Term, in which case BRE will not be out of compliance with the permit take authorization unless take exceeds these limits. However, given that bat mortality will undoubtedly vary during the Permit Term, 3 potential thresholds will trigger a meet and confer with the Service in order to reduce the likelihood of exceeding permit take authorization levels.

Avoidance, Minimization, and Conservation Measures
To avoid and minimize bat mortality, BRE has reduced the number of Project turbines from 124 to 100. Additionally, BRE eliminated previously permitted turbine sites within the eastern portions of the Project based on their proximity to known and historical Indiana bat hibernacula and the general area where many caves are located.

To significantly minimize bat mortality, BRE will:

1. Implement the RMAMP. These measures are intended to detect take of the covered species and/or changes in bat mortality over the term of the ITP and to allow BRE to implement operational protocols to ensure that BRE does not exceed the authorized level of take of covered species provided in the ITP. BRE has designed their annual monitoring to measure impacts to birds and bats from the facility and to confirm the occurrence of major changes in fatalities from the first 3-year intensive monitoring program.
2. Implement the RMAMP to determine baseline bat mortality conditions at the Project and identify turbine operational protocols that will reduce bat mortality during periods of high activity during the first 3 years of the ITP.
3. Implement BRE's Curtailment Plan in an attempt to reduce bat fatalities using best management practices supported by science (Arnett et al. 2010; citing a reduction of bat fatalities of 44 to 93% when using specified cut-in-speeds). To avoid and minimize take of covered species, BRE

proposes to adjust the turbine cut-in speed on all Project turbines from 3.5 m/s (7.8 mph) to 4.8 m/s (10.7 mph) for a 12-week period from July 15 through October 15 each year and for the time of night commencing 30 minutes before sunset for a period of 5 hours (BRE's Curtailment Plan). BRE estimates that this avoidance and minimization strategy will reduce potential take of Indiana and Virginia big-eared bats by 50%.

To mitigate the effects of unavoidable incidental take of listed bats, BRE proposes to establish a habitat conservation fund used to support conservation efforts for Indiana bat and Virginia big-eared bats based on objectives specified in the 2 species Recovery Plans (Bagley 1984, USFWS 2007). The goal of these projects will be to contribute to the conservation of Indiana bats and Virginia big-eared bats by protecting priority habitat, either winter hibernacula or summer maternity colonies or roosts.

In consultation with the Service, BRE has developed criteria for identifying acceptable conservation projects to be undertaken and completed within 2 years of permit issuance. Proposed Indiana bat and Virginia big-eared bat conservation projects will be evaluated based on guidelines, objectives, and criteria specified in this DEIS and provided in detail in the Project HCP.

Under the Proposed Action Alternative, BRE also would implement an APP, as further described below. In the event that significant bird mortality does occur, the APP includes adaptive management provisions to test different strategies to reduce bird mortality and/or to mitigate for it. This includes testing turbine curtailment, and adjustments related to the highest risk turbines, times of year, and weather events. The APP also includes provisions for off-site habitat protection and/or research for birds, if needed.

Alternative 3: Additional Covered Species Addressed in ITP and Habitat Conservation Plan
Under Alternative 3, a 25-year ITP pursuant to Section 10 (a)(1)(B) of the ESA would be issued for the BRE Project. The Project would be constructed as described for the Proposed Action: the Phase II 33-turbines would be constructed, and all 100 turbines operated and eventually decommissioned. Like Proposed Action, Alternative 3 would implement the RMAMP and APP to reduce bat and bird mortality. On-site or near-site protection and management of bat maternity areas would be implemented, as well as off-site protection of bat hibernacula, and bird habitat and/or research if needed.

Under Alternative 3, the BRE HCP would include as covered species the Indiana bat, Virginia big-eared bat, and 3 additional bat species (little brown bat, northern long-eared bat, and eastern small-footed bat). These species would be treated as if they were listed; that is, avoidance, minimization, and mitigation measures would be implemented for these species as if they were currently listed under the ESA. Should these species be listed as endangered or threatened under the ESA within the period of the ITP (25 years), the ITP would automatically cover these species for take without requiring a permit amendment.

Under Alternative 3 project operations would be modified to implement a 6.5 m/s cut-in speed as the initial rate for curtailment. Furthermore, all 100 turbines would operate at 6.5 m/s from 30 minutes before sunset through 15 minutes after sunrise during the period April 1 through October 15. Changing turbine cut-in speeds during this time would cover the full season of all bat activity at and near the Project, thus reducing potential take of covered species and all bat species. These avoidance, minimization, and mitigation measures would occur regardless of whether any of the 3 unlisted bat species are listed during the life of the permit. BRE will implement the RMAMP to determine the effectiveness of the modified operations protocol, and adjustments would be made accordingly to ensure mortality is reduced by at least 76%.

Because of higher cut-in speeds, Alternative 3 would generate less electricity than the Proposed Action. Alternative 3 (100 turbines with 186 MW nameplate capacity) has the potential to generate up to approximately 1,184,000 MWh of electricity per year with operating restrictions.

Implementation of Alternative 3 would include mist-netting to locate maternity areas for each of the 3 unlisted bats. Habitat protection would include areas to benefit the 3 additional covered species, as well as the Indiana bat and Virginia big-eared bat.

Alternative 4: ITP with Full Implementation of Habitat Conservation Plan for Phase I Only
Under Alternative 4, a 25-year ITP for Indiana and Virginia big-eared bats pursuant to Section 10 (a)(1)(B) of the ESA would be issued for operation and decommissioning of the existing 67-turbine Project; the Phase II 33-turbines would not be constructed. The Phase I Only Alternative would include the full implementation of the HCP, RMAMP, and APP as described for the Proposed Action. The curtailment measures would be the same as for the Proposed Action Alternative, reducing all bat mortality by at least 50%. However, the minimum number of listed bats protected at off-site mitigation sites would be less than the Proposed Action, commensurate with reduced mortality of listed bats under Alternative 4. This alternative (67 turbines with 100.5 MW nameplate capacity) has the potential to generate up to approximately 832,000 MWh per year with operating restrictions.

AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES COMMON TO ALL ALTERNATIVES FOR POTENTIALLY AFFECTED SENSITIVE RESOURCES
Cultural Resources. Effects to historic resources by the construction of the 33-turbine expansion and operation of the 100-turbine Project will be avoided, minimized, and mitigated using measures approved by the Service in consultation with the State Historic Preservation Officer, interested Tribes, BRE, and other consulting parties. Similar to the Memorandum of Agreement (MOA) prepared for the Phase I Project, BRE will enter into an MOA with the Service, West Virginia Division of Culture and History (DWVDCH), WVPSC, interested tribes, and any other interested parties to address cultural resources issues associated with the 33-turbine expansion prior to issuance of the final ITP.

Vegetation. To minimize impacts to vegetation, BRE will implement BMPs during construction and operation of the Project to protect topsoil and adjacent resources and to minimize soil erosion.
BRE will use mechanical measures to control noxious weeds in all surface-disturbed areas. Equipment will be washed at a commercial facility prior to construction and on-site during construction if weeds are encountered in the Project area. No herbicides will be used to control vegetation.

Surface and Ground Water Protection. The Project has been designed to avoid direct impacts (both temporary and permanent) to surface water features. Specific protection plans and permits or modifications of prior approvals must be approved by the West Virginia Division of Environmental Protection (WVDEP) for those activities associated with the construction of the additional 33 turbines prior to construction. BRE has indicated that water withdrawal from streams for the purposes of dust control will be accomplished in a manner that preserves stream flows during withdrawal.

BRE will continue to comply with all federal regulations concerning the crossing of Waters of the U.S., as listed in Title 33 CFR Part 323. The wind turbines and ancillary facilities will be built on ridges, which avoid the surface water features and designated floodplains. Wind turbines will not be placed in areas containing Waters of the U.S. During construction of the additional 33 turbines, riparian areas will be avoided, where feasible. If avoidance is not feasible, activities within riparian areas will be conducted in conformance with WVDEP Stormwater Pollution Prevention Plan (SWPPP) requirements.

Avian Resources. The Project's Avian Project Plan (APP) includes measures for avoiding and minimizing impacts to birds. Measures include using previously disturbed areas to the extent practicable, tree-clearing outside of the nesting season for most species, using raptor-safe transmission lines, and using state-of-the-art turbine technology and lighting that minimizes bird collision risk.

The Project's APP and RMAMP include measures for annual post-construction monitoring for 25 years, adaptive management, and reporting to estimate and evaluate avian mortality resulting from the Project. Monitoring will address bird fatality rates for the Project, especially those for species of concern. BRE will

consult with the Service to assess whether bird fatality data suggest the need for measures to reduce impacts. The final determination on whether significant bird mortality has occurred will be made by the Service. In addition to intensive monitoring, BRE's Operations and Maintenance personnel will conduct weekly searches, year-round, for the presence of eagle carcasses and large-scale mortality events. BRE's RMAMP includes evaluating baseline migratory bird mortality rates and effects of various turbine operational protocols on migratory bird fatality rates as well as for bats. The APP includes response measures related to observed fatality rates of migratory birds, eagle fatality, and fatalities of bird species of concern.

The APP is based on the assumption that impacts to migratory birds can be effectively avoided and reduced through cost-effective operational adjustments. However, if monitoring results indicate operational restrictions are not effective at avoiding and minimizing impacts, and significant impacts to birds have occurred, then BRE will consider the potential for off-site mitigation to offset impacts, including possible off-site habitat preservation and/or restoration.

ALTERNATIVES COMPARISON

Table 3-4 summarizes the key environmental impacts projected to occur as a result of implementing the No-Action Alternative and each of the Action Alternatives.

The Service has not selected a preferred alternative for the proposed action at this time. The Service is seeking public input for the selection of the preferred alternative during the public comment period for the DEIS. Following the public review and consideration of comments received, the preferred alternative will be chosen and announced in the Final EIS or Record of Decision.