STATE OF MAINE
DEPARTMENT OF CONSERVATION
22 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0022

PAUL RICHARD LEPAGE
GOVERNOR

WILLIAM H. BEARDSLEY
COMMISSIONER

PERMIT

COMMISSSION DECISION
IN THE MATTER OF

Blue Sky East LLC, LLC
Development Permit DP 4886

Findings of Fact and Decision

The Maine Land Use Regulation Commission, at a meeting of the Commission held on October 5, 2011, at Ellsworth, Maine, after reviewing the application and supporting documents submitted by Blue Sky East, LLC for Development Permit DP 4886, public and Intervenor comments and testimony, agency review comments, and other related materials on file, pursuant to Titles 12 and 35-A, and the Commission's Standards and Rules, finds the following facts:

1. *Applicant*: Blue Sky East, LLC
   129 Middle Street
   Portland, ME 04101

2. *Application Accepted as Complete for Processing*: February 2, 2011
   (The Commission's statutory authority directs the Commission, with respect to wind energy development permit applications that are set for public hearing, to return a decision within 270 days from the date the application is accepted as complete for processing.) *See* 12 M.R.S.A. § 685-B(2-C).

3. *Location of Proposal*: T16 MD, Hancock County
   (Map 1, Plan 01, Lot #1)
   Bull Hill: UTM N 4952867.673; E 565760.17
   Heifer Hill: UTM N 4950337.089; E 56841.454

4. *Current Zoning*: (M-GN) General Management Subdistrict
   (P-WL) Wetland Protection Subdistrict
   (P-SL2) Shoreland Protection Subdistrict

5. *Parcel Size*: Approximately 10,800 acres (of which approximately 158 acres are the proposed development area)
Owner and Lessor: Lakeville Shores, Inc.

6. *Flowing Waters in Project Vicinity* (*See* Finding of Fact #36, C(3) (a)-(d) for lakes or ponds.):

The West Branch of Narraguagus River is a Class AA flowing water. Spring River, Mahanon Brook, and Bog River are Class A flowing waters. All are located with in the area of Maine that has been federally designated as containing Atlantic salmon habitat.

7. *Summary of Review Criteria.* The Commission is the primary siting authority for a wind energy development entirely sited within the unorganized townships or plantations of Maine. As discussed in more detail below, the proposed project is subject to the provisions of Title 12, §§ 685-B(2-B), (4) and (4-B); the applicable provisions within the Commission's standards and rules in Chapter 10; and the Commission's Comprehensive Land Use Plan (CLUP). The proposed project is also subject to the provisions of Title 35-A, Ch. 34-A, §§ 3451 *et seq*., (including consideration of the Eastbrook Wind Facility Ordinance). The review of the project is also subject to the provisions of the Commission's rules in Chapter 4 and 5.

Commission's Comprehensive Land Use Plan (CLUP). The legislative amendments made to the Commission's permitting authority with respect to expedited wind energy projects did not remove the Title 12 requirement that the Commission, in reviewing development permit applications, determine whether a proposal is in conformance with certain regulations, standards, and the CLUP. 12 M.R.S. § 685-B(4) & (4-B). The Commission's 2010 CLUP expressly recognizes the statutory changes made by PL 2007,Ch. 661 with respect to wind energy development in the expedited permitting area, but the CLUP continues to provide for the environmentally sound and socially beneficial utilization of indigenous energy resources where there are not overriding public values that require protection, and it clarifies that it seeks to accommodate energy generation installations that are consistent with the State's energy policies, are suitable for the proposed locations, and minimize intrusion on natural and cultural resources and values. The CLUP prohibits energy developments and related land uses in areas identified as environmentally sensitive when there are overriding environmental and other public values requiring protection, and it reflects the State's policy of identifying and protecting areas that possess scenic features and values of state or national significance. (2010 CLUP at 13, 18).

Each large-scale project proposed in the Commission's jurisdiction calls on the Commission to carefully consider on a case-by-case basis proposed impacts to the human and natural environment. Not all sites are appropriate for grid-scale wind energy development, but the Commission must find the appropriate balance between development and achieving conformity with the goals and polices of the CLUP. Based upon this record, and for all the reasons discussed herein, the Commission concludes that at this development location there are not overriding environmental and public values, that the BHWP has minimized its

intrusion on the existing resources and values, and that therefore it is in accordance with the polices and goals of the CLUP.

8. *Review of evidence pertaining to review criteria, factual findings and legal conclusions thereon*. The Commission has assembled a large administrative record regarding this proposed wind energy development. The administrative record contains written and oral testimony and written comments from the parties, government review agencies, and the public, all of which was gathered through a process conducted in accordance with the Commission's Chapters 4 and 5 Rules. In this matter, the process also included an evidentiary hearing, held at the discretion of the Commission. Thus, it is not possible to list or acknowledge all of the evidence that led the Commission to reach the factual findings and legal conclusions set forth below. Those findings and conclusions, however, are based on the application of the governing review criteria to all the evidence in the record and not only those examples of evidence recited herein.

PROJECT DESCRIPTION AND RESOURCE ASSESSMENT

Background

9. *Application submittal and acceptance for processing.* Blue Sky East, LLC (Applicant) submitted its application for the proposed Bull Hill Wind Project (BHWP), Development Permit DP 4886 on January 31, 2011. The purpose of the proposed BHWP is to construct a 34.2 megawatt (MW) grid-scale wind energy development on Bull Hill and Heifer Hill in T16 MD, Hancock County. The Applicant is a wholly-owned subsidiary of First Wind.

   A. The proposed BHWP will be entirely located within the area designated for expedited permitting under the "Act To Implement Recommendations of the Governor's Task Force on Wind Power Development" (PL 2007, Ch. 661). The land to be developed with the proposed BHWP has been leased to the Applicant by landowner Lakeville Shores, Inc. (*See* Finding of Fact #32 with regard to Title, Right, or Interest).

   B. The application was accepted by LURC staff as complete for processing on February 2, 2011. Public notices of "Intent to File" the application, and of the "Application Accepted for Processing" were published on February 3, 2011, and on February 7 and 10, 2011, respectively, in the Bangor Daily News and the Ellsworth American.

Public Hearing Administrative History

10. *Intervenors and Interested Persons*. On March 2, 2011, within 45 days of accepting the application as complete, the Commission exercised its discretion and set this matter for a public evidentiary hearing, and granted Intervenor status to three Parties: the Concerned Citizens of Rural Hancock County (CCRHC) [opposed], the Hancock County Commissioners [neutral]; and the Natural Resources Council of Maine (NRCM) [opposed in part]. At the pre-hearing conference on March 22, 2011, the Hancock County Commissioners changed their status to Governmental Agency in accordance with LURC's

Chapter 5 Rules. NRCM withdrew as an Intervenor on April 25, 2011. Eleven individuals requested and the Commission recognized them as Interested Persons.

11. *Pre-filed testimony*. The Applicant and Intervenor CCRHC submitted pre-filed testimony on April 25, 2011. Issues addressed included, but were not limited to: scenic impact, wildlife impact, in particular to birds and bats, and storm water runoff concerns. Rebuttal to pre-filed testimony was submitted on May 6, 2011.

12. *Public Hearing and Site Visit*. A public evidentiary hearing was held on May 16 and 17, 2011 in Ellsworth, Maine. Evening public hearing sessions were held on both days. A one-day hearing, structured primarily to serve the purposes of hearing summaries of testimony from the parties, hearing testimony from review agencies, and for conducting cross examinations, was held on May 17th. The Commissioner's site visit was held on May 16th to observe the project site, road access, a nearby residence on Sugar Hill, the Eastbrook Church, and other area landscape features. The site visit included a trip to Schoodic Beach in the Bureau of Parks and Lands' (BPL) Donnell Pond Management Unit.

13. *Participating review agencies.* The Maine Department of Environmental Protection (MDEP), the State Soil Scientist, the Maine Department of Inland Fisheries and Wildlife (MDIFW), and the Maine Public utilities Commission (PUC) attended the public hearing in order to answer questions as needed. In addition, the Commission retained additional staff with respect to processing this permit application, namely third party peer reviewers and experts, Dr. James Palmer (scenic) and Warren Brown (sound). Dr. Palmer and Mr. Brown were present at the hearing to answer questions. The details of reviewing agencies' comments and testimony on the proposed BHWP can be found in the record and, by way of summary, within each subject section below.

14. *Public Comments. (Individual issues raised by members of the public can be found under the relevant subject heading.)* Members of the public and several of the Interested Persons submitted written comments and testified at the evening sessions of public evidentiary hearing. The record closed for public comment on May 31, 2011. In addition to comments, signed petitions (lists of signatures attached to a position statement) were received both for and against the proposed BHWP. A letter of support from two of the three Town of Eastbrook Selectmen, with a local support petition attached, was also received.

15. *Procedural Orders*. Seven (7) Procedural Orders were issued by the Presiding Officer throughout the proceedings addressing administrative and procedural matters.

    A. *First Procedural Order*. On March 22, 2011, the First Procedural Order was issued, requesting legal argument from the Parties regarding whether the scenic character impact review of the associated facilities should be conducted according to the provisions of 35-A M.R.S., Ch. 34-A, § 3452(2), or according to the harmonious fit standard for non-expedited projects in 12 M.R.S. Section 685-B(4) and LURC's Chapter 10§10.25,E(1) scenic standards (*See* Finding of Fact #38, B for a discussion of the review criteria for the associated facilities).

B. *Second Procedural Order*. On April 4, 2011, the Second Procedural Order was issued, containing the memorandum of the pre-hearing conference, and containing specifically the schedule for the public hearing and procedures, the service list, filing requirements, pre- and post-hearing filings, and other administrative matters pertaining to the public hearing.

C. *Third Procedural Order*. On April 14, 2011, the Third Procedural Order was issued, stating that the scenic character standard to be applied during the review of the associated facilities of the proposed BHWP would be 35-A M.R.S., Ch. 34-A, § 3452(2), not 12 M.R.S.A., § 685-B(4) and LURC's Chapter 10 Rules, § 10.25,E,1.

D. *Fourth Procedural Order*. On May 9, 2011, the Fourth Procedural Order was issued, regarding judicial notice of fifteen (15) prior permit decisions (both LURC and MDEP) and Maine Supreme Court Rulings concerning decommissioning costs and plans for wind projects.

E. *Fifth Procedural Order*. On May 11, 2011 the Fifth Procedural Order was issued, containing the detailed public hearing schedule, among other things. In response to the Fifth Procedural Order, the Applicant addressed public comment regarding (1) the applicability of the Town of Eastbrook's Wind Facility Ordinance to a project located in T16 MD, referencing MDEP's Chapter 375.10 Noise Control rules, which provide that certain local noise standards may be considered, (2) the viability of wind projects, (3) impacts on health and property values, and (4) any scenic impact on Acadia National Park.

F. *Sixth Procedural Order; information requests*. On June 3, 2011, the Sixth Procedural Order was issued, requesting the following information from the Applicant, the Maine Bureau of Parks and Lands (BPL), and MDIFW:
   (1) From BPL, additional comments on the scenic impacts to its Donnell Pond Management Unit.
   (2) From the Applicant and MDIFW, additional information about the significant vernal pool buffer impact in the Bangor Hydro transmission easement.
   (3) From the Applicant, the study design and reporting for a two-year post-construction avian and bat mortality study that includes curtailment of the cut-in speed of 50% of the turbines.

   In addition to posing these questions, the Sixth Procedural Order denied CCRHC's motion to reopen the public hearing, as explained below.

G. *Sixth Procedural Order; request to reopen the record and rebuttal*.
   (1) On May 23, 2011, CCRHC filed a motion to reopen the public hearing, asserting that they did not have adequate time to review the comments filed late by MDIFW and the Applicant on vernal pools, and on the bird and bat mortality monitoring and study. On May 25, 2011, the Applicant filed a rebuttal to CCRHC's motion, arguing that the information in the late submittals was not substantially new.
   (2) On June 3, 2011 the Sixth Procedural Order denied the request to reopen because denying the request would not result in any prejudice, and because to grant the

request would result in unreasonable delay and not provide any additional information needed to assist the Commission with its decision on the application.

(3) *CCRHC rebuttal.* On June 22nd, in accordance with the opportunity provided by the Order, CCRHC filed rebuttal, challenging the Applicant and MDIFW's avian mortality and operational curtailment plan, and asserting that the comments filed by BPL supported CCRHC's position on scenic impact on the BPL's Donnell Pond Unit. CCRHC also stated that further public hearing was not warranted because it would provide the Applicant within an opportunity to weaken BPL's statements.

(4) In accordance with the Order, the Applicant submitted a rebuttal to the BPL comments, in particular commenting on BPL's statements about user expectations surveys and supplying additional information on the subject.

H. *Seventh Procedural Order*. On July 14, 2011, the Seventh Procedural Order was issued, re-opening the record to accept the post-hearing brief filed by CCRHC; and to allow the signed agreements between the Applicant and the Town of Eastbrook, and the Applicant and the Downeast Salmon Federation all relating to tangible benefits to be entered into the record.

16. *Close of the record*. Except as noted above with regard to the Seventh Procedural Order, on July 8, 2011 the Parties' post-hearing rebuttal comments were due, after which the record was to close, but CCRHC submitted its comments on July 9th, and the Applicant did not object.

17. *Post-Hearing Briefs.* The Applicant filed its final brief on the deadline of July 8, 2011. Intervenor CCRHC was allowed by the Presiding Officer to file its final brief on July 11, 2011.

Project description

18. *Existing conditions and uses of the site*. The proposed 34.2 MW BHWP would be located on Bull Hill and Heifer Hill in T16 MD, Hancock County. By way of placing the proposed project area in context, it is located in the eastern interior biophysical region of Maine, which is characterized by gently sloping to moderately steep topography containing extensive glacial stream deposits, with small streams and drainages scattered throughout. The Bull Hill and Heifer Hill ridgelines have elevations between 280 to 624 feet above mean sea level, and with predominantly deep, well-drained soils on flat to moderate slopes. The area is characterized primarily by regenerating upland hardwood forest with pockets of emergent, scrub-shrub, and forested wetlands.

A. Like much of the Commission's jurisdiction, the region is generally undeveloped, is currently forested, and the dominant land use is commercial forestry. An existing network of well-maintained logging roads is present throughout the area and the effects of past and current timber harvesting are evident across the entire project area, from large clear-cuts to small selective harvesting areas. Aside from the roads and skidder trails, the area around the project area is almost entirely undeveloped.

B. T16 MD includes some sparse residential development and agricultural areas located mainly south of the proposed project area. Small residential areas also exist in the nearby towns of Eastbrook and Franklin. Seasonal camps are present on Narraguagus Lake, Molasses Pond, and Spectacle Pond, and there are several camp leases on the parcel leased by the Applicant, but only one is within the project area. The Applicant will remove that camp as a part of this project (*See* Finding of Fact #32 with regard to the land division history review).

C. Typical recreational uses in the surrounding area include swimming, boating, fishing, hunting, and snowmobiling.

D. There is an existing 115 kV transmission line owned by Bangor Hydro Electric (BHE) bisecting the project area.

19. *Summary of Proposed Project.* The proposed 34.2 MW wind energy development would consist of nineteen (19) 1.8MW turbines with associated turbine pads; existing and new access and crane path roads; 34.5 kV underground collector lines; permanent meteorological towers; an operation and maintenance (O&M) building; and a new substation to connect to the existing 115 kV transmission line.

A. *Total cleared area*. As a result of previous commercial timber harvesting, clearing for the proposed BHWP will not be as extensive had the area not been subjected to forest management activities. During construction, a total of 89.9 acres will be cleared, of which 55.4 acres will be temporary clearing that will be allowed to re-vegetate; leaving 34.5 acres of permanently developed area, largely for the roads and turbine pads.

B. The engineered plans for the application were revised several times:
(1) On April 15, 2011, amended plans were submitted following an April 11, 2011 meeting held with the Applicant, LURC staff, MDEP staff, and the State Soil Scientist. The revisions involved storm water management structures and treatment buffers and foundation excavation dewatering techniques, for the purpose of minimizing construction impacts during seasonal high groundwater periods.
(2) On April 21, 2011 a second set of revised plans were submitted, re-aligning a small road to reduce impacts to a vernal pool upland buffer.
(3) On May 9, 2011, a third revision of the plans was submitted, incorporating resource buffers and other plan details.

C. *Site access*. The project area can be accessed from three directions: (1) the existing so-called "7300 Road" (a forest management road) that connects with Route 9 to the north; (2) Sugar Hill Road to the west via the Town of Eastbrook; and (3) from Route 186 to the south using the Narraguagus Lake Road. The primary access to the site for component delivery will be from Route 9 using the 7300 Road. Secondary access to the south end of the project site would be via the Sugar Hill Road, and via Route 182 and the Narraguagus Pond Road. Route 9 and 182 are state-owned public roads. The 7300 Road and Narraguagus Pond Road are privately owned logging roads within the parcel owned by Lakeville Shores, Inc. There are also other existing unnamed land management roads

within the parcel. The Sugar Hill Road begins as an Eastbrook town road, but becomes a privately owned logging road in T16 MD. The Applicant has obtained title, right, or interest for use of the private logging roads within the parcel owned by Lakeville Shores.

20. *Turbines and foundations; and turbine pads.* The Applicant proposes to erect 19 Vestas V-100 wind turbines, each of which is capable of generating up to 1.8 MW. The turbines will consist of 312 ft. tall towers with 328 ft. diameter rotors. Each turbine measures 476 ft. tall to the tip of a fully extended blade. Ten of the turbines will be arranged in a string running southwesterly along the Bull Hill ridgeline, at a maximum elevation of 640 ft. above mean sea level (msl). The other nine turbines will be arranged approximately north to south along the Heifer Hill ridgeline, at a maximum elevation of 450 ft. msl.

A. *Turbine pads*. Each turbine will be located within a compacted gravel or blasted/crushed rock turbine pad, which will include a 50 ft. by 80 ft. crane pad.

B. *Cleared area*. The construction of each turbine pad will result in clearing and grading of from 1.1 to 1.6 acres per turbine, of which 0.28 acre per pad will remain permanently cleared and the remainder will be re-vegetated. The permanently cleared area for each turbine pad includes the crane pad, driveway, the turbine and its foundation, and the area immediately surrounding the turbine. The total area to be cleared for construction of the 19 turbines and pads will be 27.4 acres, of which 5.3 acres will remain permanently cleared. During construction, the cleared turbine pads will also be used as equipment lay-down areas. As set forth below, however, the Applicant will be required to take remedial measures with respect to site work in the event of decommissioning.

C. *Foundations.* The Applicant stated that "Prior to construction, a geotechnical investigation of new road segments and each turbine pad will be conducted. The results of this will determine the type of turbine foundation design appropriate for each location. Based on preliminary site investigations, spread footing type anchors are anticipated.' (*See* application Narrative Section 16.0 page 21) The Commission concludes that, if constructed in accordance with the completed geotechnical investigation (*See* Finding of Fact #36, D(1) and the Applicant's revised engineered plans, neither foundation type will result in an undue adverse effect on existing uses and resources. For each spread-footing foundation, an approximately 65 ft. diameter area would be excavated. The Applicant submitted with the application typical details for spread-footing foundation (*See* Sheet C-3 of the engineered plans application Exhibit #1A).

D. No concrete batch plant is proposed during construction. Concrete for the turbine foundations will be supplied and delivered to the project site by local concrete plants. (*See* Finding of Fact #28, A, below, regarding traffic related to the concrete delivery.)

E. *Lighting*. The Applicant included in the application information regarding the lighting to be used for the turbines during operation and during construction.
(1) The Federal Aviation and Aeronautics (FAA) Commission Lighting Plan, which was prepared and approved by the FAA in two parts, was submitted by the Applicant. The plan includes a light on the turbines at the end of each string, the highest turbines,

at least one turbine to be lit every ½ mile, synchronized lighting, and avoiding a concentration of lights in close proximity. In addition, both the temporary and permanent met towers would be lit (*See* Finding of Fact #24).

The Commission concludes that the FAA required lighting plan is necessary for the public's aviation safety and that it must be followed. The plan has taken into consideration the potential impacts of lighting on avian and bat species, and the amount of lighting to be used has been minimized to the extent possible. The lighting impacts of this project with respect to avian and bat species is discussed in detail below.

(2) The Applicant proposes external lighting at the base of each turbine where there is a maintenance entrance. The Applicant has committed to installing these lights in compliance with 10.25, F of the Commission's Land Use Districts and Standards.

(3) According to the application, some temporary nighttime lighting may be required during turbine installation (in particular the rotor installation). Because turbine erection must be done under lower wind conditions, nighttime lighting is anticipated to provide as much time as possible to take advantage of favorable conditions. If required, three trailer-mounted flood lights per turbine location will be used to facilitate nighttime tower erection, with no more than two turbines being erected at any one time.

The Commission concludes that nighttime lighting may be necessary to construct the turbines, but that the periods of nighttime lighting must be no longer than necessary to take advantage of favorable weather conditions. The lighting must be limited to the construction area so that nuisance lighting of adjacent areas would be minimized.

(4) *See* Finding of Fact #38 for the assessment of scenic impact as a result of lighting.

F. *Setbacks*.

(1) *Chapter 10, § 10.26,D – Minimum setbacks*. All turbines will be setback more than 75 ft. from public roads, 100 ft. from streams and the wetland/upland boundary of any P-WL1 wetland, and 25 ft. from property boundary lines.

(2) *Public safety-related setbacks (See* Exhibit #23*).* Title 12, § 685-B(4-B)(C)) (pursuant to Title 35-A, chapter 34-A, § 3455) requires the Applicant to demonstrate that the turbines would be set back sufficiently to protect public safety.

(a) The record shows that the industry recommended setback for turbines is 1.5 times the total turbine height fully extended, which would be 714 ft. for the turbines proposed for the BHWP. The record shows that all of the proposed turbines will be set back at least 1.5 times the tower height from property boundary lines and areas used by the public, with the exception of turbine #10, which will be set back approximately 575 ft. from the property boundary line where the Lakeville Shores parcel abuts a parcel owned by Tree Top Manufacturing and used for commercial forestry. The Applicant has secured an easement from Tree Top Manufacturing allowing the turbine to be located less than 714 ft. from the parcel boundary, and restricting public use of the affected area from uses such as parking, ATVs and snowmobiling. The easement, which is recorded in the registry of deeds, would be carried with any sale of the parcel. The easement also requires that the

Applicant survey the affected portion of Tree Top's parcel and record it in the registry of deeds.

(b) With regard to the existing camp leases on the Lakeville Shores parcel, of the 11 existing leases on the property, the two leases nearest the turbines are being terminated and the camps removed prior to commercial operation. The remaining 9 leases are all more than 1.3 miles from the nearest turbine.

(c) The nearest turbine of the northern string of the BHWP to Route 9 is at least 6,300 ft. The closest residence to a proposed turbine is at least 3,800 feet on Fire Lane 24 (at the end of the Sugar Hill Road in the Town of Eastbrook).

(d) The Applicant demonstrated that the Vestas V-100 1.8 MW wind turbine generators proposed for the BHWP are International Electrotechnical Commission Code compliant and are designed to withstand wind gusts of 59.5 meters per second. The Vestas V-100 turbine design is also certified by Det Norske Veritas, the leading wind power product certification authority. *(See* Application Exhibit #23A*)* The Applicant also demonstrated that the Vestas V-100 turbine design includes over-speed control.

(e) The Commission concludes that the Applicant has provided adequate evidence that the wind turbines would be sited such that they would not present an unreasonable safety hazard to the public. With one exception, all turbines would be setback at least 1.5 times the tower height from property boundary lines and any area used by the public. For the one turbine where the property boundary setback would be less than 1.5 times the tower height, the Applicant has obtained an easement from Tree Top Manufacturing, the land owner, whose parcel is used for forest management activities. The easement includes sufficient restrictions regarding public uses of the affected portion of that parcel such that the project is being constructed with setbacks adequate to protect public safety.

In addition, the two camp leases located on the project parcel have been terminated, and those structures will be removed. Finally, the turbines proposed to be used are appropriately certified to meet industry standards for withstanding high wind speeds, include over-speed control, and would be set back sufficiently from all property boundary lines and roads used by the public.

Therefore, the Commission concludes that the turbines have been appropriately sited with regard to the public safety-related setback criteria in Title 12, Section 685-B(4-B).

21. *Access Roads and Crane Paths.* Commercial timber harvesting has established a substantial road network and has previously disturbed the proposed development area. Existing roads for access to and within the project area will be utilized to the greatest extent possible. The proposed BHWP would use 2.8 miles of existing roads. A total of approximately 0.9 miles of new access road, and 3.9 miles of new crane paths will be constructed. The total length of the new access road segments and the three crane paths will be 4.8 miles. Temporary widening along existing roads will require 0.2 acre of temporary clearing.

A. *Crane paths*. Four (4) separate 36 ft. wide crane paths (one on Bull Hill and three on Heifer Hill) are proposed in order to minimize resource impacts by limiting the amount of 36 ft. wide crane path needed. The total area to be cleared for the crane paths would be

40.5 acres, of which 17 acres would remain permanently cleared. The 36 ft. wide crane path width is needed to accommodate the large crane needed to assemble the turbines. (*See* Application Narrative section #6 page 10)

B. *New access road.* For the new 24 ft. wide access road construction, a total of 1.3 acres of forest will be cleared for the new access road segments. Temporary turn-outs may be added along the new access road to provide for safe passage of construction vehicles. If installed, these temporary turn-outs would also be used as lay-down areas (*See* Finding of Fact #25, A). The temporary turn-outs would be re-vegetated after construction.

C. *Met tower access ways*. In addition to the new access roads and crane paths, the Applicant proposes to construct 12 ft. wide access ways up to three permanent meteorological (met) towers (*See* Finding of Fact #24, A).

D. All new access roads and crane paths will be maintained by the Applicant. The existing logging roads that are outside of the project area will continue to be owned and maintained by the underlying landowner, Lakeville Shores.

22. *Electrical collector lines and substation.* The energy generated by each turbine will be collected in approximately 8.2 miles of underground 34.5-kilovolt (kV) collector lines, which will be connected to the proposed substation. The proposed substation will be located centrally within the project area mid-way between Bull Hill and Heifer Hill, adjacent to the O&M building (*See* Finding of Fact #23, below). The distance from the O&M building to the nearest turbine is approximately 2,625 ft.

A. The 34.5 kV collector lines will be buried entirely within the roadways to minimize resource impacts, except where the line comes above-ground to connect to the substation or a turbine. Approximately 0.5 acre of new permanent clearing will be required for the collector lines.

B. The substation will "step up" the 34.5 kV power to 115 kV and transmit it directly to the existing Bangor Hydro Electric Company's (BHE) Line 66, which bisects the project area. Line 66 is a 115 kV transmission line that can accept the power from the project without structural upgrades. By locating the substation directly adjacent to Line 66, no new 115 kV transmission line (*i.e.,* generator lead line) will be necessary for the proposed BHWP project.

C. The substation footprint will measure 200 ft. by 341 ft., be surrounded by a chain-link fence, and have pole-mounted floodlights that will only be turned on during nighttime work at the substation. No separate driveway or parking area is proposed for the substation.

D. The substation would be set back more than 75 ft. from the traveled surface of roads used by the public, 100 ft. from streams and P-WL1 wetlands, and 25 ft. from property boundary lines.

23. *Operations and Maintenance (O&M) Building.* The O&M building will be a single story, 7,000-square foot (sf) metal building, painted a neutral color, and heated by a propane boiler. The building will have offices for maintenance and operations personnel, and will include an attached garage for vehicle and equipment storage and repair. There will be no floor drains in the garage. Power will be supplied by an overhead line from the substation, with a propane-fired generator as backup. Exterior lighting will be motion sensitive or manually controlled, and parking will be in an unpaved gravel area in front of the building. Parking for up to 8 employees will be included at the O&M building site.

    A. The total size of the area to remain permanently cleared for the O&M building and adjacent substation will be 4.1 acres.

    B. The O&M building and parking area will be set back more than 75 ft. from the traveled surface of roads used by the public, 100 ft. from streams and P-WL1 wetlands, and 25 ft. from side property boundary lines.

    C. *Septic system* (*See* Exhibit #8). During construction, temporary portable toilets will be provided for workers, and will be serviced by a contractor. For wastewater disposal during operation of the facility, a subsurface wastewater disposal system was designed for the O&M building, and was submitted with the application. The HHE-200 form with the septic system design was reviewed and approved by the Maine Department of Human Services' Division of Environmental Health on February 15, 2011.

    D. *Water source*. During construction, drinking water will be provided as bottled water. During operation, water for employee use at the O&M building will be provided by either a drilled or dug well.

    E. *Conclusion*. The Applicant has committed to installing and using the lights at the O&M building and substation in a manner that will meet the standards in Section 10.25,E,2 of the Commission's Land Use Districts and Standards. Scenic impacts due to project lighting are addressed in Finding of Fact #38, H.

24. *Meteorological (met) towers.*

    A. *Permanent met towers*. The proposed BHWP will include up to three 312 ft. tall, lattice-type (18 inches on a side) permanent met towers secured by three sets of guy wires. Four potential locations are shown on the project plans; however, only the three locations where a permanent met tower will be installed will be cleared.
        (1) Approximately 8.4 acres will be permanently cleared for the three permanent met towers. This total cleared acreage includes the access ways.
        (2) Each permanent met tower will include an access way with a 12 ft. wide traveled surface, and an average clearing width of 50 ft. A total of less than 2,500 linear ft. of access way will be constructed for the three met towers.

    B. *Temporary met towers*. During construction, up to three new temporary 312 ft. tall met towers will be placed in turbine locations before the turbines are erected. The two

existing temporary met towers within the project area (reference DP 4849), and the three new proposed temporary met towers will be removed within one year of turbine construction. The purpose of the three new temporary met towers is to assist in the micro-siting and calibration of the turbines.

C. Both the new temporary met towers and the permanent met towers will be lit according to FAA safety lighting requirements. (*See* Finding of Fact #38 for the assessment of scenic impact as a result of the turbine lighting.)

25. *Temporary structures and activities*. Several temporary structures and activities during construction are proposed for the BHWP.

A. *Lay-down areas*. Approximately 9.6 acres will be cleared to create 6 temporary equipment/materials lay-down areas and/or for landing yards. Each lay-down area will be located along the crane paths. Turn-outs along the proposed new access road will also be used as lay-down areas. After construction, all lay-down areas will be re-vegetated.

B. *Office trailers*. Temporary office trailers will be utilized by the project contractor during the construction phase of the project. The trailers will be powered by a portable generator. To minimize the total amount of clearing required for the project, the temporary office trailers will be located at a local gravel pit (or similar area) on the leased premises (*See* Finding of Fact #25, B). An employee parking area will be provided at the site where the trailers are located. The temporary trailers and parking area will be set back more than 75 ft. from the traveled surface of the roadway. Portable toilets will be placed at the site and drinking water will be supplied as bottled water. The temporary trailers will be removed within three months after commercial operation of the project commences.

C. The Applicant has proposed to employ limited, temporary nighttime security lighting at the project entrances, which is necessary, given the nature of the project and the need to post security personnel during construction.

D. The Commission concludes that the project entrance security lighting must be limited to the area immediately surrounding the entrance, and must be directed downward. In addition, any lighting used for temporary trailers and parking areas within the project site must comply with Section 10.25, F,2 of the Commission's Land Use Districts and Standards.

26. *Wetlands in the project area*. The landscape immediately surrounding Bull Hill and Heifer Hill contains an abundance of wetland habitats, including forested swamps, shrub swamps and bogs, and brooks and streams. These resources, however, generally occur outside of the areas that are being proposed for wind turbine development. No temporary or permanent wetland, or stream impacts are proposed for construction or operation of the project. Wetland impacts were avoided by maximizing the use of existing forest management roads on the parcel, designing branched crane paths that required set-up and dismantling of the crane three

separate times, utilizing a manufactured bridge to cross one stream, and placing the collector line system underground within the road network.

A. *Wetland delineation*. The Applicant delineated all wetlands within the project area in 2009 and 2010 (*See* Exhibit #12, A), and plotted wetlands near the project footprint on the site plans (*See* Exhibit #1, A). Additional wetlands areas up to 250 ft. from the project features (turbine pads, roads, etc.), which had been delineated previously but had not been shown on the map, were added to the site plan on May 16, 2011 at the request of MDIFW. Wetlands in the project area were first identified using U.S.G.S. topographic maps, National Wetland Inventory map, Maine GIS digital data, and U.S. Dept. of Agriculture soil survey maps. Wetland boundaries were determined in the field using the U.S. Army Corps of Engineers *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, and surveyed using GPS (*See* Appendix B of Exhibit 12A). Streams and (P-WL) Subdistricts were identified in the field based on the standards in LURC's Chapter 10, available background information, and observable conditions within the project area.

B. The Applicant identified a total of 111 wetland resources in the Project Area, of which 21 are P-WL1 Wetlands of Special Significance due to containing Significant Wildlife Habitat or proximity to a stream. Fourteen (14) streams were found in the Project Area, of which 3 are perennial.
   (1) P-WL3 forested wetlands accounted for more than half of the identified wetlands, with inclusions of other wetland types. The forested wetlands within the Project Area are dominated by yellow birch, balsam fir, black ash, green ash, eastern hop-hornbeam, and red maple.
   (2) P-WL2 wetlands accounted for one-quarter of the wetlands within the Project Area.
   (3) Fifty-three (53) vernal pools were identified within the Project Area, of which 18 are naturally occurring (*See* Finding of Fact #37, D for the discussion of vernal pools).

C. *U.S. Army Corps of Engineers (Corps) review*. Both LURC and the Corps have jurisdiction to regulate the wetlands within the Project Area. The Corps regulates wetlands under Section 404 of the federal Clean Water Act, and activities within waters of the United States. The Corps staff reviewed the preliminary plans for this project and visited the project area, issuing a letter stating there are no federal jurisdictional wetland impacts proposed and that they did not need to review the project further.

27. *Solid waste disposal***.**

A. *Construction-related waste*. Construction of the wind turbines and the electrical collection line will generate an estimated 40 tons (250 cubic yards) of solid waste consisting of construction debris, packaging material, demolition debris from removal of the two cabins, and associated construction wastes. Any general construction debris associated with the project, including packing or transportation materials, will be disposed of at appropriately licensed disposal facilities. The Applicant submitted a letter from Juniper Ridge Landfill located in Old Town Maine indicating they are willing to

take waste generated by the project and have the capacity to handle the estimated 250 cubic yards of construction and demolition debris.

During construction, certain types of construction wastes will be handled on-site, as follows:

(1) Waste cured concrete would be incorporated into the sub-base for the proposed roadway and turbine pads.
(2) Concrete truck and tool wash-down water would be contained within the turbine pads and would not be allowed to flow to waters of the state prior to appropriate treatment.
(3) Marketable timber would be removed from the site for sale. Smaller woody debris would be chipped or processed to use as mulch or in erosion control mix.
(4) Stumps may be left in place and covered to avoid unnecessary ground disturbance, for example in fill areas around the turbine pads, and to minimize waste disposal needs. Stumps may be ground to make erosion control mix.
(5) A stump dump less than one acre in size may need to be sited in an upland area. If needed, the location will be determined by the Applicant and the contractor in consultation with the third-party inspector during construction.

B. *Operation-related waste*. Following construction, a small amount of operational solid waste generated at the site, primarily office waste, will be collected at the O&M building and disposed of at a licensed facility.

28. *Traffic flow, public access, and road maintenance*. The Commission's Statute requires applicants to demonstrate that "Adequate provision has been made for loading, parking and circulation of land, air and water traffic, in, on and from the site..." (12 MRSA §685-B (4)(B). Traffic associated with the proposed project will primarily consist of construction-related traffic and workers commuting to the site during the approximately eight-month construction period. The primary construction activity and deliveries routes will be via Route 9 and the 7300 Road. An incidental number of workers may come to the south end of the site using the Sugar Hill Road or by Route 182 and the Narraguagus Pond Road. No public road improvements to provide access to the project area are necessary for the proposed BHWP. Minor improvements to the existing land management roads will be necessary.

A. *Traffic increase assessment*. During peak construction, the number of worker vehicles traveling to the project site will be approximately 40 vehicles per day. The Applicant asserted that this increase constitutes a minor traffic demand on Route 9 or Route 182. During operation, traffic for the BHWP will be limited to a small number of vehicles for operation and maintenance staff.
   (1) *Concrete delivery.* Concrete for the turbine foundations will be delivered to the project site primarily using Route 9 and the 7300 Road, and/or secondarily Route 182 and the Narraguagas Pond Road. Turbine foundations will generally be installed at a rate no greater than one turbine per day. For the spread footing foundations, up to 40 truckloads of concrete per day are anticipated. The rock anchor foundations require considerably less concrete. Daily concrete requirements would increase if more than one foundation per day is poured.
   (2) *Turbine delivery.* The turbine components are estimated to be delivered to the site at a rate of five turbines per week. Approximately 16 truck loads are required to deliver

the components of each turbine, resulting in approximately 300 truck round trips per week during an approximately 8-week delivery period.

(3) The new project access road segments may include turnouts to allow construction equipment and material delivery trucks to pass safely and prevent construction traffic delays or unreasonable queuing of vehicles. The turnouts will also serve to facilitate emergency response vehicles in the event of an emergency.

B. *Transportation permits and road postings* (*See* Exhibit #7, D*).* The Applicant stated that it will obtain permits from the Maine Department of Transportation (MDOT) and Maine Bureau of Motor Vehicles when the turbine components (blades, towers, and nacelles) are to be transported. During periods of seasonal road postings, if needed, turbine components will be stored at off-site staging areas to be determined until road postings are lifted or an agreement is reached with the MDOT to allow movement.

C. *Traffic safety control.* When needed, traffic flagging crews will be used primarily on Route 9, and on Route 182 as appropriate, during periods of construction deliveries. The Applicant has communicated its plans to the Hancock County sheriff. The Applicant asserted that its general contractor and its transportation contractor will coordinate closely with Maine State Police and local authorities during the turbine delivery period to minimize any potential impacts on localized traffic movement.

D. *7300 Road improvements*. There is a 600 ft sight distance for traffic entering and leaving the 7300 Road where it joins with Route 9. The Maine Department of Transportation (MDOT) has verified that no new highway entry permit is required for this location. Improvements to the horizontal alignment of the existing 7300 Road are anticipated in two areas (*See* Exhibit #1A, Sheet 500). The centerline of the road will be relocated approximately 40 ft for location A, and approximately 25 ft for location B. In addition to the horizontal alignment changes, there will be minor vertical adjustments to grade at various locations to remove the potential for component delivery vehicles to "bottom out."

E. Lakeville Shores, Inc., the parcel owner, will continue to be responsible for regulating public access to the area by the use of gates.

F. *Road maintenance.* After the BHWP is constructed, the Applicant would continue to be responsible for monitoring and maintenance of the project roads and facilities within the project area. Other road maintenance on the underlying landowner's parcel would be the responsibility of the owner.

G. The Commission finds that, based on the above factors, the proposal meets the standard of 12 MRSA §685-B(4)(B).

29. *Signs*. Signage to be used for the BHWP on the leased area will be limited to informational and safety signs associated with site activities. Any informational sign remaining on-site after construction not visible from a public road would be no more than 12 square feet (sf) in

size. Directional signs remaining on-site after construction that are visible from a public road would not exceed 4 sf in size.

30. *Public services.* The Commission's statute requires that the applicant demonstrate that "the public's health, safety and general welfare will be adequately protected." (12 MRSA §685-B(4))

A. *Fire Suppression*. The Applicant consulted with the Hancock County Sheriff and Maine Forest Service, and each confirmed that current fire suppression services are adequate for this project. In addition, the Applicant stated the following: the access roads cleared areas around each turbine would also provide a firebreak; and the nearest fire station is in Eastbrook, approximately five miles from the project.

B. *Emergency Medical Services*. The Applicant stated that if emergency medical services are required during or after construction, a cellular phone will be used to call 911. The emergency dispatcher will connect to the Eastern Maine Medical Center in Bangor, which will be able to dispatch LifeFlight of Bangor. The Applicant also contacted the Hancock County officials responsible for county-wide emergency management to set up a dialogue on emergency coordination and planning, including site visits.

C. *Police Services*. The Applicant contacted the Hancock County Sheriff's Office, who provided a letter confirming that the services it provides to T16 MD would be adequate, the project area is reasonably accessible, and patrol deputies are familiar with the access routes both from Route 9 in Aurora and the Sugar Hill Road in Eastbrook.

31. *Work plans and construction schedule*.

A. *Gravel pits*. The crane paths and segment of new access road will be constructed primarily of gravel. Little crushed rock is expected to be generated by the project for re-use in roads and turbine pads. It is expected that all gravel needed for construction of the project roads and turbine pads will be taken from existing gravel pits located within the leased parcel (owned by Lakeville Shores, (S*ee* Finding of Fact #32). However, some gravel from off-site sources may be needed. The Applicant stated that existing on-site gravel pits to be used are located within an M-GN Subdistrict; operation of these pits must be conducted in compliance with LURC standards in Chapter 10 for mineral extraction. No existing gravel pit may be expanded to exceed five acres in size.

B. *Water source for dust control*. During construction, water for dust abatement on the gravel access roads will be drawn from a water body within the parcel owned by Lakeville Shores. No streams or groundwater sources will be used. A 4,000-gallon truck will be used with a maximum of 4 trips per day, for a maximum of 20,000 gallons of water withdrawal a day.

C. *Blasting plan (See* Exhibit #5, B*).* The Applicant stated that blasting will be required at some locations to break up bedrock ledge, to adjust road grades to accommodate oversized loads accessing the site, to construct some of the turbine foundations, and to install underground electrical collector lines. The Applicant's blasting plan describes the

pre-blast surveys and notifications, blast monitoring, sequence of blasting, blasting procedures, use of blast mats, security and warning whistles, explosives, and blasting personnel. The Applicant's blasting operations will follow all applicable local, state and federal regulations, and will be performed by a blaster who is fully licensed and insured for the transportation, use, and handling of explosives.

(1) *Maine Department of Environmental Protection (MDEP).* MDEP reviewed the Applicant's blasting plan and provided the following comments:

(a) It appears from the blast overpressure limit cited that the Applicant does not intend to blast more than once per day. If the Applicant intends to blast more often than once per day, or would like to have the option, the Applicant should apply the standards for air blast levels found at 38 M.R.S. §490-Z,14,H.

(b) Records of individual blasts should generally include the information listed at 38 M.R.S. §490-Z,14,L.

D. *Spill Prevention Control and Countermeasures (SPCC) plan* (*See* Exhibit 7, C). The Applicant submitted a Construction SPCC plan to be used during construction of the BHWP. LURC staff requested the construction plan be revised to include the following additional details: Standard Operating Procedures for handling and clean-up and disposal of hazardous wastes to be used on site; re-fueling of vehicles; types of spill containment equipment; employee training; and reporting procedures.

(1) *Maine Department of Environmental Protection (MDEP).* MDEP reviewed the Applicant's Construction SPCC plan and commented that the plan did not include a provision for overnight vehicle storage or parking, or for vehicle maintenance which should not take place within 100 ft of a protected resource. The Construction SPCC plan should also inventory potential contaminants other than fuel, and detail fuel storage procedures to be used during construction, including estimated volumes and storage methods.

(a) With regard to an Operation SPCC plan, MDEP recommended the Applicant be required by permit condition to file an Operation SPCC plan prior to the start of commercial operation (*See* Condition #16, below). The operation plan must address storage and potential spills of petroleum and hazardous materials and other potential contaminants (including herbicides, paints, solvents, and similar products, excepting any used for purely custodial purposes) to be stored and used on-site during operation. The plan must inventory all petroleum products and hazardous material stored and used on-site; describe storage locations and volumes; address fuel storage and containment at the O&M building; and include procedures for changing oil in the turbines and related facilities, including the volumes and storage methods for any oil to be stored on the site during such oil changes. This operational plan should also describe vehicle maintenance, if any, planned to occur at the site.

(b) The operations plan, or another document related to long-term operation of the BHWP, should discuss use, if any, of herbicides at the site, and provide for no-herbicide setbacks from protected resources, comparable to those for re-fueling and fuel storage. Because this project would not include a transmission line, use of herbicides and other potential contaminants for right-of-way maintenance is not an issue.

(2) The Applicant submitted its revised construction SPCC plan on April 13, 2011, stating that the plan is intended to comply with Title 38, subsection 1318-C, Spill Prevention Control and Clean-Up Plan. Staff conducted a review of the revised plan and finds that it is consistent with the requirements of the statute. The Applicant has also proposed to submit an Operations SPCC plan prior to commercial operation of the BHWP.

E. *Construction schedule* (*See* Exhibits #1, A and #7, A). The Applicant estimated that the total construction time would be approximately fifty (50) weeks, including removal of the temporary erosion control measures upon final site stabilization and re-seeding.
(1) The initiation of commercial operation of the BHWP is anticipated at week thirty-eight (38). Commissioning and testing the turbine generators and electrical interconnections would be conducted prior to commercial operation.
(2) LURC staff requested that the Applicant add descriptions to the construction schedule addressing possible adjustments to the construction schedule due to seasonal high groundwater conditions occurring in a wet spring and/or harsh winter conditions at this site (*See* Finding of Fact #36, A(1)).
(3) The Applicant submitted a revised schedule that includes a caveat addressing seasonally high water conditions, among other things. The Applicant asserted that "construction sequencing may vary depending on the actual start date and field conditions encountered at the time. Construction and erosion and sedimentation plans account for construction in various expected field conditions."

Title, Right or Interest; and Financial and Technical Capacity

32. *Title, right, or interest and land division assessment*. The Commission's statute requires applicants to demonstrate "sufficient right, title or interest in all of the property that is proposed for development or use." 12 M.R.S. § 685-B(2)(D). The Commission's Rules of Practice require that "prior to acceptance of an application for a permit . . . for processing, an applicant shall demonstrate to the Commission's satisfaction sufficient right, title or interest in all the property proposed for development or use." *See* 04-061 CMR c. 4 § 3(3).

A. The Applicant entered into a lease with Lakeville Shores, Inc. to lease approximately 10,800 acres in T16 MD, with 158 of those acres designated as the project area for the proposed BHWP. The Applicant submitted a recorded memorandum of the lease as Exhibit #4A of the application. Exhibit #4A also includes a copy of the relevant Bangor Hydro Electric Company (BHE) easements, which are adjacent to the proposed substation; and a letter from Lisa Martin, Manager of Transmission Development, Bangor Hydro Electric Company (dated January 28, 2011) to First Wind, acknowledging that the BHWP will connect to BHE's existing Line 66.

B. *Land division history* (*See* Application Exhibit #4, B). The Applicant submitted a 20-year land division analysis with the application, demonstrating this project is not subject to subdivision review. The Applicant's submissions included evidence showing that two existing camp leases closest to the Project Area have been terminated, would not be

relocated, and that the existing camps on the terminated lease lots will be removed prior to construction of the project.

33. *Financial capacity and estimated development costs.*

A. *Financial capacity*.

(1) *Review criteria (See Appendix A for full text)*.

(a) Title 12, Section 685-B(4)(A) states: "the commission may not approve an application, unless adequate technical and financial provision has been made for complying with the requirements of the State's air and water pollution control and other environmental laws, and those standards and regulations adopted with respect thereto…"

(b) The Commission's rules in Chapter 10, section 10.25,C,2 require that the Applicant "have adequate financial resources to construct the proposed improvements, structures, and facilities and meet the criteria of all state and federal laws and standards of these rules. In determining the applicant's financial capacity, the Commission shall consider the cost of the proposed subdivision or development, the amount and strength of commitment by the financing entity, and, when appropriate, evidence of sufficient resources available directly from the applicant to finance the subdivision or development."

(2) Blue Sky East LLC is the project applicant and lessee. Certificates of Good Standing are included in Exhibits #2,A and #2,B of the application. Blue Sky East LLC is wholly owned by First Wind Maine Holdings, LLC, which in turn is a wholly-owned subsidiary of First Wind Holdings, LLC (First Wind). Paul Gaynor is the President or Chief Executive Officer of all three companies. According to the application, First Wind will provide the initial equity for the project. An affiliate of Blue Sky East, LLC and First Wind will purchase the turbines that will be erected at the project and will assign ownership of the turbines to Blue Sky East, LLC prior to construction. A letter from First Wind demonstrating extensive experience in project financing, a balance sheet for First Wind, and a letter of financial support from Key Bank are included in the application.

B. *Development costs.* The total project cost as provided by the Applicant is expected to be approximately $78.5 million. That total cost is broken down as follows (shown in millions of dollars): turbine cost - $38; transportation - $7; turbine installation - $5; foundations - $4; roads - $4; collector electrical lines - $9; various construction costs - $9; and other planning costs - $2.5.

34. *Technical capacity.*

A. *Review criteria (See Appendix A for full text).*

(1) Title 12, Section 685-B(4)(A) states: "The Commission may not approve an application, unless adequate technical and financial provision has been made for complying with the requirements of the State's air and water pollution control and other environmental laws, an those standards and regulations adopted with respect thereto…"

(2) The Commission's rules in Chapter 10, § 10.25,C,1 require that the Applicant "retain qualified consultants, contractors and staff to design and construct proposed improvements, structures and facilities in accordance with the approved plans. In determining the applicant's technical ability, the Commission shall consider the size and scope of the proposed development, the applicant's previous experience, the experience and training of the applicant's consultants and contractors, and the existence of violations or previous approvals granted to the applicant."

B. The Applicant is a limited liability company formed under the Delaware Limited Liability Company Act, and a copy of its Certificate of Formation filed with the Delaware Secretary of State, was submitted to LURC. Additionally, as presented in the application and subsequent submittals Blue Sky East, LLC is a wholly owned subsidiary of First Wind Maine Holdings, LLC, is an affiliate of First Wind Maine Holdings, LLC, and is a wholly owned subsidiary of Maine Wind Holdings, LLC. Maine Wind Holdings, LLC is wholly owned subsidiary of First Wind Holdings, LLC.

C. The Applicant has assembled a project team which has previous experience in project design and wind project development in Maine. Demonstration of First Wind's experience in construction and operating wind facilities and the resumes for key persons involved with the project has been provided in the application.

D. The Applicant further stated that First Wind has successfully obtained permits for five projects in Maine including Mars Hill, Stetson I, Stetson II, Rollins and Oakfield, of which Mars Hill, Stetson I and Stetson II are operating. The Rollins project is under construction, and the Oakfield project is in the construction planning phases. First Wind also noted projects both under construction and operating across the United States. (*See* Application Narrative Section 3.0 page 6)

E. The Applicant has retained the services of several consulting firms to assist in the design and engineering of the project. These firms and their involvement in the proposed project are as follows: James W. Sewall Company and RLC Engineering (engineering and electrical design); Stantec Consulting (environmental and permitting); Terrence J. DeWan and Associates (visual impact); Bodwell EnviroAcoustics (sound); Albert Frick and Associates (soils); TRC, Independent Archeological Consulting and Public Archeology Lab (cultural resources); and Verrill Dana (legal counsel). (*See* Application Narrative Section 3.0 page 6)

35. *Conclusions*.

A. *TRI*. The Applicant has demonstrated sufficient TRI for the proposed BHWP. The Applicant has executed and recorded a lease for all of the lands owned by Lakeville Shores in T16 MD. A 158-acre portion of that leased area is identified as the "Premises" or the "project area," which is where the BHWP will be constructed. There have been no divisions of land associated with the lease area that would trigger subdivision review.

B. *Financial capacity*. The Applicant has provided evidence of adequate financial capacity to construct the project as proposed in compliance with applicable state laws, environmental regulations, and the conditions of approval set forth in this permit. Final financing commitments for the proposed BHWP arranged once regulatory approvals are in place will be presented to LURC.

C. *Technical capacity.* The parent company, First Wind, has experience in developing and siting wind energy developments in Maine and the United States. The Applicant has demonstrated adequate technical capacity to construct and operate the proposed BHWP by supplying summaries and resumes for its key personnel and consultants that show the appropriate background and experience. To demonstrated this, the Applicant stated: "The assembled project team is nearly identical to the Stetson team and has a wealth of experience in project design and wind project development. (*See* Application Exhibit #3) (*See* Findings of Fact #34 C, D, and E)

D. The proposal meets the standards of § 10.25,C - Financial and Technical Capacity - of the Commission's Land Use Districts and Standards.

Resource Assessments

36. *Soils, Erosion and storm water control, phosphorus, and geotechnical.*

A. *Soil mapping and suitability (See* Exhibit #16,A of the Application). The Applicant conducted a Class L Soil Survey of the proposed turbine and road areas, and a Class A Soil Survey for the O&M building and substation location. Areas of hydric soils were identified and depicted on the site plans as a part of the wetland delineation report (*See* Finding of Fact #26).

(1) The Applicant's soils consultant's survey shows that the Project Area is comprised of "nearly level to moderately sloping glacial till" that is "moderately well drained or well drained" and "are generally suitable for the proposed use, although some modifications to drainage or slope may be needed to improve conditions. On the somewhat poorly drained soils, where seasonal high groundwater tables may be within 12 inches of the mineral soil surface for a significant portion of the year, other measures such as the addition of coarse granular fill, or the installation of upslope curtain drain to intercept sheet flow drainage, may be needed to overcome limitations." (S*ee* Application Exhibit 16A)

(2) The Applicant's soils consultant advised that extra provisions for slope stabilization and erosion control should be considered in areas with somewhat poorly drained soils occurring at or near the base of a long, continuous slope once project construction begins, especially during spring snowmelt and after prolonged rainfall events. The Applicant's consultant further advised that poorly or very poorly drained hydric soils, have additional limitations due to instability, prolonged saturation, and frost heave susceptibility, and may be identified as wetland areas. Areas where stony or rubbly soil surfaces occur may impede traffic or require additional work to clear the soil

surface for use as a road base, turbine site and/or lay-down area; and areas containing boulders- may require blasting.

(3) The Applicant's soils consultant recommended the following: (a) road cross- drainage of the natural perched and surface water flow should be used in the areas he identified; and (b) the Applicant's civil engineers should consider the use of rock sandwiches, frequent cross-culverting and road turnouts to maintain and maximize sheet flow.

B. *Storm water and erosion/sedimentation control plans*.

(1) The Applicant has proposed the control, minimization, and treatment of storm water from the BHWP to reduce phosphorus loading by using a combination of structures, buffers, and setbacks to natural resources. The Applicant has proposed to (a) minimize the areas that will remain permanently un-vegetated, (b) re-seed areas that are temporarily disturbed during construction, (c) use the rock sandwich road design to maintain existing hydrology and minimize the amount of runoff directed to road ditches, (d) use level spreaders and plunge pools at culvert outlets, and (e) outlet the storm water ditches to turnout ditches with level spreaders.

(2) The Applicant has prepared an erosion and sedimentation control plan (*See* Exhibit #11,A). The proposed activities with the greatest potential to cause erosion during project construction include grading of the access and crane path roads, grading and site preparation for the 19 wind turbine pads, and grading for the O&M building and substation. The plan identifies the tools to be implemented during construction, explains the basis for their use, and provides details for installation including field adjustments as needed. The erosion and sedimentation control plan is not intended to provide the exact location for placement of each erosion control measure, but rather provides the basis for their use as a "tool box" of control measures by which measures can be adjusted in the field as needed. The Applicant will meet with the contractor and third party inspector prior to any site clearing or construction occurring.

(3) In particular, the rock sandwiches proposed to be used at the BHWP site will allow subsurface water to flow under the road through a layer of coarse rock sandwiched in geo-textile fabric, rather than be concentrated in roadside ditches. This technique is superior to culverts because storm water follows the natural hydrologic pattern, resulting in minimization of soil erosion and providing for natural treatment of the run-off in the buffer areas. The culverts proposed in association with the rock sandwiches will be installed as a back-up measure in the event the rock sandwich areas become clogged with silt or are obstructed by snow.

(4) The Applicant's erosion control plan employs Best Management Practices (BMPs) to minimize soil erosion, including but not limited to, silt fencing, erosion control mix, and rock sandwich road construction; and details the BMPs for various soil and environmental conditions, explains the basis for their use, and provides for their installation. The proposed erosion control plan is incorporated onto the engineered plans on the Typical Details sheets and in site specific measures on the individual sheets for use during construction.

(5) In compliance with Section 10.25,M,4(c) of the Commission's Land Use Districts and Standards, at least weekly and after any rainstorm greater than 0.5 inches, the erosion

control measures must be inspected by the general contractor, which will be certified in erosion and control practices by the MDEP. The erosion control measures will also be periodically inspected by the third party inspector under the direct supervision of a licensed Professional Engineer.

(6) *Third-party inspection.* A third party inspector will be retained by the Applicant to inspect clearing activities and ensure BMPs are implemented and erosion control requirements are being met. The third party inspector will begin inspections at the start of clearing and continue until final site stabilization has been completed. The third party inspector will monitor the site during construction to ensure that erosion and storm water control measures are correctly installed, asses their effectiveness, and advise if additional or alternate measures should be used. (*See* Findings of Fact #48 and 50, B(6) with regard to decommissioning and the use of a third party inspector.)

(a) The Applicant will select possible candidates for the third party inspector, and the final selection will be subject to LURC review and approval. The Applicant has requested that LURC staff respond within a 30 day period of submittal of the names of the candidates to LURC. No construction activities, including clearing, would be initiated until a third party inspector has been selected. The Applicant would not terminate the services of the third party inspector prior to the completion of construction without first gaining written permission from LURC. The third party inspector would be certified in erosion and control practices by the MDEP in accordance with Section 10.25,M,4,a (1) of the Commission's Land Use Districts and Standards.

(b) The third party inspector 's duties and responsibilities would include but not be limited to: (i) become familiar with LURC's standards, terms, permit conditions, and restrictions for the protection of natural resources within the development area; (ii) monitor installation and maintenance of erosion control and storm water control measures; (iii) monitor installation of any stream or wetland crossings; (iv) make recommendations to the engineer for additional measures needing to be employed; (v) submit weekly reports to LURC; (vi) contact LURC immediately in the event of any non-compliance issues; and (vii) monitor final stabilization of the site monthly for a period of one year after the BHWP becomes operational.

(c) During construction, the third party inspector would inspect the project site at least once per week and before and after any significant rain event (greater than 0.5 inches) in compliance with Section 10.25,M(4)(c) of the Commission's Land Use Districts and Standards.

(d) The third party inspector will prepare weekly written reports that include photographs of representative compliance measures and potential violations. Reports will be prepared using a form provided by LURC staff. Each report will be due by the Friday following the inspection week (Monday through Sunday). The weekly report will summarize construction activities and events on the site for the previous week as outlined in detail in Exhibit #7, B of the application. All inspection reports would be submitted to LURC staff.

C. *Phosphorus loading evaluation and control*.

(1) *Phosphorus control.* Referring to the MDEP's phosphorus guidelines and standards, the Applicant stated that "the Project lies within the Graham Lake, Narraguagus

River, and Spectacle Pond Watersheds." "Graham Lake's algal productivity is not currently limited by phosphorus" … "Because of this; the phosphorus standard is not applicable to Graham Lake."… "The runoff from the Graham Lake and Narraguagus River watersheds is required to meet the general standards. Narraguagus Lake and Spectacle Pond must meet the phosphorous standards. Buffers were used throughout the project to reduce the phosphorus loading and treat storm water to ultimately meet MDEP standards." (*See* Section 11.2 of the application narrative, and Exhibit #11, B)

(2) *Use of buffers* (*See* Exhibit #11, B). Buffers are proposed around the project development areas to minimize construction-related impacts to protected resources such as wetlands, streams, lakes, and ponds. All phosphorus runoff treatment will be accomplished by the use of buffers. Only a small amount of encroachment into these buffers is proposed for the project. Three types of buffers will be used: forested stormwater buffers, wetland and stream buffers, and significant vernal pool buffers.
   (a) Forested stormwater buffers will be maintained adjacent to the downhill side of a road for- runoff to go directly into the buffer as sheet flow. Ditch turn-outs will be used to divert ditch runoff to a 20-foot-wide level spreader, and then distributed to the buffer. Runoff will be diverted to a stone level lip spreader and then distributed into the forested buffer. The lengths and widths of the proposed buffers are based on site-specific conditions, including land slope and soil type.
   (b) Seventy-five (75) foot wide forested buffers will be used around the delineated wetlands and streams within the project area.
   (c) The Applicant used the MDEP's Natural Resource Protection Act (NRPA) standards as a guideline for the 100 foot and 250 foot setbacks for the significant vernal pool buffers. The NRPA standards allow for a percentage of the buffer area to be cleared. (*See* Finding of Fact #37, F for the discussion of vernal pools.)

(3) *Phosphorus loading calculations*.
   (a) *Graham Lake watershed.* The project proposes 7.17 acres of new "impervious" area in the Graham Lake watershed, with 75.5 percent being treated through a combination of buffers. Seventy-five percent of the linear portion of the development must be treated to meet the MDEP's general standard for phosphorus, which is the requirement for this watershed.

   Graham Lake is a 7,865 acre lake located in Ellsworth and Waltham, with a small portion of the lake located in T8 SD. Graham Lake, where it is located in T8 SD, is a management class 3, resource class 1A, accessible, developed lake with significant fisheries, and outstanding wildlife and cultural resource ratings.
   (b) *Narraguagus River watershed*. The project proposes 13.38 acres of new "impervious" area in this watershed, and 76.3 percent will be treated through a combination of buffers.' Seventy-five percent of the linear portion of the development must be treated to meet the MDEP's general standard for phosphorus, which is the requirement for this watershed.
   (c) *Spectacle Pond*. Spectacle Pond lies within a lake watershed that is required to meet the phosphorous standard. The current calculated pound per acre phosphorus allocation for this pond is 0.062 pounds (lbs) /acre/year. The project area in this watershed subject to the phosphorus calculation is 22.49 acres, which results in up to 1.4 lbs of phosphorus/year that can be exported from this site. 1.21 acres of

new impervious area is proposed in this watershed. The total proposed export is 1.2 lbs of phosphorus/year, which is less than the allowed export of 1.4 lbs.

Spectacle Pond is a 1,754 acre, management class 3, resource class 1B, accessible, developed lake, with an outstanding fisheries resource rating.

(d) *Narraguagus Lake.* Narraguagus Lake lies within a lake watershed that is required to meet the phosphorous standard. The current calculated pound per acre phosphorus allocation for this lake is 0.041 lbs/acre/year. The project area in this watershed subject to the phosphorus calculations is 2.48 acres, which results in up to 0.1 lbs phosphorus/year can be exported from this site. 0.11 acres of new impervious area is proposed in this watershed. The total proposed export is 0.08 lbs phosphorus/year, which is less than the allowed export of 0.1 lbs.

Narraguagus Lake is a 426 acre, management class 7, resource class 1B, accessible, undeveloped lake with significant fisheries, scenic, shoreline, and cultural resource ratings.

(e) *O&M building.* The O&M building will be located within the Narraguagus River watershed, but is a nonlinear feature, and as such the runoff from 95 percent of the impervious area and 80 percent of the developed area must be treated. For the O&M building site, 2.37 acres of impervious area is proposed, 100 percent of which will be treated. A total of 3.57 acres of developed area (including the impervious area) is proposed for the O&M building site, of which 87.8 percent will be treated.

D. *Geotechnical and acidic rock evaluation.*

(1) *Geotechnical evaluation*. The Applicant conducted a preliminary geotechnical investigation, and based on the results, determined that the spread-footing type foundation are mostly the foundation type to be used for the BHWP. The Applicant proposes to conduct a full geotechnical investigation along the new road and crane path segments, and at each turbine pad prior to construction in order to make a final determination of the type of foundations to be used.

(2) *Acid rock investigation* (*See* Exhibit #16, B). The underlying bedrock in the Project Area was evaluated for the potential to create acid rock drainage. The evaluation determined that the granitic nature of the bedrock in the Project Area does not pose the risk of generating acidic drainage.

(3) *MDEP review*. With regard to the acidic rock investigation, MDEP commented that at the BHWP site "the area of proposed construction is largely underlain by granite and other rocks of similar composition, so that the risk of encountering acid-generating rock is minimal. While no additional testing or other measures for assessment of this potential risk is required at this time, the Applicant should be aware that unexpected rock types may be encountered, and the Applicant should be able to recognize rocks with the potential for acid generation and respond properly in that event." (MDEP review comments, dated March 9, 2011)

(4) *Conclusion*. The evidence in the record indicates that the potential for rock likely to produce acidic runoff is minimal. Therefore, at this time, the Commission concludes that no formal plan for handling acidic bedrock at the BHWP site is needed. However, the Applicant must make a person who is able to identify sulfidic (*i.e.,* acid producing) rock available during construction of the BHWP to assure that should any

such rock be encountered, it will be handled appropriately. Non-acidic rock should be used to the extent possible. If acid producing rock is used as fill, at a minimum the water quality of any receiving streams, wetlands, and seepage areas should be tested; and measures employed to control, and mitigate if needed, the runoff.

E. *Site re-vegetation.* The Applicant proposes to stabilize and/or re-vegetate identified areas of the construction site, as follows:
(1) With the exception of the permanent road travel surfaces; the area immediately surrounding each turbine pad including the crane pad and access to each turbine; and at the O&M building and substation site the area the area immediately surrounding the structures and the parking area, all other areas of exposed gravel and soil would be loamed and seeded, or mulched.
(2) Crushed rock slopes associated with the crane paths and turbine pads would not be loamed and seeded, or mulched upon project completion because water seeps directly into the ground in these areas rather than run off to ditches.
(3) Lay-down areas, turn-outs along the new access road and crane paths, and turbine pads except as noted above will be loamed and re-seeded.
(4) Topsoil stripped from the areas of new road and turbine pads would be stockpiled, and then spread and seeded with non-invasive plant species on areas being re-vegetated after construction. Alternatively, some areas will be spread with erosion control mix and allowed to re-vegetate naturally.
(5) If not re-seeded by October 15th, areas being re-vegetated will be heavily mulched for winter, and permanent seeding delayed until after April 15th the following spring.
(6) Re-seeded areas will be inspected at one month, three month and six month intervals after seeding to assure adequate vegetation cover is becoming established. Eroded or poorly vegetated areas would be re-seeded. All areas being re-seeded would continue to be inspected until an 85% vegetative cover has become established.

F. *Agency review comments and Applicant's responses.*
(1) *State Soil Scientist*. The State Soil Scientist reviewed the application soils maps and survey submitted along with the project construction engineering drawings, and submitted comments on February 16, 2011. The State Soil Scientist made recommendations for changes to the engineered drawings that for the handling of the high seasonal groundwater at some turbine foundation sites during construction; and storm water runoff, including measures to handle the de-watering of turbine foundations excavations during construction.
(a) The State Soil Scientist also recommended the use of a "tool box" approach for the erosion and storm water control measures to be employed, including the use of the rock sandwich for road construction as an alternative to culverts, based on his experience with other wind projects in Maine. However, he noted that the proposed BHWP site is at a low elevation with terraced, gentler slopes, and will likely not require numerous 'tool box' construction on-site adjustments.
(b) After considering the Applicant's response to his comments, the State Soil Scientist expressed any remaining recommendations at a meeting with LURC staff, MDEP, and the Applicant's engineers held on April 11, 2011, including

clarifying when the tool box techniques should be used, and the role of the third-party inspector.

(c) The Applicant adjusted the engineered plans in response to the State Soil Scientist's and MDEP's initial review comments, and resubmitted the revised construction drawings on April 15, 2011. The Applicant incorporated the recommendations for handling high seasonal groundwater at several turbine foundation sites during construction, for the use of rock sandwiches to preserve the natural groundwater hydrology of the site, and the recommended dewatering measures, which include the pumping of water out of the foundation holes during excavation, timed release of the water, and filtering the water to remove particulates. Details such as adjusting the locations and level lip spreaders were also added to the final engineered plans.

(2) *MDEP*. MDEP reviewed the application and submitted comments on March 10 and 23, 2011, and on May 5, 2011. MDEP also attended the April 11, 2011 engineering review meeting discussed above in Section (1). MDEP recommended that all areas of instability and erosion be repaired immediately during construction, and maintained until the site is fully stabilized or vegetation is established. MDEP recommended that other measures other than those proposed may be necessary for winter construction (*See* Exhibit #1-A, Sheet C-3 Typical Details).

(a) MDEP further recommended that the Applicant retain the services of an approved site inspector to: (i) inspect the erosion and sedimentation controls during weekly visits to the site, (ii) inspect site erosion control measures from initial ground disturbance to final stabilization, (iii) interpret the erosion control plans and notes for the contractor, (iv) notify LURC staff in writing within 14 days of final stabilization after construction, and (v) keep a log.

(b) MDEP advised that any changes in layout, grading, storm water system, impervious area, or other changes that affect the storm water quality must to be identified and the Applicant must address how these changes have been treated and meet the MDEP's Chapter 500 general standard.

(c) The Applicant's response to MDEP's review comments is incorporated in Section (1)(c), above.

(d) In its final review comments, MDEP concluded that the additional information submitted by the Applicant in response to MDEP's comments has addressed their concerns. At this time the project appears to meet the standards set forth in the MDEP's Chapter 500 rules, and MDEP's 2006 Storm Water Management Rules. MDEP recommended approval of the project in its current form.

G. *Intervenor CCRHC comments.* CCRHC submitted testimony with regard to the dewatering of the turbine foundation sites, asserting that "it is necessary to address potential secondary impacts of draining water from the perched aquifers that will be penetrated or breached by the cuts [that are] called for at many turns and a few of the turbine pads themselves." (*See* CCRHC pre-filed testimony of O'Toole page 11) CCRHC also offered testimony regarding the high seasonal ground water, asserting that "soils in the area have a perched water table, or mini-aquifer, which is formed above an impermeable clay or rock layer, separating it from its main groundwater table below. The layer can be deep or shallow, local or span out extensively. A perched water table can

weaken the soil, making it unsuitable for certain development or at least require extensive engineering controls for drainage and maintenance during heavy storms or spring melt." (*See* CCRHC pre-filed testimony of O'Toole page 12) Regarding storm water, CCRHC offered testimony asserting that the buffers proposed by the Applicant are "designated either limited disturbance or no disturbance, and are protected by deed restrictions or agreements. General Forest use means that the land must be maintained with a majority forest cover [and] with undisturbed soil, duff layer and ground cover vegetation, and understory vegetation." (*See* CCRHC rebuttal to pre-filed testimony of O'Toole Section 2 pages 1&2) However, this testimony is contradicted by the State Soils Scientist (*See* Finding of Fact 36(F)(1)), which the Commission finds to be credible.

H. *Conclusions*. The proposal for the BHWP meets the standards of the relevant sections of §10.25 of the Commission's Land Use Districts and Standards. Specifically:

(1) *Section 10.25,G - Soil suitability*. The Commission concludes that the Applicant's Class L and Class A soils surveys that were conducted throughout the development area, in combination with the project layout and design, provides evidence that the soils in the development area are suitable for the proposed development. The levels of soil survey conducted are appropriate for the types of development proposed.

(2) *Section 10.25,M – Erosion/sedimentation control.* The Commission concludes that the Applicant has made adequate provision for controlling erosion and sedimentation, and storm water at the BHWP site both during and after construction. The Applicant's erosion and storm water control plan identifies BMPs to minimize and control soil erosion, including but not limited to silt fencing, erosion control mix, rock sandwich road design, and buffers. The detailed plans for these measures include BMPs for the soil and environmental conditions expected to be encountered, explains the basis for their use, and provides the details for their installation. The BMPs have been located on the engineered plans for the project to allow them to be easily accessed by the contractor during construction.

(a) *Re-vegetation*. To assure that re-vegetation of the site has been completed as proposed, on-site inspections of re-vegetation and remedial measures taken must be recorded and reported to LURC staff semi-annually for the first year of operation, and annually thereafter until all disturbed areas have achieved 85% vegetation cover, with the exception of roads, parking areas, and open portions of the turbine pads.

(b) *Third-party inspection.* The Applicant submitted a proposed third-party inspection plan that meets the requirements of Section 10.25,M,4 of the Commission's Land Use Districts and Standards (*See* Section B,6, above). The name of the individual or firm selected by the Applicant for third-party inspection must be submitted to LURC staff for review and approval.

(3) *Section 10.25, K – Phosphorus control.* The Commission concludes that the proposal meets the provision of Section 10.25,K to adequately control phosphorus runoff from the BHWP site. The Applicant consulted MDEP concerning the control of phosphorous loading within the Narraguagus Lake and Spectacle Pond watersheds receiving runoff from the project, who advised the Applicant that the State's phosphorous loading standards could generally be met through the use of vegetated buffers along 75% of the project roads. The evidence in the record shows that the

proposed adequate buffers along the roads and around other project features will be adequate to meet the State's general standard (*See* MDEP's Chapter 500 General Stormwater Standards).

The Applicant must assure the forested buffers proposed would be use forested buffers that would meet the MDEP's Best Management Practices (BMPs) for the General Stormwater Standards , pursuant to MDEP's Chapter 500 rules, along at least 75% of all project roads, and must have a 75 ft. wide forested buffer around all delineated wetlands, including streams.

(4) Accordingly, the proposal meets the criteria for approval of development in Title 12, § 685-B(4). Specifically, the proposal will not cause unreasonable soil erosion or reduction in the capacity of the land to absorb and hold water and suitable soils are available for a sewage disposal system on the O&M building site.

37. *Wildlife and habitat assessment*.

A. *Introduction and summary.* The Act to Implement Recommendations of the Governor's Task Force on Wind Power Development, P.L. 2007, Ch. 661 § B-13 (effective 2008) specifically directed the Commission to obtain information from applicants regarding wind energy developments' effects on, among other things, avian and bat species. This demonstration typically consists of pre-construction avian and bat monitoring of the site proposed for the generating facility. In addition, other pre-construction surveys of wildlife and habitat at and near the site are done, with the results and assessment included in the application in order to demonstrate whether the proposed project would have an undue adverse effect on any wildlife species, local populations, or habitat. (*See* 12 M.R.S. § 685-B(4)(C)) The wildlife surveys are typically conducted in consultation with MDIFW, USFWS, and MNAP.

(1) *Wildlife surveys and habitat assessment*. The Applicant conducted pre-construction wildlife surveys of the proposed Project Area[1] and vicinity, including avian and bat monitoring; surveys for rare, threatened or endangered species and habitat; and identification of vernal pools (*See* Finding of Fact #26 regarding wetlands). The results of the surveys were submitted in Exhibit #13 of the permit application. As set forth in the record, "the predominant forest types in the Project Area are Spruce-Fir Northern Hardwoods, a common, wide-spread ecosystem throughout most of northern Maine; and Beech-Birch-Maple, the dominant hardwood forest in the state." (Gravel *et al.* Pre-Filed Direct Testimony at 10). Small areas of mixed conifer-deciduous forest or conifer-dominated forest occur sporadically, primarily in wetlands.

(2) The issues raised by MDIFW, Intervenor CCRHC, and certain members of the public during the review of the proposed BHWP included the risk of mortality to migrating birds, raptors, and bats; the potential for impacts to Atlantic salmon; and the completeness of the Applicant's survey of vernal pools.

B. *Pre-construction avian and bat studies.* Pre-construction surveys of avian and bat species in the Project Area and vicinity were conducted in 2009 and 2010 to assess the potential

[1] For the purposes of this section, "Project Area" refers to the footprint of the proposed activities and up to 250 ft from those activities. The 250 ft distance was determined by MDIFW, relating to vernal pools.

for impacts due to operation of the BHWP. Surveys for avian and bat species included nocturnal radar surveys for songbird migration (so-called 'neo-tropical migrants'), raptor migration surveys, aerial bald eagle nest surveys, and bat radar and acoustic surveys.

The Applicant compared the songbird and bat radar studies done for the BHWP to five other Maine wind project pre-construction studies in Section 13 of the application, and asserted that the record shows nightly and seasonal passage rates, average flight heights, average seasonal flight directions, and the percentage of individuals observed below turbine height for the BHPWP Project Area have nearly all been within the general ranges found at other on-going seasonal migration studies. (*See* Section 13 of the Application) The Applicant asserted that although the 2009 and 2010 surveys indicated a relatively low flight height and high passage rates, to date neither of these factors have been shown to directly correlate to bird mortality at a wind power site, and therefore, no undue adverse effect to bird species is expected due to the BHWP.

(1) *Avian surveys.* (*See* Exhibit #13, A of the application)

(a) *Songbird nocturnal radar surveys.* Nocturnal radar studies of migratory songbirds in the Project Area and vicinity were conducted on 20 nights in fall 2009, and on 20 nights in spring 2010. The mean passage rate for fall 2009 was 614 ($^{+}$/- 32), and for spring 2010 was 387 ($^{+}$/- 21). The percentage of individuals flying below 145 meters (475.7 ft)[2] was 14% during fall 2009 and 38% during spring 2010.

(b) *Bald eagle nest and great blue heron rookery surveys*. Aerial surveys for bald eagle nests and for great blue heron rookeries were conducted by the Applicant in spring 2009 following protocol developed in consultation with MDIFW and USFWS. No active bald eagle nests were identified in the Project Area and vicinity; and one inactive nest was identified 2 miles from the southwestern-most turbine, on Molasses Pond. No great blue heron rookeries were identified. (*See* Section E, below regarding other State or federally listed species.)

(c) *Raptor migration survey*. Raptor migration surveys were conducted during spring, fall and winter of 2009; and during winter and spring of 2010. The raptor surveys were conducted on 6 days in August 2009, 12 days in fall 2009, 3 days in winter 2009, and 15 days in spring 2010.

(i) *Survey results*. In summer 2009, there were 24 observations of raptors, with a passage rate of 0.52 observations per hour. Of these, 4% were within the Project Area, of which 4% were flying below 145 meters (m). In fall/winter 2009, there were 124 observations, with a passage rate of 1.43 observations per hour. Of these, 48% were within the Project Area, of which 98% were flying below 145 m. In winter/spring 2010, there were 55 observations, with a passage rate of 0.53 observations per hour. Of these, 27% were within the Project Area, all of which were flying below 145 m.

(ii) Raptor passage rates were lower than those observed at the nearby Hawk Migration Association of North America sites during the same periods. The relatively low flight height may be influenced by the site's topography, which consists of low elevation hills as opposed to ridgelines.

(iii) Overall, the Applicant's raptor survey identified a total of 12 raptor species in the Project Area and vicinity in 2009 and 2010, including one peregrine falcon

[2] 145 meters is the maximum turbine height.

(state-listed as endangered, fall 2009), and two state-listed species of special concern - bald eagle and northern harrier - in winter and spring 2010. All bald eagle observations were outside the Project Area. One individual of northern harrier and one of peregrine falcon were seen flying over the Project Area during migration (Gravel *et al*. Pre-filed Direct Testimony at 7). The use of the Project Area by northern harrier, peregrine falcon, or bald eagle is expected to be largely during migration.

(d) *MDIFW and USFWS review comments*.

(i) MDIFW did not request avian studies beyond the two-year post-construction monitoring proposed by the Applicant. MDIFW commented, however, that "any discovery of state or federally listed species should be reported to the appropriate agency and mitigation measures, if any, should be decided at that point. Similarly, any unusual mortality event at a specific turbine or across the facility in a short period of time should be reported and mitigation measures considered."

(ii) *Eagles and other raptors*. Both MDIFW and USFWS concluded that there is no concern for impacts to raptors due to the BHWP. There are no bald eagles actively nesting in the Project Area or vicinity.

(e) *Intervenor CCRHC testimony on migratory songbirds and raptors.* CCRHC noted that Maine has many migratory bird species passing through the state, and that volunteer groups keep records, in particular birding groups along coastal Maine. CCRHC contended that the data[3] collected by these groups suggest high numbers of songbird and raptor migrants pass through Maine on their way north in the spring, and that this, plus the radar data collected for the BHWP permit application "indicate that extreme caution [should] be used when [siting] the wind turbines around the Bull Hill site." (*See* CCRHC pre-filed testimony by Michael Good, page 4) CCRHC asserted that during migration, birds "utilize rivers, streams and wetland communities as stopover habitats and migratory trails that are vital for breeding success. These stopover habitats are essential to successful bird migrations." (*See* CCRHC pre-filed testimony by Michael Good, page 5) CCRHC asserted that "any high ground in the region will have birds passing over it at the same heights as the wind turbines."

CCRHC concluded that "raptors are at great risk and the locations of the turbines should hinge on the pre-construction monitoring. During operation, a non-biased qualified avian scientist should monitor the site from April through June." In its pre-filed testimony, CCRHC's expert witness asserted that additional nocturnal radar surveys for migrating songbirds should be conducted in 2011. (*See* CCRHC pre-filed testimony by Michael Good, page 4)

(f) *Applicant's response to CCRHC.*

(i) The Applicant asserted that although CCRHC is correct that areas adjacent to the Project Area are utilized by raptors, "the surveys and passage rates show that the collision risk is small". (*See* Applicant's rebuttal to pre-filed testimony, Gavel p. 2) *and* (*See* Section B(1)(c) and Section B(1)(d)(ii), above)

[3] Data collected by the other groups referred to by CCRHC was not entered into the record.

(ii) The Applicant agreed with CCRHC's recommendation for additional nocturnal radar surveys in 2011 to further understand the movement of birds in the Project Area, thus spring and fall 2011 surveys are being conducted following the same methods that were used in 2009 and 2010. The Applicant re-asserted however, although the 2009 and 2010 surveys indicated a relatively low flight height and high passage rates, to date neither of these factors have been shown to directly correlate to bird mortality at a wind power site, and therefore, no undue adverse effect to bird species is expected due to the BHWP. (See Section B(1)(d)(i), above)

(iii) The Applicant also agreed with CCRHC's assertion that post-construction bird monitoring should be conducted, noting that such studies are a standard part of wind projects and are planned for the BHWP. A draft of the "Post Construction Monitoring Proposal" was included with the application. The monitoring plan would be refined and updated to incorporate information from operating projects, as well as in response to continued MDIFW and USFWS consultations. (*See* Section D, below)

(g) Based on IF&W's review of the data and the required post-construction monitoring, the Commission finds the Applicant's assertions credible that there will be no undue adverse impact on migratory songbirds and raptors.

C. *Bat surveys.* (*See* Exhibit #13, C of the application)

(1) The Applicant conducted pre-construction nocturnal radar and acoustic surveys of bats during summer/fall 2009 and spring 2010 to characterize migration within the Project Area. The Applicant also compared the bat activity within the Project Area with other wind energy development sites in Maine, in particular the Mars Hill and Stetson sites.

(a) The detection rate[4] for the proposed BHWP site was 0.2 call sequences per detection night in summer/fall of 2009 and 0.4 in spring of 2010.

(b) These rates are lower than Mars Hills' fall 2005 rate of 0.5, and the Stetson site in summer/fall 2006 and spring 2007 at 2.6 and 2.0, respectively. Post-construction acoustic bat surveys at the Stetson site have shown a detection rate of 0.3 call sequences per detection night at the turbine nacelle, but much higher at 28.3 when detectors were deployed in nearby trees. Mortality rates at both of these operational projects have been found to be low.

(2) *MDIFW review comments.* MDIFW submitted review comments and supporting information on March 4 to 12, 2011, and on May 12, 2011. MDIFW also replied to the Sixth Procedural Order #6 that requested additional agency comments on a bat mortality and operation curtailment study

(a) MDIFW initially recommended turbine cut-in speed curtailment as a mitigation measure to reduce the potential for bat mortality. MDIFW stated that bat mortality peaks when wind speeds are below 5 m/s, and recent studies have indicated increasing the speed at which the turbines begin to operate has resulted in reduced bat mortality at some sites. MDIFW recommended that the Applicant set the turbine cut-in speed at 5 meters per second (m/s) from April 20th through October 15th, starting at one-half hour before sunset and ending one-half hour

[4] Detection rate was calculated based on 25 total calls recorded during 30 detector nights of sampling.

after sunrise, which is roughly the same number of weeks as the Applicant's proposal.

(b) MDIFW later commented that "since the public hearing on May 16 and 17, 2011, Maine has confirmed the presence of White Nose Syndrome in bat hibernacula inside the state for the first time. Any additive risk factors, including wind turbine mortality, may place these populations in jeopardy." "Any final study design should include a 'short-circuit' provision in case of specific high-mortality events or higher than expected bat mortality rates at non-curtailed control turbines. Under these conditions, the study would be suspended, and all turbines would be curtailed at wind speeds less than 5.0 m/s pending consultation with MDIFW and/or USFWS." *(MDIFW Procedural Order 6 Response pages 1&2)*

(c) MDIFW further commented that although mortality thresholds cannot yet be determined, bat populations are in steep decline for a number of reasons, including White Nose Syndrome, and mortality should be avoided by all possible means. "Rather than identifying a specific threshold, MDIFW has recommended that all possible means to avoid bat mortality be implemented from the beginning of the project, including curtailment, and avoiding nighttime lighting of the facility." "At present, operational curtailment of all turbines during periods of bat activity as recommended, or as to be determined by the curtailment study"…. "is the best method we have of avoiding and minimizing bat mortality."

(3) *Applicant's response*. On April 15, 2011, the Applicant responded to MDIFW, agreeing to conduct post-construction bird and bat mortality monitoring during the first two years of operation, from April 15th to September 30th (*See* Section D, below). The bat portion of the proposed study was designed in consultation with MDIFW and Bat Conservation International (BCI) to determine the dates and conditions for which curtailment is likely to substantially and effectively reduce bat mortality at this site, and includes operational changes if the need is identified during review of the study results. The Applicant will submit a final detailed study design to the Commission for review and approval.

(a) Although the proposed post-construction monitoring will be focused on both bat and bird mortality, for the bat mortality component 50% of the turbines would have a cut-in speed of 5 m/s, which is a curtailment of the typical operational cut-in speed. The remaining turbines will be operated at a cut-in speed of 3 m/s. Curtailment to 5 m/s will occur ½ hour after sunset until sunrise and when the temperature is above 50 degrees Fahrenheit from early May to late September (*See* Revised Exhibit #19, submitted on 5/16/11 for additional detail about the proposed monitoring)

(b) Published studies (*See* MDIFW comments dated 3/10/11) have shown that such operational curtailment at low wind speed reduces bat mortality resulting from either collision with a turbine blade or barotrauma[5]. Curtailment has not been shown to have any effect on bird mortality; however, MDIFW theorizes it is reasonable to expect mortality of avian nighttime migrant species to be lower on nights when the turbines are curtailed.

(4) *Intervenor CCRHC*. CCRHC asserted that the "compromise position between MDIFW and [the Applicant] is insufficient to protect the population of non-

[5] Trauma caused to a bat when it experiences extreme pressure changes near a blade.

migratory, cave-dwelling bats in Maine, particularly now that they are threatened by White Nose disease." (*See* CCRHC Final Brief pages 6&8) Instead, CCRHC asserted that the Applicant should follow the recommendations made by MDIFW, and if not the permit should be denied based on undue adverse impact to the bat population.

(5) Based on the testimony by MDIFW (above) the Commission finds credible that a study that contains a "circuit-breaker" provision for high mortality rates will both be effective at avoiding an undue adverse impact and will provide information for future management of turbines to reduce bat mortality.

D. *Applicant's proposed post-construction avian and bat monitoring plan*. (*See* Revised Exhibit #19, submitted on 5/16/11)

(1) *Objectives.* The Applicant outlined the objectives of the first two years of the avian and bat post-construction monitoring: document species and numbers during spring migration, summer breeding, late-summer, and fall migration; estimate the level of mortality of birds and bats during the study period[6]; determine if any mortality events are uniform across the Project Area; determine the factors influencing mortality if rates are unusually high; determine if adaptive management action(s) are needed; and attempt to relate the two consecutive years of pre-construction radar data to mortality data at specific turbine locations.

(2) The Applicant proposed that the results of the first two years of bird and bat mortality searches will determine the need for, scope, focus and timing of successive years of monitoring. The Applicant also proposed provisions for adaptive management if unusually high bird or bat fatality rates occur, or if impacts to species of conservation concern occur.

(3) The study methods for the bat component of the survey will be developed in consultation with MDIFW, BCI, and the Bat and Wind Energy Cooperative. University of Maine wildlife students will also be involved, if possible. The detailed study design, which will follow a similar study for a wind energy project that is currently under construction in Sheffield, VT, will be submitted to LURC staff for review and approval prior to commencing turbine operation. Annual reports of the bat study results for the first two years will be submitted to LURC, MDIFW, and BCI for review. As a result of the review of the annual reports, The Commission may require operational mitigation, such as curtailment or other management options.

The bird mortality surveys will be conducted concurrently with the bat surveys, and the results of the bird surveys will be reported annually. In the event that an unusually high mortality rate for birds or bats is found during any search or searches, the Applicant agreed to contact LURC staff and MDIFW to determine if further action is necessary.

(4) *Adaptive Management Plan.* The Applicant proposed an Adaptive Management Plan that would be developed in consultation with MDIFW, and would include:

(a) Assessment of the level of impact of observed mortality rates;

(b) If mortality rates are unusually high, further study to determine the biological or behavioral factors, project design features, and/or environmental conditions (*i.e.,* weather) that may influence mortality; and

[6] Based on the results of standardized searches, searcher efficiency trials, scavenger carcass removal trials, and if necessary, a search area correction factor.

(c) Implementation of appropriate management action(s), including as necessary further curtailment, to reduce mortality if it is determined to be an unreasonable adverse impact.

(5) *Management Plan Actions*. The Applicant proposed possible management actions depending upon the bird or bat species impacted, the factors contributing to mortality, monitoring of results of adaptations, and specific circumstances resulting in increased collision risk. These measures include, but are not limited to:

(a) Subject to FAA approval, changes to the FAA lighting scheme on project turbines and permanent met towers;
(b) Modification of project structures, such as stairways;
(c) Relocation of nests and/or deterring nesting birds;
(d) Preventing the formation of seasonal water sources in the direct vicinity of turbines;
(e) Alteration of on-site land uses or habitats surrounding turbines; or
(f) Operational curtailment during increased collision risk periods.

E. *Wildlife habitat and state or federally listed species*.

(1) *Applicant's Wildlife Habitat Report* (*See* Exhibit #13, A of the application).

(a) *Wildlife habitat impacts*. The record shows that no undue adverse impacts to any state or federally listed species or habitats are expected as a result of the proposed BHWP. The Applicant's reports show that overall, the BHWP is expected to directly and indirectly impact local (non-sensitive) wildlife communities and habitats due to "habitat loss or conversion, disturbance effects that could result in animals avoiding the project area, habitat fragmentation, and collision-related fatalities". Such impacts, however, are not expected to be unduly adverse, and that "local wildlife populations already adapt to the occasional rapid changes in the distribution of habitats along the ridge from harvesting activities". (*See* Exhibit #13, A of the application, page 8)

(b) *Sensitive wildlife habitat*.

(i) The application materials show that the Project Area is located between the Union River and the Narraguagus River watersheds, and that these rivers and their perennial tributary streams are federally Designated Critical Habitat for Atlantic salmon. The Project Area, however, is not within the Designated Critical Habitat for Canada lynx, and the Project would not intersect any state-mapped wildlife areas, such as Inland Waterfowl or Wading Bird Habitat or Deer Wintering Areas. (*See* Exhibit #13,A of the application, page 4)

(ii) Although present in flowing waters near the Project Area, the record shows that Atlantic salmon habitat located near the Project Area will be adequately buffered by vegetation and resource protection setbacks and will not be adversely affected by the project. The West Branch of the Narraguagus River[7], and the East Branch of the Union River "are the closest federally designated Essential Fish Habitat (EFH) to the project area". "Neither of these rivers nor the EFH associated with them is impacted by the project as designed." Tributaries to these rivers that are associated with the EFH and

[7] A "Habitat Area of Particular Concern", which is a discrete subset of an EFH that provides extremely important ecological functions or are especially vulnerable to degradation.

thus designated as EFH themselves include "the Bog River and its tributaries which flow in between [proposed turbines] 2 and 3 close to the project area". *(See* application Exhibit #13A, section 4.4 page 7*)*

(iii) The Applicant further reported that there are two types of significant or sensitive habitat within the Project Area: Significant Vernal Pools (*See* Section F of this Finding), and Wetlands of Special Significance (*See* Finding of Fact #26, B).

(iv) *See* Section B(1)(b) and B(1)(d)(ii), above, for discussion of the federally listed bald eagle.

(2) *Agency review comments*.

(a) *Maine Natural Areas Program (MNAP).* MNAP reviewed the proposal and commented that their records show no mapped rare or unique botanical features in the vicinity of the proposed site.

(b) *Maine Department of Inland Fisheries and Wildlife (MDIFW).* MDIFW reviewed the proposal and commented that their records show no existing mapped areas of wildlife protection; *i.e.* raptor nesting; migratory bird corridors; threatened or endangered species' habitats; inland waterfowl and wading bird habitat; deer wintering areas; or other.

(c) *Maine Department of Marine Resources (DMR), Bureau of Sea Run Fisheries and Habitat (BSRFH)*. The BSRFH reviewed the proposal and submitted comments on March 1, 2011 that expressed no concern for any impact to the inland Atlantic salmon habitat due to the BHWP.

(3) *Intervenor CCRHC.* In its pre-filed testimony (*See* CCRHC pre-filed testimony of O'Toole pages 2&3), CCRHC asserted the following regarding Atlantic salmon habitat:

(a) The proposed BHWP is within a watershed that includes critical habitat for Atlantic salmon.

(b) Narraguagus Lake is two miles from Beech Knoll, the proposed location of turbines one through four. The lake's outlet, the Narraguagus River, also collects its waters from several tributaries on Heifer Hill, proposed location of turbines 5 through 7; and Bull Hill, proposed location of turbines 10 through 19. The Narraguagus River is one of eight Maine rivers within the Gulf of Maine Distinct Population Segment that hosts the federally endangered Atlantic salmon.

The federal Endangered Species Act, Section 7, (2) [Interagency Cooperation] states that "any action authorized or permitted must not jeopardize the continued existence of any endangered or threatened species or result in the destruction of or adverse modification of habitat of such species which is determined to be critical".

(c) Several streams or tributaries that drain from the Project Area could potentially be impacted by sediment run-off, and all feed into the West Branch of the Narraguagus River. Narraguagus Lake also receives run-off from unnamed tributaries below Beech Knoll's proposed turbines.

(d) In the Maine Wildlands Lake Assessment (1987), Narraguagus Lake was given a "significant" rating for scenic character, fisheries (native), shoreline character, and cultural resources. MDIFW has recommended Narraguagus Lake be closed for ice fishing due to the fragile status of this fishery.

(4) *Applicant's response to CCRHC*. Regarding CCRHC's testimony on Atlantic salmon habitat, in its pre-filed testimony the Applicant asserted:
   (a) The only portion of the proposed Project that is located within the watershed of Narraguagus Lake is approximately 250 linear feet of a 12 foot wide road that would access a permanent met tower. The Applicant asserted that the risk to the water quality of Narraguagus Lake is non-existent.
   (b) Regarding the West Branch of the Narraguagus River, the BHWP has been designed to have no stream impacts. The Applicant noted that BSRFH has commented that "the project will have no impact on Atlantic salmon populations or habitat." (*See* March 1, 2011 email from BSRFH to LURC staff)
   (c) The Applicant also asserted CCRHC's concern that the sufficiency of the field survey work done for the BHWP is without merit, explaining that the consultant they employed has conducted more than 180 field seasons of pre-construction avian monitoring in 12 states, and the surveys for RTE species were based on proven protocols and techniques developed in consultation with the resources agencies, including MDIFW and USFWS.

(5) In light of the agency comments and the Applicant's filings, the Commission does not find the intervenor's concerns credible.

F. *Vernal pools (See Finding of Fact #26 for the discussion of other wetlands)*.

(1) *Applicant's pre-construction survey* (*See* Exhibit #13, A of the Application). The Applicant's consultant identified fifty-three (53) vernal pools within the Project Area. Eighteen (18) of the pools were determined to be naturally occurring[8], of which seven (7) pools were determined to be Significant Vernal Pools (SVPs) in accordance with the MDEP's Natural Resource Protection Act (NRPA) definition (*See* 38 MRSA 480-B, Chapter 335). The field surveys were conducted in accordance with MDIFW's specified criteria. Five (5) of the remaining 35 pools (all of which are man-made) met the significance criteria of the NRPA[9].

Whether significant or not, all vernal pools in the Project Area would be avoided and impact to upland buffers would minimized. Setbacks have been proposed in order to maintain the buffers. MDIFW's Best Management Practices for forest operations and development activities in proximity to vernal pools will be followed.

(2) *Intervenor CCRHC.*
   (a) CCRHC asserted that "the Applicant's vernal pool and wetland assessment is incomplete and therefore suspect", contending that there are gaps in critical data contained in the report, and expressing concern "about the timing of the mapping, its completeness and the number of significant wetlands and vernal pools in the project footprint." CCRHC also asserted that because no geotechnical analysis for the roads and turbine pads was provided in the application, the "numerous vernal pools and wetlands adjacent to proposed road and tower pads" may be impacted if road and pad locations change. (*See* CCRHC pre-filed testimony of O'Toole page 4). However, the State Soil Scientist indicated that the effects of construction were predictable and adequate provision has been made in the construction plans

[8] DEP/NRPA does not consider a man-made vernal pool to be significant, and therefore, it is not regulated.
[9] Therefore, likely to be regulated by the U.S. Army Corps of Engineers.

to avoid the type of impact that CCRHC is concerned about. (*See* Finding of Fact #36, F(1)(2))

(b) CCRHC also asserted that "while conducting the vernal pool assessment observers should scan land adjacent to the pool (out to 25 feet) for rare species". It states the Applicant did not fully assess all vernal pools for Fairy Shrimp or rare species, but conducted "a second field visit one to two weeks after the first visit"… "to naturally occurring vernal pools only". CCRHC asserted that "the first visits [to the vernal pools] were too early in the season, and subsequent ones did not include man-made potential vernal pools covered by U.S. Army Corps of Engineers guidelines."

(c) After listening to the Applicant's testimony explaining the timing of the vernal pool testing, CCRHC's consultant testified that she understood why the vernal pool testing took place when it did and that she was comfortable with the timing of the surveys.

(3) *Applicant's response.* In response to CCRHC, the Applicant asserted that:

(a) Using maps and GPS grid transects, the entire Project Area was assessed for the presence of vernal pools during seasonally appropriate conditions.

(b) All vernal pools identified in the Project Area were examined for egg masses, fairy shrimp, and other rare species; and each upland buffer area was surveyed for rare species indicators. Second visits were conducted to the natural vernal pools, but not to pools identified as man-made. Consultation with MDIFW prior to conducting the surveys revealed no records of rare indicator species in the Project Area, and none were found on-site during the field surveys.

(4) *MDIFW review of vernal pools.* MDIFW testified at the public hearing, and summarized its testimony in its response to the Sixth Procedural Order, that: "The Applicant has provided all the necessary information and has sufficiently avoided or minimized impacts to Significant Vernal Pools (SVP) and Potentially Significant Vernal Pools (PVP). Impacts to all SVP and PVP [upland] buffers will be less than the 25% threshold, so no further recommendations or mitigation are necessary."

MDIFW further commented that SVP #34CF-N has existing impacts to its buffer, but that the impacted area is within a right-of-way controlled by Bangor Hydro. Following its protocol, MDIFW only calculated the upland buffer impacts due to the proposed BHWP that would be on property under the control of the Applicant. MDIFW commented that the minor additional buffer impact due to the proposed road upgrading would be a fraction of the allowable 25% of the buffer.

G. *Public comment*. During the hearing, a member of the public offered testimony with regard to the effect of the project on wildlife expressing concern that the BHWP would adversely affect the wildlife on his parcel, which is located in the vicinity of Sugar Hill. MDIFW expressed no concerns for impacts to wildlife in the region as a result of the BHWP.

H. *Conclusions.*

(1) *No undue adverse impact to birds*.

(a) Based on the evidence in the record with regard to migrant songbirds, the Commission concludes that the potential impacts of the proposed BHWP will not

have an undue adverse impact on migrating songbirds. Specifically, no particular concern for the BHWP with respect to avian species was expressed by MDIFW, the Applicant will in any event conduct a third year of pre-construction monitoring, and monitoring at other sites has not indicated a direct correlation between flight height and passage rate with mortality of songbirds. The pre-construction avian monitoring results were similar to other wind projects located in Maine in comparable habitats, and at those locations there has not been an undue adverse impact.

(b) Based on the evidence in the record with regard to raptors, in particular that there are no active eagle nests in the area and raptor use of the area is low, including but not limited to the Applicant's pre-construction study findings; and the review comments by MDIFW and USFWS, the Commission concludes that the potential impacts of the proposed BHWP will not have an undue adverse impact on eagles or other raptors.

(c) Further, the Commission concurs with MDIFW that the post-construction monitoring proposed by the Applicant in combination with the proposed "Adaptive Management Plan" will allow for appropriate operational changes, and will appropriately address any unanticipated problems with bird mortality.

(2) *No undue adverse impact to bats.* The Commission concludes that the record contains substantial evidence that the potential impacts of the proposed BHWP will not have an undue adverse effect on bats. Specifically, the Applicant has demonstrated that there is low bat activity documented in the Project Area and vicinity. When also considering, however, the recent first-time documentation in Maine of, and the impact of, White Nose Syndrome on bats, a condition to ensure that bats will be protected from undue harm must be attached to the permit, namely the proposed 50/50 operational curtailment program in conjunction with the two-year bat mortality study. The Applicant must develop an adaptive management plan in consultation with MDIFW and provide that to LURC staff for review and approval prior to operation start-up. The Applicant must also provide to LURC staff semi-annual reports during the two year study period, prepared in consultation with MDIFW and/or USFWS, detailing the results of the study for Commission review and approval as set forth below.

(a) If, upon review of a semi-annual report, or the final report at the end of year two, LURC staff determines there is an unacceptable mortality rate at the un-curtailed turbines such that continued un-curtailed operation would cause an undue adverse effect, the study must be suspended, and all turbines must be curtailed at wind speeds less than 5.0 m/s, pending further review and approval by LURC staff of a proposal from the Applicant, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes as necessary to avoid any undue adverse impact on bats.

(b) The Applicant must also report to LURC and MDIFW if an unusually high mortality event involving either birds or bats is discovered during routine searches so the need to curtail the cut-in speed or to make other operational changes can be assessed. If LURC staff determines there is an unacceptable mortality rate at the un-curtailed turbines such that continued un-curtailed operation would cause an

undue adverse effect, the study must be suspended, and all turbines must be curtailed at wind speeds less than 5.0 m/s, pending further review and approval by LURC staff of a proposal from the Applicant, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes as necessary to avoid any undue adverse impact on bats.

(c) At the end of the two-year study the Applicant must submit for LURC staff review and approval a proposal, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes as necessary to avoid any undue adverse impact on bats.

(3) *State- or federally listed species, and significant wildlife habitat*.

(a) *Atlantic salmon habitat*. Intervenor CCRHC raised the issue of project impacts to the watershed of the Narraguagus River that is protected for Atlantic salmon habitat. While the project is near habitat, USFWS and DMR/BSRFH have both commented that due to the project not directly affecting any streams, there will not be an undue adverse impact to Atlantic salmon populations or habitat as a result of the proposed BHWP. The Commission concurs with this conclusion.

(b) *State or federally listed species*. MNAP, MDIFW, and USFWS did not note any known rare, threatened or endangered species or Significant Wildlife Habitat located within the Project Area. The Applicant's consultant conducted field surveys for verification, and did not observe state- or federally-listed species present in the Project Area beyond those noted in B(1)(c)(iii) above. Although Intervenor CCRHC's contends that the findings by the Applicant and agency reviewers are not credible, its assertions are based on their consultant's general experience elsewhere in Maine, and the Commission concludes that the stronger site-specific evidence in the record indicates the proposed BHWP will not have an undue adverse impact on state or federally listed wildlife species or Significant Wildlife Habitat.

(4) *Vernal pools*. All vernal pools (SVPs, PVPs, and VPs) were identified on site and assessed by the Applicant's consultant. The Applicant asserted that no vernal pools would be directly impacted by the project. Further, MDIFW determined that an existing impact greater than 25% to the upland buffer of one SVP is the responsibility of the Bangor Hydro, who is the owner of the right-of-way for the existing transmission line, and that the additional proposed impact to the buffer by the Applicant would be minimal and not unduly adverse. Therefore, based on the record, the Commission concludes that the BHWP as proposed will not directly adversely impact any vernal pool, whether deemed significant or not; and the one adverse impact to a significant vernal pool buffer area will not be undue.

38. *Scenic Character*

A. *Review Criteria: Evaluation of effects on scenic character [Title 12, § 685-B(4)C and Title 35-A, chapter 34-A, § 3452]*. The Commission's criteria for approval for an expedited wind energy development in Title 12, § 685-B(4)(C), pursuant to PL 2008, Chapter 661 states: "In making a determination under this paragraph regarding an expedited wind energy development, as defined in Title 35-A, § 3451, subsection 4, the

Commission shall consider the development's effects on scenic character and existing uses related to scenic character in accordance with Title 35-A, § 3452."

(1) Title 35-A, chapter 34-A, §3452 states that when "making findings on the effect of an expedited wind energy development on scenic character and existing uses related to scenic character, [the Commission] shall determine"… "whether the development significantly compromises the views from scenic resources of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to the scenic character of the scenic resource of state or national significance." The determination by the Commission under this section also includes the associated facilities of the expedited wind energy development, unless otherwise requested by an interested party.

(2) Title 35-A, chapter 34-A, § 3452(3) further requires that when making a determination on impacts of an expedited wind energy development on scenic character, the Commission shall consider the following:
   (a) "The significance of the potentially affected [scenic resource];
   (b) The existing character of the surrounding area;
   (c) The expectations of the typical viewer;
   (d) The expedited wind energy development's purpose and the context of the proposed activity;
   (e) The extent, nature and duration of the potentially affected public uses of the [scenic resource] and the potential effect of the generating facilities' presence of the public's continued use and enjoyment of the scenic resource of state or national significance; and
   (f) The scope and scale of the potential effect of views of the generating facilities on the [scenic resource], including but not limited to issues related to the number and extent of the turbines visible from the scenic resource of state or national significance, the distance from the scenic resource of state or national significance and the effect of prominent features of the development on the landscape."

(3) Title 35-A, § 3452(3) and (4) also state that "a finding by [the Commission] that the generating facilities are a highly visible feature in the landscape is not a solely sufficient basis for determination that an expedited wind energy development has an unreasonable adverse effect on the scenic character and existing uses related to scenic character of a scenic resource of state or national significance." The effects of portions of the developments facilities located more than 8 miles from a scenic resource of state or national significance shall be considered to be insignificant. A visual assessment is not generally required for the portions of the wind energy development located from 3 to 8 miles from scenic resources of state or national significance, but may be required if there is substantial evidence that such an assessment is needed**.**

B. *Scenic standard applicable to associated facilities*. At the March 22, 2011 prehearing conference, the issue of the scenic standard applicable to this project's associated facilities was raised. *See* Memorandum and Second Procedural Order at 10 (April 4, 2011). The Chair provided the parties an opportunity to submit argument prior to the resolution of this issue, all in advance of the parties' pre-filing of testimony. *See* First Procedural Order (March 22, 2011). At its April 6, 2011 regularly scheduled business

meeting, the Commission formally delegated to the Chair the authority to determine whether the Title 35-A standard or the Title 12 standard would apply to the associated facilities. And, thereafter, the Third Procedural Order (April 14, 2011) set forth in detail the findings and conclusions regarding the scenic standard applicable to the associated facilities.

(1) *Title 35-A analytical framework*. Pursuant to 35-A M.R.S. § 3452(2): The [Commission] shall evaluate the effect of associated facilities of a wind energy development in terms of potential effects on scenic character and existing uses related to scenic character in accordance with Title 12, section 685-B, subsection 4, paragraph C . . . in the manner provided for development other than wind energy development*, if the [Commission] determines that application of [Title 35-A, subsection 3452, paragraph 1]. . . to the development may result in unreasonable adverse effects due to the scope, scale, location or other characteristics of the associated facilities.* An interested party may submit information regarding this determination to the primary siting authority for its consideration. The primary siting authority shall make a determination pursuant to this subsection within 30 days of its acceptance of the application as complete for processing.

35-A M.R.S. § 3452(2) (emphasis added). Thus, to determine whether to apply Title 35-A or Title 12, this section directs the Commission to first to apply the scenic standard provided Title 35-A to the associated facilities, and then compare that to the application of the scenic standard provided by Title 12.

(a) *Title 35-A standard*. The Title 35-A scenic standard and its associated criteria are found at 35-A M.R.S. §§ 3452(1) & (3). In applying that standard, the Commission considers views of the associated facilities only from statutorily designated scenic resources of state or national significance, and based upon the criteria set forth in Title 35-A, it would consider whether the associated facilities significantly compromised those views such that there was an unreasonable adverse effect on scenic character or existing uses related to scenic character. 35-A M.R.S. §§ 3451(9), 3452(1) & (3). Upon this review, that is—the scenic impacts of the associated facilities under the Title 35-A standard—section 3452(2) then directs the Commission to consider whether the application of that standard, as opposed to application of the scenic standard set forth in Title 12, "may result in unreasonable adverse effects due to scope, scale, location or other characteristics of the associated facilities." 35-A M.R.S. § 3452(2). Thus, the Commission must next consider what it would consider with regard to the scenic impacts of associated facilities under the Title 12 standard that it would not consider under the Title 35-A standard.

(b) *Title 12 scenic standard*. Under the Commission's traditional scenic standard, 12 M.R.S. § 685-B(4)(C) and Commission Standards § 10.25(E)(1), the Commission would consider whether "adequate provision has been made for fitting the [project] harmoniously into the existing natural environment in order to ensure there will be no undue adverse effect on [among other things] existing uses [and] scenic character . . . in the area likely to be affected by the project." Thus, under Title 12, the standard is the so-called harmonious fit/no undue adverse effect standard, and the Commission's review of the scenic impacts of associated facilities would not be not limited to those views that have been identified by the

Legislature as significant under Title 35-A. *See* 35-A M.R.S. § 3451(9) & § 3452(1). Under Title 12 the Commission would consider the impacts the associated facilities would have on views from scenic resources of state or national significance as well as locally significant scenic resources in the area likely to be affected by the project.

(c) *Contrasting Titles 35-A and 12*. If the Commission were to apply the Title 35-A standard to associated facilities, two factors are relevant for the Commission's consideration. First, the Commission would not consider the scenic impacts of the associated facilities on locally significant scenic resources. Second, with respect to views of the associated facilities from scenic resources of state or national significance, the Commission would not consider whether the associated facilities fit harmoniously into the natural environment. Thus under the analytical framework provided by 35-A M.R.S. § 3452(2), the Commission must ultimately consider: whether (because of their scope, scale, location or other characteristics) the associated facilities may (because the first and second factors stated above would not be taken into consideration) result in unreasonable adverse effects.

(2) *Application of Title 35-A to Bull Hill Wind Project*. As a preliminary matter, to determine which scenic standard applies to the associated facilities in this project, the definition of associated facilities, as compared to generating facilities, and must be clear.

(a) *Definition of associated facilities*. Title 35-A defines associated facilities and generating facilities. In accordance with 35-A M.R.S. §§ 3451(1) & (5):

(i) *Generating facilities* means wind turbines, including their blades, towers, and concrete foundations, and transmission lines (except generator lead lines).

(ii) *Associated facilities* means all other facilities that are not generating facilities, and that includes the turbine pads, which are the cleared, leveled areas of gravel around each turbine, all roads used to access the turbines, the generator lead lines, and the meteorological towers, as well as the operations and maintenance building and the substation.

(b) *Bull Hill Wind Project's associated facilities.* The record indicates the following with respect to the scope, scale, location and other characteristics of this project's associated facilities:

(i) No locally significant scenic resources, other than scenic resources of state or national significance, have been identified with respect to concern regarding the scenic impacts of the associated facilities;

(ii) This project does not propose a new generator lead line and all associated facilities would be proximate to the generating facilities;

(iii) This project proposes only 4.8 miles of new access roads in a project area that contains existing logging roads, and the topography of the project area will not require substantial cut and fill on slopes to construct the roads;

(iv) Elevations proximate to the project area are relatively low-lying, and the elevations that will have views of the associated facilities, for example the substation, will be at a distance that reduces the scenic impact; and

(v) This project's associated facilities may be visible to varying degrees from statutorily designated scenic resources of state or national significance, but they will not be visible from any national natural landmark, federally

designated wilderness area, nationally-listed historic property, or national park.

C. *Applicant's VIA*. The applicant submitted a Visual Impact Assessment (VIA) dated December 7, 2010 that was conducted by Terrence J. DeWan & Associates (TJD&A). The VIA also references an attached user survey that was conducted by Market Decisions, Inc. Scenic Resources of State or National Significance (SRSNS) were identified according to the definition in 35-A M.R.S.A. § 3451(9). The VIA analyzed scenic impacts to 8 miles, so the Commission did not reach the visual impact assessment issues described in Title 35-A §3452 (4), namely whether a VIA was necessary and whether the VIA must address impacts located more than 3 miles and up to 8 miles away. The following resources were identified as SRSNS within 8 miles that have views of the project: Narraguagus Lake in T16 MD, Donnell Pond in T9 SD, Myrick Lake in T10 SD, and scenic viewpoints in the Donnell Pond Unit, Public Reserve Land including Black Mountain, Tunk Mountain, and other viewpoints. (*See* Application Exhibit #18, VIA p.3)

(1) Nine other SRSNS were identified as having no views of the project: Fox Pond, Tunk Lake, Spring River Lake, Little Long Pond, Upper Lead Mountain Pond, Middle Lead Mountain Pond, Lower Lead Mountain Pond, Tilden Pond, and Eastbrook Baptist Church and Town House. (*See* Application Exhibit #18, VIA p.3)

(2) The Applicant states in narrative section 15.1 of its VIA 'That the Eastbrook Baptist Church and Town House, approximately five miles from the project, [are] listed on the National Register of Historic Places'. Because of the surrounding topography and vegetation the narrative further states, *'... the church and town house would not have a view of the project ...'* A letter from the Maine Historic Preservation Commission (MHPC) dated January 5, 2011 included in the application's Exhibit #15,A agrees with the Applicant's Architectural Survey Report listing the Church and Town House on the Register and states *'Based on information provided to us, the [MHPC] concludes that the proposed project will not, in accordance with Maine LURC regulations and 356-A MRSA subsection 3452, cause unreasonable adverse effects on historic properties. Likewise, we conclude that there will be no historic properties [architectural or archeological] adversely affected by the proposed undertaking pursuant to Section 106 regulations.'*

(3) The Purpose and context of the project is described in Palmer's review: "At 34.2 MW, the Bull hill Project is of moderate size" (p. 27) and this characterization was used in the assessment of scenic impacts to all of the SRSNS.

D. *Third Party Review*. The Commission's retained scenic expert, Dr. James Palmer of Scenic Quality Consultants, conducted a third party peer review, dated March 21, 2011, of the Applicant's VIA. Dr. Palmer's overall conclusion includes the following statement: "The scenic impact to the state and nationally significant resources is Adverse at some locations and may be Very Adverse at a very few specific viewpoints. However, these areas are very limited and the Overall Scenic Impact from the proposed Bull Hill [does] not appear to be Unreasonable Adverse within the guidance given by the Wind Energy Act." (*See* Palmer review, p.41)

E. *Methodology challenged.* The intervenor, CCRHC, challenged the methodology used during both the VIA and Palmer's review.

(1) Perry Moore of The Moore Companies conducted a review of the VIA, dated April 25, 2011 and raised several points regarding the adequacy of the information presented.

(a) *Vegetation height assumptions*. Moore indicated that the Applicant's assumptions about vegetation height were overly optimistic in some areas that could have effectively no screening, such as some forested wetlands or recently harvested areas. Palmer concurred, but indicated that he had conducted the same evaluation with different assumptions, including assuming no screening from these areas, and that the assumptions used in his review are conservative but commonly used by professionals in the northeast. Dewan testified during the public hearing that Palmer's review using revised assumptions came to the same conclusions as the original VIA.

The Commission finds that the vegetation height assumptions used were appropriate and sufficient for the purposes of viewshed mapping.

(b) *Cover type data*. Moore expressed concern that "A quick view of the area on Google Maps utilizing satellite imagery depicts large areas of vegetation types not indicated in the [VIA]" (*See* Moore 4/25/11 p.1) In his review, Palmer indicates that the data used in the VIA "appear to be the same as those available from the Maine Office of GIS". (*See* Palmer review p. 15) The application of these data sets is described in TJD&A's rebuttal to pre-filed testimony: "Viewshed maps are not the final word on visibility but rather are used as guides to inform field investigations. In the case of Bull Hill, TJD&A used Viewshed Map E *Topography* (without vegetation) to make preliminary determinations of visual impacts on scenic resources of state or national significance. Field visits, in conjunction with Viewshed Map F *Topography and Vegetation*, enabled us to refine the extent of potential visibility."

The Commission finds that the cover type data used by the Applicant was sufficient for the purposes of viewshed mapping.

(c) *Screening by deciduous trees*. In his April 25th report, Moore presented a photograph to illustrate his concern about using screening assumptions when the vegetation is deciduous. In other words, that in leaf-off conditions, screening may be far less effective than when leaves are on the trees. The photograph was taken from route 182 - a location that is not a SRSNS. Most of the activities related to scenic character discussed in the record involve boating, hiking, fishing, swimming, camping, and backpacking, however there was some discussion of winter uses such as cross-country skiing, snowshoeing, and ice fishing. (*See* BPL 6/14/11 and Exhibit #18, VIA)

As a preliminary matter, the photograph that was presented to demonstrate this screening issue was not a viewpoint that the Commission may consider. To the extent there are jurisdictional viewpoints similar the Moore photograph, the Commission finds that the screening assumptions were sufficient for the purposes of viewshed mapping because, as indicated above, the use of viewshed maps is a starting point for further investigation, including, for example, field investigations and - as Dr. Palmer indicated - analysis assuming no screening from vegetation.

Moreover, the record shows that, while there are uses related to scenic character that take place during leaf-off conditions, the majority of the uses that were considered as potentially impacted are primarily warm-weather activities, which would occur at times of the year when leaves are on the trees.

(d) *Recommendation to conduct a balloon test*. Moore advocated for a balloon test to verify visibility. The stronger evidence shows however, as indicated by both Palmer and Dewan, that such a test is not practical in windy locations (such as a potential turbine site) and that the information gained would not be more helpful than the data already presented.

F. *User data*. Market Decisions, Inc. was retained by the Applicant to conduct a survey of hikers, including visual simulations. The survey was conducted on Columbus Day weekend of October 2010. CCRHC presented testimony from Renata Moise, who was part of a group of hikers who was surveyed by Market Decisions, Inc.; however she did not take the survey herself. Ms. Moise objected to the survey methods, including, among other things, the time of year when the survey was conducted, which simulations were used, and the ratings scale. The survey report acknowledges that because the survey was conducted only one weekend in October, and only with hikers, it may not be representative of other times of year, or for users other than hikers.

(1) Similar concerns about timing of the survey were raised by Kathy Eickenberg of the Maine Department of Conservation, Bureau of Public Lands, in her comment dated June 14, 2011. Ms. Eickenberg also made a number of observations about use patterns in the Donnell Pond public lands unit, the contents of the management plan for the area, and the lack of formal usage statistics for the area. In addition, members of the public testified about the uses in the area.

(2) Palmer acknowledges in his review of the VIA that there are significant limitations in the survey data, which reduce the applicability. However, he factored that in when conducting his review, and did find some value in comparing the results of the scenic impact ratings with the ratings for affect on enjoyment and likelihood to return. Palmer felt there was value, albeit limited, in the survey.

(3) Title 35-A directs the Commission to consider numerous criteria in evaluating effects on scenic character and related existing uses, and survey data is helpful with regard to some, but not all, of the criteria. Specifically, such data assists in the Commission's consideration of the expectations of the typical viewer, the effect on the public's continued use and enjoyment, and the duration of the impact. 35-A M.R.S.A. §§ 3452(3)(C) & (E). Based upon this record, the Commission finds that while the user data available through the Columbus Day survey is limited, the survey in addition to the agency and public comments regarding use and activities, provide the Commission with sufficient evidence on which to make findings on visual impacts in accordance with the § 3452(3) criteria.

G. *Scenic Resources of State or National Significance Within 8 miles of the Generating Facilities*.

(1) *Narraguagus Lake*. Narraguagus Lake is a SRSNS due to its significant scenic rating in the Maine Wildlands Lake Assessment. It is 2 miles from the project, and has no

formal public access. There are approximately six cottages on a portion of the shoreline, which are accessed by logging road. Although public access is difficult due to the ownership patterns, the lake is close to settled areas, particularly Franklin, and is less than a mile from Rt. 182. It is currently listed in the Commission's Chapter 10, Land Use Districts and Standards, as management class 7, relatively accessible, and undeveloped.

(a) Palmer's review of the VIA incorporates information about "extent, nature and duration" of uses as directed in 12 MRSA §3452. He interprets that if there is low use, that the level of impact of the development may be lower as well. (*See* Palmer review p. 32) This is generally the approach that has been taken in past analyses. It bears examining, however, whether this premise would hold if the SRSNS in question were particularly valued for its remote qualities. If Narraguagus Lake were rated as a Class 1 (least accessible, undeveloped high value lake) or 6 (remote pond) it would indicate that the Commission had incorporated into its regulations provisions to protect the remote qualities of the waterbody. That is not the case here, however, and the lake does not demonstrate other key characteristics of remoteness such as distance from settlements and lack of development that would lead the Commission to interpret low use as important to scenic character and the uses related to scenic character, within the meaning of the criteria in 12 MRSA §3452. Narraguagus Lake is relatively close to public roads and settlements and thus could be accessed, and the low use therefore is due to ownership patterns rather than remoteness.

(b) Palmer, in his review (p. 32) makes the following statement:
"Narraguagus Lake is sufficiently close to the Bull Hill Wind Project and the area of visibility is sufficiently extensive that the turbines will dominate views to the northern end of the lake. A major moderating circumstance is the expectation that Narraguagus Lake sees relatively few users, and most of those will be fishing, which is an activity where scenic quality may not be most central to the experience. So far surveys have indicated that people will continue to return to engage in their recreation activities, even if turbines will be part of the view. However, the magnitude of this impact is sufficiently greater than in views included in past surveys that the transferability of the result is less certain. Another major moderating circumstance is that the significance of Narraguagus Lake as a scenic resource is rather low. The overall impact is judged to be Medium."

(c) The Applicant's VIA indicates that the impact to Narraguagus Lake would be low-medium, and there is no indication that an alternate analysis is warranted given that the lake is not Class 1 or Class 6 lake, nor does it show other indications of being valued for remoteness.

(2) *Myrick Lake*. Myrick Lake is a SRSNS due to its significant scenic rating in the Maine Wildlands Lakes Assessment. According to the Applicant's VIA, Myrick Lake (also referred to as Myrick Pond) is 4.6 miles from the project. There are a few camps on the shoreline, which are largely screened by vegetation. The Commission's 2010 Comprehensive Land Use Plan lists Myrick Pond as a "Lake approaching heavily developed status", but it is currently a management class 7 lake, listed as

relatively accessible and developed in the Commission's Chapter 10, Land Use Districts and Standards.

Myrick Lake has a lack of developed public access and therefore is lightly used. In addition, visibility of the project will be limited: at certain places on the pond, the viewer may see portions of up to 4 turbine hubs and blade tips of other turbines, although vegetation along the lakeshore makes it unlikely that this many hubs would be seen. Because Myrick Lake is not class 6 or class 1, the Commission would generally consider low use to indicate a relatively lower visual impact. This is the case for Myrick, as is detailed in the Applicant's VIA and Palmer's review. Both rated the impacts to Myrick as low. Some of the reasons cited were the types of uses (largely fishing, swimming and boating), the lack of formal public access, findings from the Columbus Day user survey indicating likelihood to return post-construction of the turbines, and the limited views of the turbines.

(3) *Donnell Pond Unit*. The Donnell Pond Unit is a Maine Public Reserved Land that was identified by the Department of Conservation, Bureau of Public Lands, as a Scenic Resource of State or National Significance in rule, as directed by PL 2008, Ch 661. Viewshed mapping indicates that the vast majority of the Unit will not have views of the project. (*See* Exhibit #18, VIA, viewshed maps E and F and Palmer Review map 2) However, three prominent locations will have views of the project: Donnell Pond, which is a SRSNS in its own right because of an outstanding scenic rating, Black Mountain, which is located within the Unit, and Tunk Mountain which is partially located within the Unit.

Users of other resources within the unit are unlikely to see the turbines, except that users of some portions of the shoreline of Donnell Pond may have views. However, the VIA indicates that existing camping and swimming sites will not have views of the turbines. Backcountry users may camp anywhere on the unit, and it is possible that there may be some very limited camping activity in locations along the shoreline where the turbines could be seen, and while BPL does not keep detailed logs documenting usage levels, the June 14, 2011 comments from BPL state that "Indications are that [backcountry] users are not presently a large component of use. However, we expect interest in this Unit for backpacking will increase as we continue to develop more trails consistent with the management plan recommendations." (p. 3) BPL's comments indicate that "The characteristics of the Donnell Unit are those very characteristics sought by backcountry hikers who look for a special combination of features including superior scenic quality, remoteness, wild and pristine character, and capacity to impart a sense of solitude." (p. 2) However, as stated above, the vast majority of the Unit will not have views of the turbines. For that reason, the evidence in the record focuses on Donnell Pond, Black Mountain, and Tunk Mountain. There were a number of public comments regarding the value of the Unit, especially the views from the peaks. Some of the comments indicated that the views would be spoiled for those users, and others indicated that they would value seeing the turbines and would return for that purpose.

(a) *Donnell Pond* – Donnell Pond is a SRSNS because it received an outstanding scenic rating in the Wildlands Lake Assessment. It lies between 5.3 and 8.01 miles from the nearest turbine, with 19% of the pond having views of one or more

turbine. The very popular Schoodic Beach at the southern end of the pond is 8.01 miles from the nearest turbine, and therefore may not be considered by the Commission in its decision, however, the record indicates that even if the Commission were able to consider the beach, it would not result in an unreasonable adverse effect. "In most cases the turbines will not be visible, and even at the worst case viewpoints only a portion of a couple blades will be seen… The overall scenic impact to Schoodic Beach will be low" (*See* Palmer review p. 36). In the Commission's Chapter 10, Land Use Districts and Standards, Donnell Pond is rated as a Management Class 4, relatively accessible, developed lake. Palmer's review indicates that there may be 10,000 users per year of this pond (p. 28), and the VIA indicates that there are approximately 60 seasonal camps on the pond.

(i) The user survey conducted by Market decisions, Inc. included a series of questions about the scenic rating from a point in the Pond that is +/- 7.7 miles from the nearest turbine. The survey results indicate that the scenic quality would decline, but that the addition of the turbines would not change the likelihood that people will return to Donnell Pond to engage in water based activities. (*See* Palmer review p. 28)

(ii) The VIA rates the impact as low-medium and Palmer's review rates it as medium.

(iii) The VIA's conclusion regarding Donnell Pond is:

"Conclusion: The Bull Hill Wind Project will have an adverse effect on the views from Donnell Pond by introducing large, man-made elements in the background of a generally natural, highly scenic landscape. However, the change will be noticeable over a relatively small portion of the pond (approximately 1/5th) and only by those heading toward the Project. The turbines would also be seen in the context of a landscape that already includes a communications tower, shoreline development and other forms of development. The presence of the turbines should not have an unreasonable adverse effect on the scenic character or the uses related to the scenic character of Donnell Pond." (*See* Exhibit #18, VIA, Dewan, p. 30)

(b) *Black Mountain.*

Black Mountain has three interconnected peaks that are accessed by a trail network from both the north and south sides, and is on publicly owned property. The record indicates that the Bull Hill Wind project will be clearly visible from the eastern summit, but the other summits are more than 8 miles from the project, and based on the viewshed maps presented in the VIA, are unlikely to have views of the project in any event. From the eastern summit, all 19 turbines will be seen from 7.8 to 10.5 miles away and will occupy a horizontal angle of approximately 12°. The 5 turbines within 8 miles of the viewpoint will occupy a horizontal angle of approximately 6° which would be 1.7% of the total 360º. The Bull Hill Wind Project would have a significant visual presence to a viewer facing toward them on the eastern summit of Black Mountain occupying a moderate portion of the field of view.

(i) The record shows, based on trail condition, that Black Mountain receives moderate use. The Bureau of Parks and Lands is improving access in the

Donnell Pond Unit, which is anticipated to increase overall use throughout the Unit.

(ii) Dewan states that:

"The presence of the turbines will have an adverse effect on the view from the summit of Black Mountain by introducing man-made elements in a largely natural landscape and present a contrast in form, line, and color. At viewing distance of 7.9 to 8 miles, the turbines will appear to be relatively small when compared with the surrounding low hills and background mountains and should not present an unacceptable contrast in scale. The turbines will be seen in a broad valley to the north and will not block views of the surrounding lakes or mountains." (*See* Exhibit #18, VIA, p. 33)

(iii) In his review, Palmer concludes*:*

"An intercept survey found that the turbines would have a significant scenic impact from Black Mountain's eastern peak, but this location receives relatively few visits in a year. And while the scenic impact seems real, and respondents thought it would have a negative effect on their enjoyment, they did not think that it would keep them from returning to the Donnell Pond Unit. While the scenic impact to visitors on Black Mountain's eastern summit is severe if they are looking toward the proposed project, they have the option to look at a higher rated view. This scenic impact also affects a very limited area; the vast majority of scenic areas within Donnell Pond Unit will not have any visibility of the turbines. As a result the scenic impact to the eastern summit of Black Mountain is judged Medium to High, but not Unreasonably Adverse, and the scenic impact to the whole of the Donnell Pond Unit is judged to be Low."(*See* Palmer review of VIA p. 41)

(c) *Tunk Mountain.*

Tunk Mountain is located partially within the Unit and thus owned by the public, and the VIA indicates the remainder is held privately by The Nature Conservancy. The Nature Conservancy did not participate in this proceeding by way of formal intervention, interested person status, or public comment. The application states that Tunk Mountain qualifies as a Scenic Resource of State or National Significance, and the VIA treated it as such, because of its inclusion in the Downeast Coastal Scenic Inventory as described in 12 MRSA §3451(9)(H)(2). However, that Inventory has not yet been adopted by the State Planning Office as is required by rule, and therefore Tunk Mountain does not legally qualify as a SRSNS under that provision of law. There is also no demonstration in the record that the public has a legal right of access to the privately owned portion of the mountain, as is required by 12 MRSA §3451(9), and therefore even if the Inventory were in force, it does not appear that the privately owned portions would qualify as a SRSNS. The portion of Tunk Mountain that is part of the Donnell Pond Public Lands Unit does qualify as a SRSNS by virtue of the listing in rule of the entire Unit, as discussed above.

(i) According to the VIA:

"Tunk Mountain is the highest peak within the 8-mile study area… The southerly base of the mountain is part of the Maine Public Reserve Land;

however, most of the summit of Tunk Mountain is held privately (The Nature Conservancy (TNC)) and is not managed by the State… The majority of the open views are to the southeast to west, and include Spring River Lake at the base of the mountain and the distant peaks on Mount Desert Island. One open ledge on the north side of the mountain looks toward the Project, which will be visible at a distance of 4.9 miles to the closest turbine… This viewpoint is also the location of a small building and a communications antenna." (*See* Exhibit #18, VIA p. 34)

(ii) The VIA further indicates that all 19 turbines would be visible over an arc of 22º at distances ranging from 4.9 to 7.2 miles. The Project would not be visible in any of the more prominent southerly views from the summit. BPL indicates that there is relatively light use, but it is a backcountry setting and as such there may be an expectation of remoteness.

(iii) The record indicates that the northerly view that is represented in the application at photosimulation 2 is within the Donnell Pond Unit and therefore is considered by the Commission in making its determination.

(iv) Palmer concludes that:

"Tunk Mountain is a scenic resource that has been identified as having state or national significance. The Bull Hill wind turbines will have a stronger visual presence than they had from Black Mountain, because they will be much closer. However it is expected that users will focus on the superior view toward the coast (it is a coastal visual resource after all). In addition, Tunk Mountain has no formal access and use is thought to be very light. This may change because the Bureau of Parks and Lands is planning on upgrading and developing trail access, parking and other facilities supporting Tunk Mountain. The combination of very high visual presence from a highly ranked scenic resource and low current use with survey results that indicate that the impact would not affect the likelihood that users would return lead to the judgment that the Overall Scenic Impact is Medium to High, a very Adverse scenic impact, but not Unreasonable." (*See* Palmer review p. 42)

H. *Project Lighting.*

(1) *FAA lighting*. The application included an FAA lighting plan (*See* Exhibit 9). The submission indicates that 12 turbines would have red aviation warning lights. The meteorological (met) towers would be lit with red lights as well. The Applicant's response to the Sixth Procedural Order identified the viewpoints from which lights could be seen and provided, in relevant part:

(a) *Narraguagus Lake*. The number of lights visible will vary, depending upon the observer's position on the surface of the water. No lights will be visible at the northern and western edge (where the summer camps are located) and south of the pronounced peninsula at mid-lake. At the southern end there are two areas where 10 - 14 lights would be visible. Between 5 and 14 lights would be seen over the majority of the lake.

(b) *Myrick Lake*. Lights would not be visible from the surface of the lake.

(c) Donnell Pond. The lights would not be seen over the majority of the pond. Up to 5 lights would be visible in a narrow band at mid-lake and in the southern lobe,

although some of these may be at a distance greater than 8 miles. At Schoodic Beach, one turbine light may be visible at a distance of slightly more than 8 miles.

(d) *Black Mountain*. Up to 5 turbine lights and one met tower light would be visible within 8 miles. It is unlikely that many hikers will be on the mountain after dark.

(e) *Tunk Mountain*. All 12 turbine lights and the 4 met tower lights would be visible to a hiker on the mountain from the one location that affords a northerly view. However, it is unlikely that there will be many, if any hikers on the mountain after dark.[2]

(f) Because the majority of the Donnell Pond Unit has no view of the project, the remainder of that SRSNS beyond the viewpoints discussed above will have very little to no view of the lights.

(2) *Other Lights.* According to the application, the only other lighting that may be associated with the project is discussed above in Findings of Fact # 20, E(2)(3), #22, C and #23, and for example will include temporary construction lighting, limited temporary nighttime security lighting at the project entrances, entry lights at stairs located at the base of each turbine, and lighting at the O&M building and substation. The Applicant has committed to installing in compliance with Section 10.25,F of the Commission's Land Use Districts and Standards.

I. *Scenic Character Conclusions*.

(1) *Scenic standard applicable to associated facilities.* The Commission does not conclude that the application of the Title 35-A scenic standard to this project's associated facilities may result in an unreasonable adverse effect. While such application will eliminate consideration of the associated facilities' scenic impact on any locally significant scenic resources, no concern was indentified in the record in that regard. Further, in view of the scope, scale, location and other characteristics of the associated facilities, as identified above, the Commission concludes that not requiring them to fit harmoniously into the natural environment with respect to how they will be viewed from scenic resources of state or national significance will not result in an unreasonable adverse effect. For all of these reasons, the Title 35-A scenic standard, not the Title 12 standard, is applicable to the associated facilities of the BHWP.

(2) *Project assessment*. The Applicant conducted a scenic assessment in accordance with Title 35-A, chapter 34-A, § 3452 of scenic resources of state or national significance (Title 35-A, § 3451(9)) within 8 miles of the proposed BHWP.

(a) Within 8 miles of the proposed turbine locations, there are four viewpoints designated by Chapter 661 as scenic resources of state or national significance that will have views of the project. Nine other resources of State or National Significance will not have views of the project, including the Eastbrook Baptist Church, which is on the National Register of Historic Places and is located 5 miles from the closest turbine site. Due to intervening vegetation and topography, the proposed BHWP would not have any visual impact on that property, and MHPC determined that there would not be an impact to this historic resource.

(b) *Conclusions about effects on SRSNS.* As discussed above, under certain circumstances the Commission has determined that remoteness and low levels of use are valuable, and thus under those circumstances it will consider low levels of public

use as contributing to the value of the resource. At the Commission's request, staff took a hard look at this legal issue in the written deliberative materials prepared for the Commission. As this is a legal issue well within the Commission's expertise, namely an issue that requires the Commission to harmoniously apply Titles 35-A and 12, as well as the Commission's regulations and its CLUP, the Commission did not to solicit further comment and argument from the parties on this issue during the Commission's deliberations on this matter.

(i) *Narraguagus Lake*: As stated above, Narraguagus Lake is not rated as a Class 1 ("least accessible, undeveloped high value lake") or 6 (remote pond) and thus the Commission has not incorporated into its regulations provisions to protect the remote qualities of the water body. Further, this lake does not otherwise demonstrate other key characteristics of remoteness such as distance from settlements and lack of development that would lead the Commission to interpret low use as important to scenic character and the uses related to scenic character, within the meaning of the criteria in 12 MRSA §3452. Nevertheless, the Commission acknowledges that this project will be highly visible from Narraguagus Lake. The Legislature has determined, however, that highly visible turbines alone are not a sufficient basis to determine a project is unreasonable. 35-A M.R.S. § 3452(3). Rather, the Legislature has directed the Commission to consider numerous other criteria to determine what is acceptable under the applicable law. This Lake has existing development, a lack of developed public access, relatively low use levels – mostly for fishing - and a relatively low scenic rating compared to other SRSNS. Therefore, the Commission concludes that views from the Lake will not be significantly compromised such that the project would have an unreasonable adverse effect on the scenic character of Narraguagus Lake or the existing uses related to scenic character.

(ii) *Myrick Lake*. Myrick Lake will have limited visibility of the project. For this reason, and because of the existing development, lack of developed public access, relatively low use levels – mostly for fishing, swimming and boating - and the findings from the Columbus Day user survey which indicated a small reduction in the likelihood to return, the Commission concludes that there would not be an unreasonable adverse effect on the scenic character of Myrick Lake or the existing uses related to scenic character.

(b) *Donnell Pond Unit and Donnell Pond*. The project will not be visible from the vast majority of the Unit. There will be potential for some impacts to backcountry users to the extent they visit the few locations in the unit where turbines will be visible, but the primary impacts will be on Black and Tunk Mountains and on Donnell Pond. Donnell Pond has a limited view, at more than 5 miles, of the turbines, and has a significant amount of existing development. The user survey indicates that the turbines would not change the likelihood of people to return to engage in water-based activities.

(i) Black Mountain has a distant view of the turbines. The turbines would occupy a relatively small portion of the view at a significant distance, and there are dramatic views in other directions. There would be an adverse impact to the users that hike to the summit, but in the context of the whole Unit, it does not rise to the level of unreasonable.

(ii) The majority of the summit of Tunk Mountain is not a SRSNS because it is not part of the Unit and does not otherwise fall under the statutory definition for a SSRNS. There is one point on Tunk Mountain within the Donnell Pond unit that would provide a view of the full project at approximately 5 miles, as well as dramatic coastal views facing in the other direction which would not be affected by the project. While the effect on the experience of those expecting a backcountry experience would be adverse, this mountain sees low use. In the context of the whole unit, and because only a limited number of views of the project from Tunk Mountain are a SRSNS, the impact does not rise to the level of unreasonable.

(iii) For all of these reasons, the Commission concludes that, while there will be some adverse effect, the project will not significantly compromise views from the Donnell Pond Unit and Donnell Pond such that there would be an unreasonable adverse effect on the scenic character or existing uses related to scenic character.

(c) *Project lighting scenic effect*. There are only a limited number of areas where project lighting will be visible. Based on the record, those areas are not likely to have significant nighttime use. Given the Commission's findings at Finding of Fact #38, H the Commission concludes that project lighting will not cause an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS within 8 miles due to project lighting.

(i) *Lighting standards*. 35-A M.R.S.A. § 3452 governs the Commission's analysis regarding the impacts of the project's lighting on scenic character and existing uses related to scenic character. In any event, to the extent relevant sections of §10.25(F)(2) of the Commission's Land Use Districts and Standards are instructive in satisfying the § 3452 standard and the Commission's Comprehensive Land Use Plan (CLUP), they are addressed in Finding of Fact #20, E and will be required as a condition of the permit.

(d) In sum, and considering all of the affected SRSNS, due to distance, the limited nature of the views, and the nature and significance of the SRSNS in combination with limited usage thereof, this project will not have an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the scenic resources of state or national significance located within 8 miles of the project.

39. *Shadow flicker assessment.*

A. The Applicant's agent, Stantec Engineering, conducted an assessment of the shadow flicker effects due to the BHWP, in accordance with Title 12, 685-B(4-B)(B). The results of the assessment are presented in a report, which is Exhibit 21 of the application and dated October 19, 2010. The results are summarized below.

(1) The Applicant's assessment of the BHWP's predicted shadow flicker effects utilizes the WindPRO modeling software, which is the standard software used by the industry. The computer model projects the course of the sun every minute daily over a year and its effects on receptors.

(2) Shadow flicker is caused by the shadows cast by the rotating blades of a turbine on sunny days, and the effect of shadow flicker is most pronounced during sunrise and sunset on clear days, and on receptors closer than 1,000 ft. from a turbine. Terrain,

trees, or buildings can reduce or eliminate the effect of shadow flicker. If the position of the turbine rotor is parallel versus a more perpendicular angle to the receptor and thus in line with the turbine blades then shadow flicker would not be present.

(3) The WindPRO model used by the Applicant assessed any receptors (non-participating residences[10]) within 3,000 feet from the turbines. The closest non-participating residence located on the Sugar Hill Road in Eastbrook is 3,882 feet from the nearest turbine. An easement waiver has been obtained by the applicant for a seasonal camp within the regulatory setback.

(4) The Applicant's assessment utilizes WindPRO's worst case assumptions to overestimate the effects of shadow flicker from the BHWP by modeling: no vegetation between the turbine and the receptor; the turbines at a constant perpendicular position to the receptor; and the turbines in operation under constant sunshine.

(5) The results of the WindPRO computer modeling include, for each turbine and receptor, a calculated time of shadow flicker at the receptor including a tabulation of the times of day. A computer-generated map in the record plots these results, showing turbine locations, receptors, and coded contour lines indicating shadow flicker conditions in hours per year.

(6) The Applicant's report concludes that there are no receptors close to or within the area subject to shadow flicker.

B. *Conclusion.* The Applicant's shadow flicker report, including the demonstrative map, demonstrates that the BHWP will not create shadow flicker conditions in areas where there are non-participating residences. *(See footnote #10)* Thus, in accordance with Title 12, § 685-B(4-B), the Applicant has demonstrated that the proposed BHWP will not result in an undue adverse impact due to shadow flicker effects generated by the project.

40. *Noise Control*

Consideration of Local Ordinance

A. *Review Criteria.* Pursuant to 12 M.R.S.A. § 685-B(4-B)(A), the applicant must demonstrate that the proposed project meets the requirements of the Board of Environmental Protection's noise control rules, which are the rules otherwise generally applicable with respect to the Site Location of Development Law, Title 38, chapter 3, subchapter 1, article 6. The Board is part of the MDEP, and the thus the noise control rules are often referred to as the MDEP rules. The noise control rules, found at 06-096 CMR c.375 § 10, require, among other things, that—if an abutting municipality has a noise standard—the Commission "take into consideration" the municipality's "quantifiable noise standards, if any," *id.* § 10(B)(1). The noise control rules define "quantifiable noise standard" as a "numerical limit governing noise from developments that has been duly enacted by ordinance of by a local municipality." *Id.* § 10(G)(17).

[10] Non-participating residences are those for which there is no shadow flicker easement.

B. *The Town of Eastbrook Wind Energy Facility Ordinance.* The proposed project abuts the Town of Eastbrook, which has its own Wind Energy Facility Ordinance (adopted January 19, 2011) with associated noise standards. The local ordinance noise standards applicable to grid-scale, defined by the ordinance as Type III, wind energy development are Sections 2.0 and 20.1, and Appendix B, which specifically provides the sound level impact standards. The local ordinance and the noise control rules are, in some regards, the same. In some instances, however, the local ordinance has more restrictive sound level impact standards than the noise control rules, and in some instances it has provisions that go beyond what is contained in the noise control rules.

Public comments and testimony, including from residents of Eastbrook, raised concerns about noise from the proposed project's turbines and asked the Commission to apply the more restrictive noise standards in the local ordinance. Public comment also included concern about the project's construction noise, including noise associated with blasting, that would be regulated by the local ordinance. Public comment also called attention to the fact that the local ordinance has increased setbacks for sound limit measurements and more rigorous reporting requirements. In the initial application the Applicant's sound consultant noted the existence of the local ordinance but limited the sound modeling to the noise control rule standards. Upon the request of LURC staff, the Applicant submitted in its pre-filed testimony additional sound modeling analysis based on the local ordinance requirements for the Commission's consideration.

C. *The local ordinance compared and contrasted with the noise control rules*. To the extent the local ordinance is the same as the noise control rules, the Commission, of course, will apply the local ordinance requirements. The local ordinance and the noise control rules do, however, as stated above, vary from each other in several substantive ways.

(1) *Relevant comparisons*.

(a) *SDRS and tonal penalty.* A penalty of 5 dBA is added to the modeling or an actual field occurrence when there is a tonal sound or a Short Duration Repetitive Sound (SDRS) event at a protected location. The Applicant explains in pre-filed testimony that these two types of events are regulated this way because 'certain types of sound that are considered to be more annoying than relatively steady sound with no prominent tones or frequencies'. An SDRS associated with wind turbine operation would occur as a pulsing periodic 6 dBA increase or 'amplitude modulation' resulting from the turbine blades passing the tower on the downward stroke. The Applicant states in pre-filed testimony that normal SDRS field measurements at the Stetson wind energy facility are actually 2 to 5 dBA pulsating increases. In any case, the occurrence of an SDRS at a protected location would require a 5 dBA penalty for compliance with the noise control rules, specifically sections C(1)(e)(ii)(d) and H(3.2)(c). Similarly, a tonal sound is a prominent discrete sound which is defined in both the noise control rules and the Eastbrook Ordinance as noise with numeric variations over a three octave range. For compliance at a protected location, either in modeling or actual field measurement, the same additional 5 dBA penalty is added to the sound level for a tonal sound event. If a SDRS or tonal sound limit violation at the protected location occurred during facility operations then the permittee would be required to notify LURC and a response and mitigation protocol would be enacted for

these as for other violations, such as maximum hourly sound limits and nighttime construction sound limits.

(b) *Project boundary limit*. According to both the noise control rules at subsection C(l)(a)(i) and the local ordinance the project boundary noise control limit is a 75 dBA maximum hourly sound level.

(2) *Relevant contrasts*.

(a) *Measurement location.* The local ordinance requires noise measurements to be taken at 660 feet from the parcel boundary of a protected location. This differs from the noise control rules, which provide that the protected location measurement ends at the parcel boundary. In addition, the local ordinance applies the daytime and nighttime standards to all areas within 660 feet of the protected location, but the MDEP rule provides, in relevant part, "[a]t protected locations more than 500 feet from living and sleeping quarters within the [specified] buildings or areas, the daytime hourly sound level limits shall apply regardless of the time of day."

(b) *Hourly sound limits.* The local ordinance sets hourly limits of 55 dBA for daytime (7:00am-6:00pm) and 40 dBA for nighttime (6:00pm-7:00am). This local ordinance daytime limit is the same as the noise control rules, but the local ordinance nighttime limit is 5 dBA more restrictive than the MDEP noise control rules. The hours vary slightly in that the noise control rules daytime hours are 7:00 a.m. to 7:00 p.m.

(c) *Daytime construction.* The local ordinance sets a range of sound limit standards allowing louder sounds for shorter periods of time and conversely lower sound limits for a longer period of time for daytime construction noise, which—while once regulated by the noise control rules—is now exempt according to Title 38 subsection 484(3)(A) which states '…and noise generated between the hours of 7am and 7pm or during daylight hours, whichever is longer, by construction of a development approved under this article may not be regulated under this subsection.'

(d) *Two-mile measurement.* The local ordinance sets a noise standard limitation of 35 dBA at any location more than two miles from the project. The MDEP noise control rules do not contain this two-mile limitation;

(e) *Reporting.* The local ordinance requires reporting for the first two years of the project's operation, and every three years thereafter. The MDEP noise control rules at section 375.10, H require that the applicant take monitoring sound limit measurements at regulatory locations during post construction study to verify pre-construction modeling and compliance with standards. The duration of time for post-construction monitoring is not specified by the MDEP rules but at section H(4.1)(a) provides reasons for monitoring including, but are not limited to, "validation of an applicant's calculated sound levels" or response to community complaints. The MDEP and Commission's practice to date has been quarterly testing for one year or longer pending review on a case by case basis of report results. Post construction monitoring would continue beyond one year if complaints or enforcement actions indicate it is necessary.

(f) *Additional SDRS penalty based upon local planning board review.* The local ordinance controls SDRS by imposing a 5dBA penalty to occurrences, identical to

the MDEP noise control rules. The Applicant's consultant, Scott Bodwell, stated in pre-filed testimony, and the Commission's sound consultant, Warren Brown, concurred in the peer review report addendum, that the first 5 dBA penalty was used for modeling this project, that the modeling was done correctly with this penalty in effect, and that the analysis therefore produces a conservative modeling result. The local ordinance's additional SDRS occurrence standard requires reporting the SDRS event to the municipal Planning Board for review. (*See* local ordinance at Appendix B,A.1(c)(ii)). The local ordinance provides:

> "For short duration repetitive sounds which the Planning Board determines are particularly annoying or pose a threat to the health and welfare of other persons due to their character or duration, a second 5 dBA increment must be added to the observed levels of the short duration repetitive sounds that result from routine operation of the facility for the purposes of determining compliance with the above sound level limits, and the maximum sound level of the short duration repetitive sounds shall not exceed the following limits: (a) Within 660 feet of any Protected Location 55 dBA at any time day or night."

This second 5 dBA penalty is over and above what is required in the DEP rules.

(g) *Tonal sounds.* The MDEP noise control rules have a dBA standard for tonal sounds 375.10(C)(1)(c)(d) and as defined per rule definition. The local ordinance is more restrictive in that compliance with it would require a more restrictive sound level limit, and the MDEP noise control rules considerations at section 375,10H for tonal sounds, taking into consideration pre-construction ambient levels in determining compliance, are not included in the local ordinance.

D. *Commission's consideration of the local ordinance.* Pursuant to the noise control rules, the Commission is directed to consider the local ordinance to the extent it varies from the noise control rules - but only to the extent that the local ordinance contains quantifiable noise standards, which as stated above are numerical limits governing noise. Not all of the provisions in the local ordinance that differ from the noise control rules are quantifiable.

(1) *Summary of parties' positions on what is quantifiable*

(a) Warren Brown of Enrad, Inc., the Commission's third party peer sound review consultant, conducted a third party peer review of the application sound assessment (*See* Exhibit #17) and submitted his report to the file on March 25, 2011. The applicant submitted additional data and background information to the file as requested by LURC staff, and on March 15, 2011 submitted an assessment of impacts based on the some of the noise standards in Town of Eastbrook's Wind Facility Ordinance. On April 4, 2011 Mr. Brown submitted an addendum to his report reviewing the Applicant's Eastbrook sound modeling. In that report he lists the aspects of the ordinance that appear to be based on subjective criteria, including footnote 'd' of Table 1 which discusses the second 5 dBA penalty that can be levied at the discretion of the planning board. Brown states: "The above paragraph appears to be based in part on subjective criteria that do not allow the

predictions of two evaluators to necessarily arrive at the same outcomes." He concludes that "It is the reviewer's opinion that the Eastbrook Ordinance is not entirely quantifiable and provides an insufficient basis for estimating acceptable wind project design."

(b) *Applicant's testimony/comments*. The Applicant, in a letter dated March 15, 2011, responded to LURC staff's request for analysis based on the Eastbrook Ordinance, agrees that the hourly sound limit is quantifiable but takes issue with the measurement location of 660 feet from the protected location parcel boundary as discussed in Finding of Fact #40, C(2)(a). He opines that the only other two quantifiable provisions of the Ordinance sound standards are the hourly sound limit of 35dBA at two miles from the project and the 5dBA that is initially applied to tonal sounds for modeling and compliance. The pre-filed testimony of consultant Bodwell concurs.

(c) *CCRHC Intervenor Attorney Lynne Williams' Final Brief.* "As was testified to, the Town of Eastbrook passed an ordinance regulating wind turbines, and that ordinance includes a noise standard. The Eastbrook ordinance is more restrictive than the state noise regulations, permissible under state law. ("Nothing in this subsection may be construed to prohibit a municipality from adopting noise regulations stricter than those adopted by the board.") The Commission is required, under Title 12, to find that the project will have no undue adverse affects on existing uses. The Commission is also permitted to consider "quantifiable noise standards" in an adjacent municipality's ordinance. BSE concedes that the Eastbrook Ordinance includes "quantifiable noise standards," and that Eastbrook is an adjacent municipality. They object, however, to the locations at which the noise measurements must be taken, to wit within 660 feet of the property line of a protected location."

(d) *Public Hearing Testimony of Interested Person David Boulter.* "… The sound standards established in Chapter 375.10 of the MDEP Rules for Site Location of Development are not adequate to protect areas from undue noise impacts of wind turbines. It is my understanding that these standards were developed for a completely different set of site conditions, in urbanized, areas of Maine. The nighttime sounds standard is simply too high to be protective, and there are no sound limits at all for the project during construction … The town of Eastbrook lawfully adopted quantifiable noise standards as part of its Wind Energy Facility Ordinance. These standards were fully vetted over a period of months during ordinance development and were a large reason for ultimate community acceptance of the ordinance. I strongly urge the Commission to apply the Eastbrook noise standards to this project. …"

(i) Mr. Boulter goes on to state that "neither the MDEP rules nor the Eastbrook ordinance adequately protects against noise levels from a wind project on undeveloped land where there is not a residence or other "protected location", allowing 75 dBA day or night (OSHA requires issuance of hearing protection at 85 dBA in an 8 hour day). This substantially reduces the ability of property owners to place dwellings on their undeveloped land in the future, even on large lots comprising 80 or more acres such as in Eastbrook."

(ii) Furthermore, Mr. Boulter states "the Commission should condition any approval on reducing maximum wind turbine speeds when the wind is blowing from the southeast toward the dwellings and in non-winter months when the wind is blowing from the northeast. These measures are achievable since the prevailing winds (and the winds for which the project is designed) are from the northwest and southwest. … dampening peak power generation (and thus noise) during those limited periods is not only feasible but would keep noise levels low at protected locations."

(e) *Applicant's Response to Public Comments 6-7-11.* "The fact that predicted sound levels are in compliance with the 40 dBA limit at protected locations ensures both that the intent of the Eastbrook ordinance, which is to protect residential properties from unreasonable sound impacts will be satisfied, and also that the Project will meet the more general requirement that there be no undue adverse effect on existing use. … There is one location 660 feet from the property line of P1 where the modeling does not show compliance with the 40 dBA standard set forth in the Eastbrook Wind Ordinance. (*See* Bodwell Pre-Filed Testimony, p. 10, n. 5.) Compliance with the nighttime limit 660 feet beyond the protected locations should not, however, be considered by the Commission. The purpose behind the requirement to consider quantifiable sound limits in adjacent communities is to protect existing uses and, in particular, residents in adjacent towns. The 660-foot provision, however, requires compliance with the nighttime limit at locations beyond the property line where such residences are located and in some instances extends beyond the municipal boundaries. There is no reason for the Commission to apply the Eastbrook 40 dBA limit to locations that extend beyond the property lines of residential parcels in Eastbrook, particularly where, as here, it is not necessary to ensure protection of existing uses in Eastbrook."

(2) *Quantifiable noise standards applied by the Commission*. The Commission recognizes that the citizens of Eastbrook, out of a desire to adequately regulate wind energy developments, took the time and resources to adopt local controls. The town committed itself to sound planning by engaging the citizens in a dialog about what was a practical standard in the context of their local area. Therefore, based upon this record, the Commission will require the Applicant to comply with the following quantifiable standards.

(a) *Hourly sound limits*. Hourly sound limits are quantifiable because they meet the definition in MDEP Rule for quantifiable as a '… numerical limit governing noise from developments that has been duly enacted by ordinance of by a local municipality.' LURC's consultant Warren Brown also includes the test for a quantifiable standard in his peer report addendum that a numeric result would not be based 'on subjective criteria that do not allow the predictions of two evaluators to necessarily arrive at the same outcomes.' Therefore the following hourly sound limits would qualify as a quantifiable standard. The nighttime noise level produced during routine operation during the hours 7:00 p.m. to 7:00 a.m. at the nearest quiet protected location is not to exceed 40 dBA. The measurement locations for this noise limit are discussed separately below. The daytime standard is the same in the local ordinance and the MDEP rule: 55 dBA at protected locations.

(b) *Two-mile measurement*. The two-mile limit is quantifiable because it is a numeric measurement that limits noise. The Applicant's and LURC's consultants both stated that the BHWP's sound modeling for operation as well as construction would be well below this threshold. Thus, the record shows that noise will not exceed the standard of 35 dBA two miles from the project.

(3) *Quantifiable noise standards considered but not applied by the Commission*.

(a) *Measurement location*. The local ordinance specifies a measurement location at 660 feet from the parcel boundary of a protected location. This is quantifiable because it is a numerical limit governing noise. The Commission therefore has considered it, but as discussed below it will not apply it to this project. As a preliminary matter the Commission notes that, even when under the MDEP noise control rules the Department of Environmental Protection is required to apply a municipal ordinance, it is only applied "within that municipality." 06-096 CMR ch. 375 § 10(B). Thus, the application of a local ordinance that would extend beyond a municipal boundary would not in any event be enforceable by the Department. In addition, this local ordinance standard may under some circumstances render other quantifiable standards moot. For example, if the measurement location extends on to the project parcel, it would conflict with the otherwise acceptable standard of 75 dBA at the project boundary. This 660-foot measurement standard does not appear in the State Planning Office model ordinance, and while the Commission appreciates what appears to be a local intent to apply stringent noise limits to undeveloped land within the Town, the applicant has demonstrated that application of the MDEP noise control rules in this regard ensures that this project will not have an undue adverse impact with respect to the generation of noise. The Commission will apply the MDEP Chapter 375.10 measurement location as the applicable standard.

(b) *Daytime construction*. The local ordinance sets an additional quantifiable noise standard for daytime construction. The Commission has considered it, but as discussed below will not apply it to this project. The application refers to the statutory exemption (38 M.R.S.A. §484) for daytime construction and states that "All construction equipment must also comply with applicable federal noise regulations and include environmental noise control devices in proper working condition as originally provided by the equipment manufacturer." The expected noise level of mobile construction and portable processing equipment is in the range of 75 to 95 dBA at 50 feet. The nearest residence is approximately ¾ of a mile from the nearest turbine location. Additionally, the Commission does not have the resources to locally monitor and enforce the Town's added daytime construction sound limits. Thus, the construction sound limit rules for the BHWP are as follows: noise associated with nighttime construction is subject to the nighttime hourly limits set forth above in Section #2(a), except as needed for safety signals, warning devices, emergency pressure relief valves, other emergency activities, and other exemptions provided by the MDEP noise control rules 375.10 C (5), noise due to construction activities during daylight hours or 7:00 a.m. to 7:00 p.m., whichever is longer, is not subject to the rules, but must otherwise comply with all applicable State and federal laws.

(4) Non-*quantifiable noise standards not considered by the Commission*. The additional SDRS penalty of a second 5 dBA to be imposed at the discretion of the local planning board is not quantifiable because it is a subjective determination by the local Planning Board on a case by case basis as to whether a noise is 'annoying.' Therefore, the Commission did not consider its application to this project.

(5) *Reporting/noise complaints and response*.

(a) A non-quantifiable aspect of the local ordinance is a requirement for additional monitoring and reporting of the sound limit standards during operation of the wind energy facility. The local ordinance requires monitoring and reporting the first two years and then every three years thereafter for the life of the project. The MDEP noise control rules do not expressly set monitoring and reporting requirements, and pursuant to its Title 12 permitting authority, the Commission has discretion as to such requirements to ensure the noise generated by the project is in compliance with the permit and not causing an undue adverse impact. Although not a quantifiable standard, the Commission appreciates what appears to be the Town's concern that one year may not provide enough time from start-up to routine operations to provide a true verification of the sound limits based on the Applicant's modeling assumptions. Accordingly, the Applicant must monitor and report, utilizing the noise control rules and professional standards, for the first three years of commercial operation to verify compliance with pre-construction modeled sound limits. The measurement methodologies and reporting requirements are detailed below and contained in the conditions of approval for BHWP. The Applicant's submission in this regard is subject to Commission review and approval prior to operational startup. (*See* Findings of Fact #40, D and L) and (*See* Condition #9, C and D below)

(b) *Dampening of sound under certain wind conditions*. The public testimony of Mr. Boulter (*See* Finding of Fact #40, D(1)(d)) requests that the Commission consider requiring lower turbine speeds under certain wind conditions in order to adequately protect the public. The record indicates that there are certain atmospheric conditions that can exacerbate noise and that the permittee should be required to test for compliance with the sounds standards under the types of conditions most likely to cause non-compliance. The conditions that Mr. Boulter is concerned about, when the wind is blowing toward the residences, are worst-case conditions for the protected locations, and therefore will be included in the testing protocol. Noise levels under those conditions, and all conditions, must be within the limits set forth in this permit.

<u>Application of Noise Control Rules</u>

E. *Review Criteria*. Pursuant to 12 M.R.S.A. § 685-B(4-B)(A), the Applicant must demonstrate that the proposed project meets the requirements of the Board of Environmental Protection's noise control rules, 06-096 CMR c.375 § 10.

F. *Protected locations identified for assessment & monitoring.* The noise control rules limit noise at protected locations: defined in relevant part in the MDEP 375.10 (G)(16) rule as "Any location, accessible by foot, on a parcel of land containing a residence or planned

residence or approved residential subdivision, house of worship, academic school, college, library, duly licensed hospital or nursing home near the development site at the time a Site Location of Development application is submitted; or any location within a State Park, Baxter State Park, National Park, Historic Area, a nature preserve owned by the Maine or National Audubon Society or the Maine Chapter of the Nature Conservancy, The Appalachian Trail, the Moosehorn National Wildlife Refuge, federally-designated wilderness area, state wilderness area designated by statute (such as the Allagash Wilderness Waterway), or locally-designated passive recreation area; or any location within consolidated public reserve lands designated by rule by the Bureau of Public Lands as a protected location.

At protected locations more than 500 feet from living and sleeping quarters within the above noted buildings or areas, the daytime hourly sound level limits shall apply regardless of the time of day..."

Although at a "quiet protected location" the limits are typically 55 dBA during the day and 45 dBA at night, in this matter the local ordinance is being applied in part, as discussed above, and the limits are therefore 55 dBA and 40 dBA, respectively. The noise control rules and local ordinance standards limit noise at the development property boundaries lines to no more than 75 dBA.

(1) *Protected locations included in Sound Level Assessment:* As stated in more detail above, protected locations include parcels of land that include a residence, seasonal camps, and conservation land. . Measurements are taken 500 feet from the living or sleeping quarters or at the property line, whichever is closer. The applicant's sound consultant's pre-filed testimony includes attachment D, a map showing the project area and vicinity, and the predicted sound levels from the wind turbines. The Applicant states in Exhibit #17 that "Excluding properties with a lease or sound easement, there are only four dwellings located within one mile of a proposed wind turbine located on Sugar Hill Road". Of these residences, the two closest were modeled for sound impacts from the proposed wind energy facility and designated for monitoring as protected locations. The parcel in T16 MD known as the 'Bull Hill Camp Lot' has a dwelling, yet is exempted by a sound easement with the Applicant, as allowed by MDEP noise control rules, section 10(C)(5)(s). The residences in proximity to the wind energy facility are described as follows:

(i) There are several year-round and seasonal dwellings located on Molasses Pond, which at its closest point is approximately 1.9 miles west of the nearest proposed turbine. None of these dwellings constitute a protected location designation.

(ii) TNC conservation area is listed as a protected location per the DEP rule and is referred to as P3.

(iii) The two closest dwellings are on Sugar Hill Road with the nearest one at a distance of approximately 3,880 ft. from the closest proposed wind turbine, and the second protected location at 4,860 ft.

G. *Sound Level Prediction Model Methodology & Assumptions*. The Applicant noted in its Exhibit #17 assessment report the MDEP and industry methodologies and project specific assumptions used for modeling the sound output from the proposed BHWP. The same methodologies are employed by LURC's sound consultant to review the Applicant's report. The record, including the review provided by the Commission's acoustic expert,

Warren Brown, demonstrates that the applicant's methodology was correct, met professional standards, and produced a conservative estimate of noise impacts.

In particular, it is worth noting the following regarding the Applicant's sound level methodology and assumptions:

(1) An assumed sound power level of 107.0 dBA was used for the turbines. That is a total of the assumed operating full sound output power level of 105.0 dBA plus an additional 2 dBA uncertainty factor.

(2) For the potential uncertainty in the modeling calculation method for the new Vestas 100 turbine to be used at BHWP an additional 3 dBA was added resulting in an effective sound power level of 110.0 dBA. This is 5 dBA more than the full sound power level specified and warranted by Vestas.

(3) Sound levels are calculated as if the receiver locations were all simultaneously downwind from the sound sources, which is not a physical possibility.

(4) No attenuation was calculated due to trees or other foliage, although foliage has the effect of reducing sound levels at receiver points.

(5) Ground attenuation was calculated based on a ground absorption factor of 0.5 representing a mix of hard and soft ground. Surface water bodies were assigned a ground absorption factor of 0.0 that is similar to hard ground as an acoustically reflective surface.

(6) The Applicant assumed pre-construction ambient sounds, or rural background noise, for the quieter standard.

H. *Applicant Assessment of Sound Level Limits.*

(1) *Hourly Sound Limits.* The Applicant modeled the noise likely to be produced by the proposed BHWP (as a 19-turbine project) during operation at the nearest quiet protected locations, which are approximately 3,800 to 4,800 ft from the nearest turbine. The study included identification of the protected locations, monitoring of ambient noise to determine baseline conditions, computer modeling, and a demonstration of compliance with MDEP's noise control rules and, to the extent the Commission is applying it, compliance with the Eastbrook ordinance. LURC's third party reviewer conducted a peer review as indicated above in the description. The applicant assumed pre-construction ambient sounds, or rural background noise, for the quieter standard.

The Applicant conducted a noise analysis to determine the expected noise levels to be produced by routine operation of the BHWP, and compared them with MDEP's noise control rules 375.10 (reference Title 38, chapter 3, subchapter 1, article 6) and the hourly noise limits applicable in this matter, namely 55 dBA for day and 40 dBA for nighttime. The protected location results are shown in Table 4.

Receptor Point	Description	Distance to Nearest Turbine (ft)	Estimated Hourly Sound Level, dBA	Maine DEP Sound Level Limit, dBA	
				Daytime	Nighttime
P1	500 feet from Dwelling	4,340	37.2	55	45
P2[4]	Lot Line of Residential Parcel	3,705	39.6	55	45
P3	Conservation Area	6,160	35.4	55	55

Table 4. Estimated Daytime and Nighttime Sound Levels from Wind Turbine Operations at Receptor Points (From Exhibit 17 of the BHWP application)

Table 4 uses the MDEP nighttime sound level of 45 dBA, but it is also apparent that all three protected locations are expected to experience a sound level less than the local ordinance standard of 40 dBA, which the Commission is applying in this case.

(2) *Parcel boundary*. At the project's parcel boundary, according to the Applicant's consultant, Scott Bodwell's Pre-filed Direct Testimony, Exhibit D. Map of Predicted Sound Levels, the projected sound level would range from 45 dBA and up to approximately 55 dBA, which is considerably lower than the MDEP noise control rules limit of 75 dBA.

(3) *Compliance with standard*. BHWP consultant Scott Bodwell, based upon comparing modeling to field tests at Stetson and in consultation with LURC consultant Warren Brown of EnRad Consulting, has confirmed that the above-described model is exceeding what is predicted to be the actual sound in most cases by 2 to 4 dBA. Based upon the evidence in the record from Bodwell and Brown, the Commission concludes that the sound modeling demonstrates that the project will comply with Eastbrook's 40 dBA standard at all protected locations as defined in the DEP rule, the 35 dBA standard two miles from any turbine, and will not generate tonal sounds that would trigger application of Eastbrook's and the DEP noise control rules' 5 dBA tonal penalty.

The Applicant's consultant, Scott Bodwell, stated that "for wind turbines, brief changes in sound levels occur as the passage of rotor blades, commonly referred to as 'amplitude modulation'. The highest sound levels are generally recognized to take place on the down stroke of each rotor blade which occurs at a rate of just over once per second at full rotational speed (16.6 rpm). … Measurements of operating wind turbines at other projects in Maine and published literature concerning amplitude modulation from wind turbines indicates that sound level fluctuations during the blade passage of wind turbines typically range from 2 to 5 dBA (see also Section 2.3), with occasional but infrequent events reaching 6 dBA or more. Even assuming that occasional SDR events over 6 dBA occur, and 5 dBA is added to the observed sound level for those events, the Project would still comply with the relevant sound level limits at all protected locations." (*See* Exhibit #17)

I. *LURC's Consultant's Review of Applicant Analysis.*
From the EnRad's *Peer Review Assessment Report* and accompanying Addendum reviewing the Applicant's Eastbrook noise standards analysis, Warren Brown's results and conclusions are as follows:

(1) When initially analyzing the applicant's modeling Mr. Brown's conclusion confirms the less than 40 dBA projections for 500 ft. from the residence at P1 and at the property boundary for her residence at P2, according to the following statement. "Operating sound level estimates were predicted for the three nearest protected locations indicating hourly level equivalents at or below 40 dBA. It is noted that the conservation area operating sound level estimate is approximately 20 dBA below the applicable limit of 55 dBA."

(2) "The project boundary hourly sound level limit of 75 dBA (Leq) was satisfactorily demonstrated in the LURC application noise assessment."

(3) "Short duration repetitive sounds are not expected to be frequently produced by the Vestas V 100. In the event that significant penalties are applied for SDRS, the project has a predicted margin of 5 dBA between routine operating sound levels and MDEP limits."

(4) "Vestas has issued a Sound Level Performance Standard that warrantees the V 100 will not produce a steady tonal sound as defined by the MDEP 375.10 standard. The proposed Vestas V 100 [turbines] are not expected to generate regulated tonal sounds during routine operation."

J. *Construction Noise.*
For the BHWP, most construction will occur between 7 am and 7 pm, except during periods of rotor installation when nighttime work may be necessary. Any construction activities taking place beyond daylight hours or from 7 pm to 7 am, whichever is shorter, must not exceed the limits set for routine operation. Construction of the Project will primarily involve heavy and light equipment for road construction, erection of turbines by crane, excavation of underground collector line trenching, and O&M building construction with accompanying substation. It is anticipated that moderate blasting will occur on site and there is potential for use of a portable rock crusher. All construction equipment must also comply with federal noise standards and environmental noise control devices. *See* Exhibit #17 of the application, Section 6.1 *Construction Sound Levels* for further detail.

Blasting, and the associated impacts on neighboring property owners is addressed in (*See* Finding of Fact #31, C)

K. *Turbine Operation Sound Limits Monitoring*. Post-construction sound monitoring must be conducted to assure that the sound level estimates accurately represent the actual sound levels during operation at the nearest quiet protected locations. The project must comply with the applicable noise standards under all conditions and at all times.. According to the application (*See* Exhibit #17) and Warren Brown's review, testing is most effective when it occurs during certain atmospheric conditions, as it represents a worst-case scenario. The Applicant also proposed a monitoring strategy for SDRS and tonal events, which was reviewed by Warren Brown.

L. *Compliance Monitoring and Reporting methods and Complaint Protocol*.

(1) *Monitoring and reporting*. The compliance monitoring methodology and reporting criteria are cited here in their entirety from the Conclusion section of Warren Brown's '*Bull Hill Wind Project Sound Level Assessment, Peer Review'*, dated March 25, 2011. This is the protocol to be followed for the permit Condition #9(C), below, requiring noise level monitoring. It is as follows:

"Compliance should be demonstrated, based on following outlined conditions for 12, 10-minute measurement intervals per monitoring location meeting 06-096 CMR 375.10 requirements. Background ambient monitoring may be required in the areas where extraneous sounds could potentially or do complicate routine operation compliance assessment. If required, background ambient monitoring locations and times will be determined with concurrence from LURC.

a. Compliance will be demonstrated when the required operating/test conditions have been met for twelve 10-minute measurement intervals at each monitoring location. A downwind location is defined as within 45° of the direction between a specific measurement location and the acoustic center of the five nearest wind turbines.

b. Measurements will be obtained during weather conditions when wind turbine sound is most clearly noticeable, i.e. when the measurement location is downwind of the development and maximum surface wind speeds ≤6 mph with concurrent turbine hub-elevation wind speeds sufficient to generate the maximum continuous rated sound power from the five nearest wind turbines to the measurement location. Measurement intervals affected by increased biological activities, leaf rustling, traffic, high water flow or other extraneous ambient noise sources that affect the ability to demonstrate compliance will be excluded from reported data.

c. Sensitive receiver sound monitoring locations should be positioned to most closely reflect the representative protected locations for purposes of demonstrating compliance with applicable sound level limits, subject to permission from the respective property owner(s). Selection of monitoring locations should require concurrence from LURC.

d. Meteorological measurements of wind speed and direction should be collected using anemometers at a 10-meter height above ground at the center of large unobstructed areas and generally correlated with sound level measurement locations. Results should be reported, based on 1-second integration intervals, and be reported synchronously with hub level and sound level measurements at 10 minute intervals. The wind speed average and maximum should be reported from surface stations. LURC concurrence on meteorological site selection is required.

e. Sound level parameters reported for each 10-minute measurement period should include A-weighted equivalent sound level, 10/90% exceedance levels and ten 1-minute 1/3 octave band linear equivalent sound levels (dB). Short duration repetitive events should be characterized by event duration and amplitude. Amplitude is defined as the peak event amplitude minus the average minima sound levels immediately before and after the event, as measured at an interval of

50 ms or less, A-weighted and fast time response, i.e. 125 ms. For each 10-minute measurement period short duration repetitive sound events should be reported by percentage of 50 ms or less intervals for each observed amplitude integer above 4 dBA. Reported measurement results should be confirmed to be free of extraneous noise in the respective measurement intervals to the extent possible and in accordance with (b).

f. Compliance data collected in accordance with the assessment methods outlined above for representative locations selected in accordance with this protocol will be submitted to LURC for review and approval prior to the end of each of the first three years of facility commercial operation. Reported and unreported compliance data for each location will be submitted to LURC at the earliest possible opportunity after the commencement of operation, with consideration for the required weather, operations, and seasonal constraints."

M. *Complaint protocol*. Members of the public expressed concerns about the effects of noise. Since the project will be operating in proximity (less than a mile) to residences, it is important to ensure that the applicable noise control standards are met at all times. To that end, it is advisable to have a reasonable way for members of the public to report alleged violations of the noise control standards. A protocol for receiving public complaints will ensure potential violations are easily reported, that the relevant timely information such as weather conditions, wind speed, and mechanical operations are documented for analysis and the Applicant can present LURC with a report of the event and, as necessary, operational mitigation procedures that can be taken. (*See* Findings of Fact #40, C(2)(e); D(5)(a); K; L(1) and M) and (*See* Condition #9, C and D below)

N. *Health Effects of noise produced by the project*. Several members of the public raised concerns that noise from the project could impact the health of nearby residents. The Applicant responded by arguing that this issue has been raised and rejected in prior windpower proceedings and referenced a Maine CDC report from 2009 as well as two peer reviewed studies. The Applicant also raised the point that the nearest residence is ¾ of a mile away from the project.

The Commission is applying noise limits that are significantly lower than the DEP standards based on the quantifiable provisions of the local ordinance and will require compliance testing to ensure that those noise levels are not exceeded. The record in this case does not demonstrate that there is a need to provide additional protection in order to avoid an undue adverse impact on human health.

O. *Noise conclusions.* The Applicant conducted a noise analysis to determine the expected noise levels to be produced by routine operation of the BHWP, and compared them with the MDEP noise control rules ch. 375.10 (reference Title 38, chapter 3, subchapter 1, article 6), the amended hourly noise limits of 40 dBA from 7 pm to 7 am, and the limit of 35 dBA at two miles from the project.

(1) The record demonstrates that, based on the MDEP definition of protected location, which the Commission has applied in this case, the noise level would be less than 40 dBA, thus satisfying the daytime and nighttime standards, except at locations with a

sound easement. The record also shows that the project will not produce noise in excess of 35 dBA at 2 miles.

(2) The Applicant's easement agreement with the Bull Hill Camp landowners provides for an exemption from the MDEP's property boundary noise limit, in accordance with Section 5(s) of the MDEP's Chapter 375.10 Control of Noise rules. (*See* Finding of Fact #40, F(1))

(3) At the project's parcel boundary the projected sound level will range from 45 dBA to approximately 55 dBA, which is considerably lower than the MDEP limit of 75 dBA. (*See* the Applicant's consultant, Scott Bodwell's, Pre-filed Direct Testimony, Exhibit D, Map of Predicted Sound Levels) The noise modeling indicated that the noise level at the parcel boundaries would be consistent with the limits set in the MDEP's rules. (*See* Finding of Fact #40, H(2))

(4) The Applicant does not propose nighttime construction, but if needed particularly for low wind levels during blade installation by night lights the noise produced would meet the MDEP standards for nighttime construction.

(5) The Commission concludes that the sound produced by the BHWP during operation of the generating facility would meet the provisions of MDEP's 375.10 noise standards and as amended by LURC for this project for hourly sound limits of 55 dBA daytime and 40 dBA night time for all protected locations based on a measurement 500 feet from the residence or at the property line whichever is closer. All protected location sound limit estimates were conducted according to professionally accepted standards. The Applicant's sound modeling predicts that the Project will comply with the local ordinance 35 dBA standard two miles from any turbine, which the Commission has elected to apply in this instance.

(6) Based on the Applicant's analysis, its review by Warren Brown and based on the manufacturer's warranty for tonal sound emission levels the Commission concludes that the BHWP turbines will not generate tonal sounds that would trigger application of a tonal penalty and would meet the Chapter 375.10 noise control standards required by LURC for this project. Further, if such sounds were to occur, they would still be below the dBA limit with the penalty, as the modeling included the penalty (*See* Finding of Fact #40, C(1)(a); H(3) and I)

(7) Based on the Applicant's analysis, and the review by Warren Brown, the Commission concludes that the BHWP turbines are not likely to generate short duration repetitive sounds that would trigger application of a penalty and would meet the Chapter 375.10 noise control standards required by LURC for this project. Further, if such sounds were to occur, they would still be below the dBA limit with the penalty, as the modeling included the penalty. (*See* Finding of Fact #40, C(1)(a); H(3) and I)

(8) The Commission also concludes that compliance monitoring will be necessary for the first three years of commercial operation to verify pre-construction modeling and it shall be conducted according to the methodology for post-operational sound monitoring and reporting outlined by the Commission's retained expert, Warren Brown.

(9) *Summary Conclusion.* The Commission concludes that the Applicant has demonstrated that the sound impacts produced by the BHWP will comply with MDEP noise control rules and not cause an undue adverse impact, subject to the conditions stated herein, including the requirement of post-construction compliance

monitoring with any operational mitigation as determined necessary by the Commission to ensure no undue adverse effect. Therefore, the Applicant has met the noise control standard required by Chapter 661 as amended and LURC's statute, Title 12, § 685-B(4-B) to require that wind energy development meet the MDEP's noise control rules.

41. *Historic and archaeological resources*.

A. *Review criteria*. *LURC Chapter 10 Rules, Section 10.25,E,3 - Historic Features.* "If any portion of a subdivision or commercial, industrial or other non-residential project site includes an archaeologically sensitive area or a structure listed in the National Register of Historic Places, or is considered by the Maine Historic Preservation Commission (MHPC) or other pertinent authority as likely to contain a significant archaeological site or structure, the applicant shall conduct an archaeological survey or submit information on the structure, as requested by the appropriate authority. If a significant archaeological site or structure is located in the project area, the applicant shall demonstrate that there will be no undue adverse impact to the archaeological site or structure, either by project design, physical or legal protection, or by appropriate archaeological excavation or mitigation."

B. *Applicant's assessment* (*See* Application narrative Section 15, and Exhibits #15,A to D). The Applicant conducted an assessment of the historical and archeological resources at the proposed BHWP development site. In preparation for conducting the assessment, the Applicant consulted with the MHPC, who advised that because MHPC's predicative model of archaeological site location indicates that the Project Area may contain one or more prehistoric archeological sites, a Phase 0 archaeological survey is necessary for this parcel prior to any ground disturbance. In addition, MHPC determined that, based on an 1881 map, there may be at least one historic archeological site within the Project Area, and recommended that a Phase I Pre-contact survey is also necessary. The Applicant conducted historic architecture, Euro-American archaeological, and Pre-contact archaeological investigations to determine what impact, if any, the project might have on historic resources. The Applicant's surveys also included the Town of Eastbrook, and as such covered a wider area than jus the Project Area.
   (1) *Historic Architecture Survey.* The historic survey report concluded that there are no historic buildings or structures located in the Project Area, but reported one historic resource qualifying as a scenic resource of state or national significance with eight miles of the project, The Eastbrook Baptist Church and Town House, located approximately five miles from the project (*See* Finding of Fact #38, C).
   (2) *Euro-American Archaeology Phase O Survey.* The Applicant's consultant conducted a Phase O survey of Euro-American archaeological resources, reporting that the Project Area has been historically used for logging activities, but no evidence was found of historical Euro-American occupation or historical archaeological resources. The Applicant's consultant recommended no further archaeological surveys for the Bull Hill Wind Project.
   (3) *Prehistoric Archaeological Phase 1A Survey.* The Applicant's consultant conducted an analysis of the potential for Pre-contact archaeology in the Project Area and

vicinity, including the area of the Molasses Pond Road where a network of gravel roads terminate. These roads would provide access to the BHWP Project Area. The study concluded that the proposed BHWP Project Area has low sensitivity for Pre-contact period archaeological resources. Therefore, no additional Pre-contact period archaeological review of the project was recommended.

(4) *Tribal notification.* The Applicant notified the Penobscot Indian Nation and the Passamaquoddy Tribe of the proposed project. Both tribes replied similarly that the project would have no impact on a structure of, or site of historic, architectural or archeological significance, as defined by the National Historic Preservation Act of 1966, and subsequent updates.

B. *Maine Historic Preservation Commission (MHPC) review.* The MHPC reviewed the application, including the surveys discussed above, and submitted review comments on February 14, 2011, stating that they have no concerns for historical or archaeological resource impacts due to the BHWP. MHPC stated that it concurs with the Applicant's survey reports that there are no other above-ground historic properties in the Area of Potential Effect (APE) eligible for listing in the National Register of Historic Places, and that there are no National Register eligible archeological sites in the APE. MHPC also concluded that, based on the information provided, the proposed project will not, in accordance with Maine LURC regulation and 35-A M.R.S. § 3452, cause any unreasonable adverse effects on historic properties, or architectural or archeological as a result of the proposed BHWP.

C. *Conclusions*. Based on the information provided, the Commission concludes that the archaeological and historic reports submitted by the Applicant for the development area provide evidence that no historic or archaeological resources would be disturbed by the project, and therefore the proposed BHWP will not have an undue adverse impact on historic or archaeological resources. Therefore, the proposed BHWP would meet the standards in Section 10.25,E(3) of the Commission's Land Use Districts and Standards. The Commission also concludes that, other than the Eastbrook Baptist Church and Town House (*See* Section B(1), above), which would not be adversely effected, there are no other above-ground historic resources or archeological resources in the APE that would be eligible for listing on the National Register of Historic Places.

Tangible benefits (*See* Application Exhibit #22)

42. *Introduction and relevant review criteria.* 35-A M.R.S. §§ 3451(10) & 3454 require that any applicant for a grid-scale wind energy development proposed to be located in the expedited permitting area for wind power projects demonstrate that the proposed project will provide significant tangible benefits to the people of the State of Maine, with particular attention, to the extent practicable, to assuring such benefits to the identified host community or communities and affected neighboring communities. The tangible benefits demonstration may be made in a variety of ways, but must include a Community Benefits Package, providing at a minimum $4,000 per turbine per year. *Id.* §§ 3451(1-C), (10) & § 3454(2).

43. *Applicant's demonstration of tangible benefits*. The Applicant's demonstration of tangible benefits for its 19-turbine project includes a Community Benefits Package worth $12,698 per turbine/year. No party objected to the Community Benefits Package. The Applicant's demonstration also includes several other benefits to be derived from the BHWP, all of which are discussed below.

A. *Community Benefits Package*.

(1) The Community Benefits Package includes a Community Benefits Agreement (CBA) between the Applicant and Hancock County (identified as a host community), which is a binding, renewable 20-year agreement signed on June 2, 2011. The CBA includes annual payments by the Applicant to the County of $200,001 ($5,848 per megawatt per year), totaling $4 million over 20 years. The payments would be used for public purposes such as property tax reductions, economic development projects, land and natural resource conservation, tourism promotion, or reduction of energy costs.

(2) The Community Benefits Package also includes, in addition to the CBA with Hancock County:

(a) A second CBA with the Town of Eastbrook, which was also identified as a host community, of $20,000, for a total of $400,000 over 20 years; and

(b) A one-time contribution to the Downeast Salmon Federation (DSF) of $25,000 for the Narraguagus River watershed and vicinity conservation projects, as well as annual payments to DSF of $20,000 for a fund for water quality projects, and to provide public access to several water bodies. The contributions to DSF are documented in a Letter of Acceptance.

B. *Other tangible benefits attributable to the project*. Tangible benefits, in addition to the required Community Benefits Package, may include other environmental or economic improvements or benefits to the residents of the State attributable to the construction, operation and maintenance of the project (*See* 35-A M.R.S. § 3451(10)). The Applicant's project will provide the following:

(1) *Increased employment and wages.* The 2009 annual median income level in Hancock County is $32,468, which is below the state-wide level of $36,803. The employment rate is seasonal, highest during the summer months. Overall, however, employment is decreasing in Hancock County. During construction, approximately 225 individuals would be hired. Additional economic benefits will indirectly result from the project during construction, for example, due to contractor's spending money locally on food, lodging, and materials. After construction, 3 to 8 full-time, permanent jobs would be created during the operational lifetime of the project. The Applicant asserted that three permanent, full-time employees would be hired to operate and maintain the facility, and an additional five technicians would be employed by the manufacturer and working on-site for the first three years of operation of the project. A recent study analyzing the economic contributions of wind energy in Maine by Charles Colgan, PhD concludes that "… wind power developments result in wages approximately $182,000 per megawatt of installed capacity". Based on Dr. Colgan's analysis, the proposed 34.2 MW BHWP would generate approximately $6.2 million in wages.

(2) *Property taxes.* While the Applicant has acknowledged that it may pursue a credit enhancement agreement or 'TIF', the BHWP will add approximately $69 million in new property tax value to the unorganized territory of Hancock County over the 20 year life of the project, or an average of $342,343 per year.

(3) *Landowner benefits.* The landowner, Lakeville Shores, Inc., will receive annual lease payments throughout the terms of the 25-year lease, with an option to renew the lease for an additional term. Lakeville Shores submitted a statement verifying that the lease payments will supplement the revenue stream on this commercial forest parcel, which enables it to continue its forest management activities for which it hires locally.

44. *Objections to tangible benefits and Applicant's response*.

A. *Legislative findings*. The Intervenor CCRHC, Interested Persons, and members of the public questioned generally whether grid-scale wind energy development will provide economic and environmental benefits, and in particular questioned the wisdom of legislative findings that direct the Commission to assume certain benefits associated with grid-scale wind energy development. Any factual information relating to a development's impact on energy resources and its power production are contextual, however, and not central to the Commission's application of the substantive permitting review criteria. *See* 12 M.R.S. § 685-B(4); 35-A M.R.S. § 3452(3)(D); PL 2009, Ch. 642 § A-8. The Legislature has determined as a matter of law that wind energy is economically feasible, is an effective means of reducing fossil fuel combustion, and that it will provide energy and emissions-related benefits (*See* 35-A M.R.S. §§ 3402 and 3454). Accordingly, the Legislature has directed the Commission to presume that expedited wind energy development provides the energy and emissions related benefits set forth in legislative findings found at 35-A M.R.S. § 3402. *See* 12 M.R.S. § 685-B(4); 35-A M.R.S. § 3454; PL 2007, Ch. 661, Emergency Preamble. Therefore, the Commission does not directly address the general claims of CCRHC, but rather focuses on the economic and environmental benefits attributable to this project and whether they are significant.

B. *Allegations regarding impacts to property values and Applicant's response.* The record contains testimony claiming the proposed wind energy development has the potential to have adverse effects on property values. For example, Stephan Nadzo, an Eastbrook resident on behalf of CCRHC, presented a summary of literature regarding the impact of wind farms on real estate values. He asserted that the impact of industrial wind turbines on property values depends on (a) the type of land use where the project is located (*i.e.,* farms or forested land vs. residential areas), and (b) proximity. In the U.S and Canada, the sources he cited indicated that, under the facts and circumstances examined, the loss of value to residential properties could range from 25% to 40%. These sources all indicated that the closer the turbines are to the property, the greater the loss. Mr. Nadzo asserted that a wind power project should be located no closer than one mile to homes, and noted that this is the distance that has been incorporated into the Town of Eastbrook's ordinance. The closest group of residential properties to the project is approximately 4,000 ft away at Sugar Hill.

C. *Applicant's response*. The Applicant responded to Intervenor CCRHC and to public comments regarding the effect of wind energy development on property values. (Applicant response to CCRHC comments, June 6, 2011). The Applicant submitted several studies on the subject, stating "all of which have shown that there is no evidence that proximity to wind power projects has a measurable adverse effect on property values." These studies included, but are not limited to, a 2009 US Dept. of Energy report referred to as the 'Berkeley Report', which assessed 7,500 homes in nine states including in the northeast, concluded there is no evidence "that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities."

45. The Maine Public Utilities Commission (PUC) reviewed the Applicant's tangible benefits proposal and submitted comments on March 4, 2011 with regard to their preferences in general for tangible benefits proposals. However, PUC did not object to the Applicant's proposal.

46. *Conclusions*.

A. The Applicant's Community Benefits Package has satisfied the Applicant's burden of demonstrating that the proposed BHWP will provide significant tangible benefits to the State of Maine, to the host communities of Hancock County and the Town of Eastbrook, and to the area in which the project would be located. The Community Benefits Package will significantly exceed the statutory minimum of $4,000 per turbine per year, and Hancock County, the Town of Eastport, and the Downeast Salmon Federation all will receive benefits. The terms of the agreements with each are consistent with what the law contemplates for appropriate types of benefits.

B. The project, however, will also provide additional tangible benefits, namely:
(1) The economic benefits from the jobs created and money spent during the planning, design, and construction, and operation stages of the project, and
(2) The property taxes, which are expected to be approximately $69 million over the 20 year life of the project.

C. There is no statutory provision with respect to the tangible benefits determination directing the Commission to add up the total dollar figure of the project's benefits and offset that by subtracting the total adverse impacts of the project. Rather, the Legislature has provided a definition of tangible benefits and required applicants to demonstrate their projects provide benefits that are significant. To the extent the argument regarding private real estate value has any bearing on whether the project will have undue adverse impacts on existing uses (*See* 12 M.R.S. § 685-B), the record shows the BHWP is appropriately sited and therefore will not have an undue adverse effect on the value of the properties that are proximate to the facility.

D. The Applicant must document the provision of the above-required tangible benefits. The Applicant must provide a report to the Commission annually for the first two years of operation on all of the project's contribution to the State's economic, environmental and

energy policies. Thus, the Applicant's annual reports must include, but not be limited to, the total megawatt hours of generation during the year, calculation of avoided emissions resulting from operation of the project, companies used during construction, the number of Maine residents hired, total dollars spent in Maine during construction, and property taxes to be paid to the State.

Decommissioning Plan

47. *Relevant review criteria*. The "Act to Implement Recommendations of the Governor's Task Force on Wind Power Development", P.L. 2007, Ch. 661 § B-13 (effective 2008) directed the Commission to specify the submission requirements for applicants regarding a decommissioning plan for wind energy developments to be located in the expedited permitting areas of the State. The Act, although it did not create a new regulatory review criterion, specifically directed the Commission to direct applicants to include in its application "demonstration of current and future financial capacity that would be unaffected by the applicant's future financial condition to fully fund any necessary decommissioning costs commensurate with the project's scale, location and other relevant considerations, including, but not limited to, those associated with site restoration and turbine removal." In accordance with this provision of the Act, the Applicant submitted a decommissioning plan with its permit application (*See* Exhibit #20).

A. Title 12, § 685-B,4,C states: "[The commission may not approve an application, unless] adequate provision has been made for fitting the proposal harmoniously into the existing natural environment in order to ensure there will be no undue adverse effect on existing uses, scenic character and natural and historic resources in the area likely to be affected by the proposal."

B. In addition to the requirement to submit a decommission plan that meets the stated provisions of law, the Commission's Land Use Districts and Standards, §10.25,C,2 regarding financial capacity, state, "The applicant shall have adequate financial resources to construct the proposed improvements, structures, and facilities and meet the criteria of all state and federal laws and the standards of these rules."

48. *Decommissioning plan.* (*See* Exhibit #20 and Sewall Co. Memorandum dated April 12, 2011 for the Applicant's proposed decommissioning plan.)

A. *Summary of proposed decommissioning plan*. The Applicant has proposed a decommissioning plan which would include removal of project features and re-grading and stabilization of the project site, to be implemented when the BHWP ceases to produce electricity. The Applicant stated that the Vestas V-100 wind turbines proposed for the BHWP have a minimum expected operational life of 20 years. The Applicant further asserted that at 20 years, it may close-out the electrical generation project, or may continue operation for an extended period, which would likely require replacement of the turbines if they have not already been replaced. The Applicant noted that its lease allows for the project to be renewed beyond the twenty-five year lease agreement.

(1) The proposed decommissioning process would include removal of above-ground structures, except as noted below in (a) through (c); removal of below-ground structures to a depth of 24 inches; closure of some of the project roads; grading to restore natural storm water drainage patterns; restoration of topsoil and re-seeding; erosion and sedimentation control measures as needed; and monitoring to assure that the re-vegetation of the site has been accomplished and that no additional erosion control measures are needed. The above-ground structures include the turbines and met towers, and any above-ground portions of the collector lines. The below-ground structures include turbine foundations, the electrical collector lines and conduit down to 24 inches; and drainage structures, such as culverts, along any roads being closed out.
   (a) The Applicant anticipates that the O&M building would not be removed, but would be transferred to the landowner.
   (b) Likewise, the Applicant anticipates that the substation would not be removed, but would be transferred to the Bangor Hydro Electric Company.
   (c) One of the permanent met towers may be left in place if needed by Hancock County for use as a telecommunications tower, subject to any applicable permit conditions at the time.
   (d) Because the collector lines would be buried in the roadways at a depth greater than 24 inches, the majority of the lines would be left in place.

(2) The access roads would be widened to accommodate cranes, trucks, and other machinery required to disassemble and remove the turbines. Temporary lay-down areas would be designated. Site restoration would include re-seeding of the sides of the roads that have been widened.

(3) The turbines would be dismantled and the components lowered by crane, and disposed of by salvage, recycling, or disposal at a secure landfill.

(4) Turbine foundations, including concrete, anchor bolts, rebar, conduits, and cable, would be removed to a depth of 24 inches below grade. The excavated area would be back-filled with clean material comparable to the soils at the site, and compacted to match the density of the surrounding area. Surrounding unexcavated areas compacted by the heavy machinery would be de-compacted to restore a soil density consistent with the surrounding area.

(5) Topsoil would be stored during foundation excavation, and would be re-spread after re-grading. All areas of disturbed soils, except for roads not being closed, would be seeded with non-invasive conservation mix, or similar seed mix.

(6) Erosion and sedimentation control measures would be put in place prior to and during site work, and removed after disturbed soils have been re-vegetated or otherwise stabilized.

(7) Underground electrical collection lines and conduits at a depth greater than 24 inches would be left in place. The Applicant asserted that these lines and conduits do not contain materials known to be harmful to the environment.

(8) After decommissioning, road access gates would only remain if requested by the landowner; otherwise they would be removed.

(9) Concrete rubble would be disposed of on-site, used in areas such as roadsides for stabilization, or for road construction. The re-bar would be removed from any

concrete rubble re-used on-site. Concrete rubble would not be disposed of in gravel pits or in any area designated as a resource or storm water treatment buffer.

B. *Proposed decommissioning plan budget, financial assurance and provisions for implementing the plan*. The Applicant's proposed decommissioning budget includes consideration of structure dismantling, removal and disposal; re-sale of scrap metal at salvage value; and restoration and monitoring of the site. The Applicant's proposal also includes provisions for a $249,000 financial instrument (herein after referred to as the "decommissioning fund") to the benefit of LURC to implement the plan, if needed. The Applicant's labor cost estimates were based on Washington County 2011 wage rates, and other 2011 values such as the cost of fuel and equipment.

(1) The Applicant proposed "that on or prior to December 31st of each calendar year, beginning with the calendar year in which the project commences commercial operations through and including calendar year 7, an amount equal to $35,000 shall be reserved for decommissioning and site restoration. Such amount may be in the form of a performance bond, surety bond, letter of credit, parental guaranty or other acceptable form of financial assurance." (*See* Application Exhibit 20 section 3.0, page 1) The Applicant proposed that the decommissioning fund would be fully funded by the end of year seven, at which time it would submit to LURC for review and approval an updated decommissioning plan cost estimate to put in place for operational years 7 through15. The Applicant further proposed that should the owner decide to continue the project beyond the turbines' 20-year life, the amount of the decommissioning fund would be reviewed again at years 20 and 25.

(3) The Applicant proposed that if the project has not generated electricity for a continuous period of 12 months or more, then the owner of the project would initiate decommissioning. The Applicant proposed that the decommissioning would be initiated in the absence of a "Force Majeure" event, which it defined as "fire, earthquake, flood, tornado or other acts of God and natural disasters; strikes or labor disputes; war, civil strife or other violence; any law, order, proclamation, regulation, ordinance, action, demand or requirement of any government agency; suspension of operations of all or a portion of the project for routine maintenance, overhaul, upgrade or reconditioning; or any other act or condition beyond the reasonable control of a party." (*See* Application Exhibit 20, section 1, page 1)

49. *Review, testimony, and Applicant's response*.

A. In response to LURC staff review of the proposed decommissioning plan, the Applicant submitting an updated estimate of the decommissioning costs and revenues anticipated from the salvage value of the turbines and other components of the facility (*See* Sewall Co. Memorandum of April 12, 2011). These materials replaced the calculations that were initially submitted with the application in Exhibit #20.

(1) The updated calculations based the estimates of revenues on the metal scrap value rather than the resale of turbine components, and included engineering planning and oversight of the dismantling process. The initial decommissioning estimate of $249,000 remained the same in the updated cost estimate. The Applicant explained this was due to the redistribution of the planning and dismantling costs. The Sewall

Company estimates for the total decommissioning costs were $1,885,000, with a total salvage value of $1,636,000, leaving a net decommissioning cost of $249,000.

(2) However, concerns were raised that some activities related to the decommissioning should LURC need to implement the plan cannot be off-set by salvage value revenues, including: evaluation of decommissioning needs; preparation of a Request for Proposals and selection of a contractor (s); monitoring of the decommissioning progress, including before a salvage contractor is identified to complete the work; and site stabilization.

Based on the amounts estimated by Sewall Company, the total amount of the decommissioning fund would be $545,000 if adjusted for this consideration.

(3) Concern was raised about the volatility of the commodity market for scrap metal because scrap metal value was used as the basis for predicting decommissioning plan revenues. The Applicant debited this projected revenue against the total decommissioning costs to derive the proposed decommissioning fund amount. Concerns were also raised about the use of current 2011 values for labor, fuel, and equipment costs, and whether increases to these values were accounted for in the plan's contingencies. In response, the Applicant reviewed the Sewall Co. calculations, concluding its projections were correct and that the proposed decommissioning fund amount is adequate.

B. *Fourth Procedural Order.* The Fourth Procedural Order recognized materials submitted to the file that contain the details of decommissioning plans of other Maine wind projects which have been approved or are proposed to both LURC and the MDEP. These materials also included the court decisions of several appeals that had rulings involving the comprehensiveness of a proposed decommissioning plan. These materials provide guidance with respect to an overview of the components that make up a decommissioning plan, as well as the amount of the net cost to be held in a decommissioning fund to pay for decommissioning.

C. *Interested Persons and Public Comments*. Testimony was submitted by Intervenor CCRHC, Interested Persons, and the public, asserting the following:

(1) Until the cost of decommissioning is fully funded by the Applicant, the State would be responsible for this cost should the Applicant default at that obligation.

(2) There is a risk borne by the State by agreeing with the Applicant's assertion that the value of re-useable components or scrapping the metal will nearly cover the cost of decommissioning. The proposed funding mechanism relies on what is recognizably a price-volatile scrap market to recover the substantial cost of dismantlement.

(3) The Applicant's method of estimating decommissioning costs implies the sale of the salvaged steel after considerable dismantling expense in order to generate revenue.

(4) Implementation of decommissioning hinges on a trigger of no production of electricity by 100% of the turbines over a 12 month period. It was suggested that a trigger of 50% of the turbines to initiate decommissioning would be a better approach.

50. *Conclusions*. The Commission concludes that the Applicant has provided sufficient information for the basis of a workable decommissioning plan, including a mechanism to

execute that plan. However, several additions to the plan are necessary to fully demonstrate that the requirements of law and rule for a wind energy development decommissioning plan will be met.

A. The Commission concludes that the decommissioning plan includes a demonstration of current and future capacity unaffected by the Applicant's future financial capacity to fully fund adequate site work to meet the statutory criteria for approval in 12 M.R.S.A., §685-B(4)(A), namely that the project not cause an undue adverse impact on existing uses and resources, subject to the conditions below.

B. The Commission further concludes that while the Applicant's proposed budget and its administrative conditions and terms provide some of the provisions needed to implement the plan, other necessary provisions must be added.

(1) The budget details provided by the Applicant included the costs associated with engineering, planning, and management of the decommissioning plan, and separated out the cost of dismantling turbine and met tower structures for scrap metal revenues. The budget also included the cost of reclaiming the site to pre-project conditions. The proposed schedule for payments into the decommissioning fund results in full funding by year seven of commercial operation.

(2) However, the decommissioning costs estimate provided by the Applicant does not contain the detail necessary to determine whether the estimates account for increases in the cost of construction labor, fuel, equipment, and transportation.

(3) The scrap metal revenues estimated by the Applicant were based on an average assumption of the steel scrap metal market value, and did not factor in possible changes to the market in the future. To assure that the estimates are as accurate as possible, the Applicant proposed to reassess the revenues and costs of the decommissioning plan at year 7 and year 15 of operation. However, the Commission concludes that swings in the scrap metal market could be accounted for better if the revenues and costs of the decommissioning were reviewed and adjusted more frequently, such as every third year.

(4) Assurance is needed that the Commission will have the financial resources to decommission the site if needed, in particular, adequate funds are needed to cover the costs of: evaluation of decommissioning needs; preparation of a Request for Proposals and selection of a contractor(s); monitoring of the decommissioning progress, including before a salvage contractor is identified to complete the work; and site stabilization. The components of the decommissioning plan budget that are related to these activities may not be offset by the anticipated salvage value. All other items in the budget may be offset by the salvage value. Based on the Applicant's most recent estimate, the decommissioning fund should total $545,000 to assure that activities which cannot be offset by the salvage revenue are accounted for.

(5)The Commission concludes that, in order to ensure that there is no undue adverse effect on existing resources, a "Force Majeure" event must be defined as an event beyond the reasonable control of the Applicant such that the event could not have been avoided by the Applicant's exercise of due care.

(6) Third-party inspection during and after decommissioning activities to monitor erosion control measures and site restoration has been identified as necessary for

implementation of the decommissioning plan. The selection of the third party inspector is subject to LURC review and approval.

C. Additionally, the Commission recognizes that there may be a need for partial decommissioning when 50% of the turbines are not producing electricity for at least 12 continuous months, thus under those conditions the Applicant must present an explanation for Commission review and approval regarding why the project should not be decommissioned at that time, or present a partial decommission plan for Commission review and approval.

D. The conditions of approval of this permit with regard to the decommissioning plan reflect the Commission's position of what constitutes a comprehensive and workable decommissioning plan and, in combination with the Applicant's proposed plan, will meet the requirements of law.
(1) The periodic reassessment of the decommissioning plan budget must include review of: (a) the scrap metal salvage market value as a source for revenue projections; (b) the overall budget costs including assumptions and contingencies; and projections for future costs where possible, such as the projected labor costs at the anticipated year of decommissioning, and (d) separate estimates of the costs listed in Section B, above.
(2) The decommissioning plan budget must be reassessed every third year after the start of commercial operation over the life of the project (years 3, 6, 9, 12, 15, 18, etc). The budget re-assessments are subject to LURC review and approval.

E. If warranted by future conditions, LURC retains the right to revisit the basis of the decommissioning plan in accordance with the APA. The project operator may propose plan amendments for Commission consideration.

FINAL CONCLUSIONS

The Commission must evaluate wind energy development located in the State's expedited permitting area on the basis of its statutory permitting authority, as modified by PL 2007, Ch. 661 (codified in part in Title 12 and in part in Title 35-A). The Commission's evaluation is further based upon the Commission's Chapter 10 standards & rules, and it's Comprehensive Land Use Plan (CLUP). Based on the findings set forth above, and in addition to the conclusions set forth above, the Commission concludes that, with respect to the 19-turbine Bull Hill Wind Project (BHWP) proposal, the Applicant has met its burden of demonstrating that the BHWP is in conformance with the applicable statutory and regulatory requirements, and that it is consistent with the goals and policies of the CLUP. 12 M.R.S. §§ 685-B(2-B), (4) and (4-B); 35-A M.R.S. §§ 3401-3404, 3451-3458; applicable provisions of the Commission's Chapter 10 standards and rules; Comprehensive Land Use Plan (2010 CLUP); applied provisions of the Town of Eastport Wind Facility Ordinance.

CONDITIONS

Therefore, the Commission APPROVES Development Permit DP 4886, submitted by Blue Sky East, LLC for the 19-turbine Bull Hill Wind Project, as proposed, subject to the findings of fact and conclusions contained herein and the following conditions:

1. The Standard Conditions (ver. 10/90), attached. With respect to Standard Condition #4, the permittee shall submit the dates of signing of any other state or federal permits obtained for this project for the file.

2. Only those uses, structures and activities described in this permit are approved. The associated protective measures, monitoring, and reporting as described within this permit are also approved, and are considered to be a part of the project. Any changes to the project are subject to review and approval by the Commission or the LURC Director, as applicable.

   A. In accordance with Section 10.06, A of the Commission's Land Use Districts and Standards, "the description of permitted uses herein does not authorize any person to unlawfully trespass, infringe upon or injure the property of another, and does not relieve any person of the necessity of complying with other applicable laws and regulations."

   B. Unless otherwise granted permit approval, all approved activities and uses proposed must meet the standards of Section 10.27 of the Commission's Land Use Districts and Standards (as may be amended from time to time).

   C. The Permittee is responsible for all activities that were proposed as a result of consultation with State agencies, any recommendations agreed to, as reflected in the record, including, but not limited to, the State Soil Scientist, MNAP, and MDIFW.

   D. *Changes to the project*. Any change to the project layout, grading and storm water/erosion control system for the BHWP that has more than a minor effect on the amount of impact to a natural resource must be assessed by LURC staff to determine if a permit amendment will be necessary.

   E. *As-built plans*. The Permittee shall provide "as-built" engineered plans to LURC staff, in particular showing any portions of the constructed project that deviates from the plans approved for construction herein.

3. The BHWP must be constructed and operated in compliance with the standards of the Commission's Land Use Districts and Standards. In particular, the BHWP must comply with Section 10.25, H (Solid Waste Disposal); Section 10.25, I (Subsurface Wastewater Disposal); and Section 10.25, M (Erosion and Sedimentation Control). Except as otherwise approved herein, the BHWP must be constructed and operated in compliance with Section 10.27, B (Vegetation Clearing); Section 10.27,C (Mineral Exploration and Extraction); Section 10.27,D (Roads and Water Crossings); Section 10.27,F(Filling and Grading); and Section 10.27,J (Signs).

4. *Public benefits report*. The Permittee must provide a report to the Commission annually for the first two years of operation on the project's contribution to the State's economic, environmental and energy policies, and documenting the required tangible benefits. PL 2009, Ch. 642 § A-8. The Permittee's annual reports must include, but not be limited to, the total megawatt-hour (MWh) of generation during the year, calculation of emissions reduced or displaced as a result of operating the project, companies used during construction, the number of Maine residents hired, total dollars spend in Maine during construction, and property taxes to be paid to the State. Any other tangible benefits realized as result of operating the project may also be included in the report.

5. *Financial capacity*. Permittee has demonstrated adequate financial capacity in accordance with the applicable law and regulations.

   (a) To ensure the final financing arrangements meet the applicable standards, prior to the start of any construction Permittee shall submit to LURC staff evidence, showing its current financial capacity to construct the project remains the equivalent of what is demonstrated in the record, that is, in compliance with the applicable laws and regulations, including the requirements of this permit.

   (b) Further, if prior to obtaining final financing commitments for the BHWP Permittee wants to begin preliminary construction activities, such as, by way of example only, site clearing, preparation and use of temporary lay-down areas, and grading for new road segments, Permittee shall submit to LURC staff evidence of financial capacity sufficient to cover the costs of the proposed construction activities and a detailed list of the preliminary construction activities to be undertaken. The Permittee shall post a bond in an amount sufficient to cover restoration costs associated with the proposed construction activities. The Permittee may not undertake such preliminary construction activities until it has received a certificate of compliance from LURC staff stating that the terms of this condition (b) and condition (a) above have been met.

   (c) Further, the Permittee may not undertake construction beyond such preliminary construction activities until it has submitted to LURC staff the final financing commitments for the BHWP. The Permittee may not undertake construction beyond any approved preliminary construction activities until it has received a certificate of compliance from LURC staff stating that the terms of this condition (c)and condition (a) above have been met.

   (d) Any person aggrieved by a LURC staff decision regarding certificates of compliance may appeal to the Commission in accordance with 12 M.R.S. § 685-B(8) and LURC Rule Chapter 3 § 3(B), but the Commission's decision on appeal constitutes an exercise of the Commission's enforcement discretion and is not subject to judicial review as a final action of the Commission. *See* 12 M.R.S. § 689.

6. *Decommissioning*. The Decommissioning Plan consists of three sections:
   - The scope of work;
   - The budget and the decommissioning fund; and
   - Provisions for implementing the plan.

   A. If it becomes necessary for the BHWP to be decommissioned, the Permittee shall decommission, or provide for the decommissioning of the BHWP. The Permittee shall fully fund decommissioning regardless of the type or amount of the funding mechanism secured and regardless of whether the funding mechanism has yet been put in place, as set forth below.

   B. Decommissioning of the BHWP, including restoration of the project site, must be initiated if the project has ceased to generate electricity for a continuous period of twelve months, unless the operator demonstrates to LURC that generation has been prevented by a force majeure event (*See* Finding of Fact #50,B(5)), or that the project has not otherwise been abandoned and should not be decommissioned.
      (1) The permittee shall submit a final detailed decommissioning plan and schedule:
         (a) Twelve months before the anticipated date of a planned closure of the facility;
         (b) In the case of an unplanned closure, no later than 60 days after the date the project ceases to generate electricity as set forth in a written notice to LURC; or
         (c) If no such notice has been provided and the project has not generated electricity for 12 consecutive months, 60 days after the permittee receives a written request from LURC to decommission the project.
      (2) If fifty percent (50%) or more of the turbines have not produced electricity for at least a continuous period of twelve months, the permittee shall submit for Commission review and approval a partial decommissioning plan for dismantling and site restoration of the unused turbines and associated features; or alternatively, demonstrate that all or some of the unused turbines may remain in place without causing an undue adverse effect. The partial decommissioning plan must conform to the requirements for a full decommissioning plan, as described in Section F, below, or alternatively the permittee may propose an amended scope of work with an explanation of why the changes are proposed.

   C. *Financial assurance*. The permittee shall secure a financial instrument such as an irrevocable standby letter of credit, or other similar method of financial assurance, in favor of the State of Maine Land Use Regulation Commission to fund decommissioning of the project. The amount of the decommissioning fund is $545,000, to be re-assessed periodically (see Section E, below). The decommissioning fund must contain at least 1/6 of the estimated decommissioning costs no later than by December 31st of year 1 of commercial operation. An additional 1/6 of the total estimated decommissioning cost must added during years 2, 3, 4, 5, and 6, submitted by December 31st of each year. No later than year 7 of commercial operation, the decommissioning fund must be fully funded at 100% of the estimated decommissioning costs.
      (1) The financial instrument secured for the decommissioning fund must be submitted to LURC for review and approval prior to the date by which it must be in effect. To allow for adequate review time it must be submitted no later than November 30th of

year 1 of commercial operation, and is subject to review by the Maine Attorney General's Office.

(2) The financial instrument must assure that LURC, or its assigns, will have the right to call such assurance in the event of non-performance; if the project ceases to generate electricity for a continuous period of twelve months; or if it becomes necessary for LURC to implement some or all of the decommissioning plan due to unsatisfactory performance or failure on the part of the permittee. Should the permittee sell or transfer ownership of the project, then the transfer must be conditioned upon the provision of an equivalent financial instrument subject to LURC review and approval.

D. *Final detailed decommissioning plan*. If it becomes necessary for the BHWP to be decommissioned, the permittee shall submit to the Commission for review and approval a detailed decommissioning plan in substantial compliance with the decommissioning plan proposed (*See* summarized in Finding of Fact #48) and including the additional provisions indentified during the project review (*See* Sections C (above) and E and F, below).

(1) The final detailed decommissioning plan must also include a detailed reassessment of the budget costs and revenues.

(2) The final decommissioning plan must contain detail sufficient for LURC to review the impacts of the proposed decommissioning activities. The final detailed decommissioning plan is subject to Commission review and approval.

E. *Revised decommissioning plan budget.* No later than year three of commercial operation, the permittee must submit a revised budget for the decommissioning plan that details the anticipated decommissioning costs. The revised decommissioning plan budget, and each subsequent re-assessment thereafter, must re-evaluate the scrap salvage value revenue estimates; engineering, construction labor, equipment, and fuel cost assumptions, engineering management planning and oversight for all activities including site stabilization and reclamation; third party oversight; and site monitoring for one year after completion of the decommissioning activities. In addition, broken out as separate items, the revised budget must include site stabilization, evaluation of decommissioning needs, preparation of a Request For Proposals, and monitoring the progress of the decommissioning and site restoration work, including the period before the salvage contractor is employed to complete the work. Any such revision is subject to LURC staff review and approval.

(1) The decommissioning plan budget must be updated and submitted to LURC for review and approval every third year (years 3, 6, 9, 12, 15, 18, etc). The updated budgets must include projections out to the expected life of the project for any costs or revenues that can reasonably be projected, such as labor. A final budget update must be included with the final decommissioning plan (*See* Section D(1), above).

(2) Should the re-calculated budget amount exceed the $545,000, the permittee shall add to the decommissioning fund as a lump sum payment the amount needed to make up the difference. Should the re-calculated budget amount be less than $545,000, the permittee may adjust the amount of the financial assurance accordingly.

(3) Whenever the budget is recalculated, methods similar to those used to prepare the budget that was submitted with the application must be used. This includes, but is not limited to: forecasting the engineering, turbine dismantling and site reclamation

costs; and estimating revenues from steel scrap metal. The budget must include contingencies for unexpected costs, as well as but not limited to, increase projections for labor, fuel, and equipment fees. With the exception of the budget reassessment prepared immediately prior to implementation of decommissioning, cost estimates must not be based only on current dollar costs but rather must project future costs where possible.

F. *Scope of work.* The detailed final decommissioning plan must be submitted to LURC for review and approval, and must include the activities proposed by the permittee in Application Exhibit #20 of the application and, as updated in its response to LURC staff comments (*See* Findings of Fact #49), as well as activities identified during the review of the plan's scope of work (*See* Findings of Fact #48A), including but not limited to:
(1) Removal of above-ground structures (turbines, met towers, and collector lines), except that the O&M building may remain if transferred to the landowner or other entity, the substation may remain if transferred to Bangor Hydro Electric Company or other entity, and one of the met towers may remain if needed by Hancock County or other public entity as a telecommunications tower;
(2) Removal of below-ground structures to a depth of 24 inches (turbine foundations and buried collector line cable and conduit), except as noted;
(3) Re-grading of the site to restore contours and natural drainage conditions;
(4) Restoration of topsoil; re-seeding or otherwise stabilizing disturbed areas (with the exception of any roadways that will remain);
(5) Closure of identified access roadways;
(6) Third-party inspection during and after decommissioning activities to monitor erosion control measures, with the final selection of the third party inspector subject to LURC staff review and approval;
(7) A project site plan showing temporary and permanent erosion and sedimentation control measures;
(8) A Spill Prevention Containment Control plan to be used during the decommissioning activities;
(9) Provisions for implementation of construction Best Management Practices to be implemented during decommissioning and site restoration activities to assure protection of natural resources;
(10) Disposal of solid waste in accordance with state laws, including on-site uses such as concrete rubble for road construction or roadside stabilization, and other debris to be disposed of off-site; and
(11) A construction schedule for completion of the decommissioning and site restoration.

7. *Wildlife.*
A. *Avian and bat monitoring*.
(1) *Pre-construction avian monitoring*. The Permittee shall conduct a third year of pre-construction migrant songbird radar monitoring, as proposed (*See* Finding of Fact #38,B,(1)(f)(ii)).
(2) *Post-construction avian monitoring.* The permittee shall conduct post-construction avian monitoring from April 15th to September 30th, in accordance with the draft "Post Construction Monitoring Proposal" submitted in the application, and as refined

and updated to incorporate information from operating projects, as well as in response to continued MDIFW, USFWS, and BCI consultations. The Permittee shall submit a copy of any revised plan to LURC staff for review and approval.

(a) The Permittee shall develop an adaptive management plan in consultation with MDIFW and provide that to LURC staff for review and approval prior to operation start-up.

(3) *Two-year bat study*. The permittee shall conduct post-construction bat mortality monitoring during the first two years of operation, from April 15th to September 30th. During the two-year bat study period, the permittee shall provide to LURC staff, MDIFW, and BCI semi-annual reports, detailing the results of the study.

(a) If, upon review of a semi-annual report, or the final report at the end of year two, the LURC staff determines there is an unacceptable mortality rate at the un-curtailed turbines such that continued un-curtailed operation would cause an undue adverse effect, the study must be suspended, and all turbines must be curtailed at wind speeds less than 5.0 m/s, pending further review and approval by LURC staff of a proposal from the Permittee, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes, as necessary to avoid any undue adverse impact on bats.

(b) At the end of the two-year study the permittee shall submit for LURC staff review and approval a proposal, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes as necessary to avoid any undue adverse impact on bats. The proposed program may include increases and/or decreases in un-curtailed operation for LURC staff review and approval.

(c) The Permittee's submission of its proposed operational changes, if any, as referenced in (a) and (b), above, shall be made available for public review and comment.

(4) The Permittee shall report to LURC and MDIFW if an unusually high mortality event involving either birds or bats is discovered during routine searches so the need to curtail the turbine cut-in speed, or to make other operational changes can be assessed. If LURC staff determines there is an unacceptable mortality rate at the un-curtailed turbines such that continued un-curtailed operation would cause an undue adverse effect, the study must be suspended, and all turbines must be curtailed at wind speeds less than 5.0 m/s, pending further review and approval by LURC staff of a proposal from the Applicant, drafted in accordance with the approved adaptive management plan, and including any proposed operational changes as necessary to avoid any undue adverse impact on bats.

(5) Any discovery of mortality to state or federally listed species must be reported to the appropriate agency and mitigation measures, if needed, decided at that point.

B. *Vernal pools*. The Permittee shall not directly impact any vernal pool or vernal pool upland buffer in the Project Area, except as proposed for Significant Vernal Pool #34CF-N (See Finding of Fact #38,F,(1) and (4)). The proposed vernal pool setbacks must be maintained to protect the upland buffers (See Exhibit #13A of the application). During construction, the permittee shall implement the MDIFW's Best Management Practices for forest operations and development activities in proximity to vernal pools.

8**.** *Soils, erosion and storm water control, phosphorus, and geotechnical.*

A. *Pre-construction meeting*. Prior to the start of construction, the permittee shall conduct a pre-construction meeting that includes at a minimum a representative of the Permittee, LURC staff, MDEP staff, the project design engineer, the contractor, and the third party inspector.

B. *Maintain E/S measures*. The Permittee shall maintain the temporary and permanent erosion control and storm water management structures during and after construction, including but not limited to drainage ponds and swales, culverts, and discharge outlets. Permanent storm water management structures must be cleaned of debris at least once yearly, or more frequently as needed. The permittee shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

C. *Third party inspection program*. The Permittee shall retain a third party inspector to inspect the erosion and sedimentation controls on the site during construction and until the disturbed soils at the site have been stabilized, in compliance with Section 10.25,M(4)(c) of the Commission's Land Use Districts and Standards. At a minimum, the third party inspections must be conducted weekly and before and after any significant rain event (greater than 0.5 inches), starting with clearing of the site and ending when the site has been stabilized, third party inspections must be conducted in a manner that is consistent with the findings herein (*See* Finding of Fact #36, B(6) and H(2)(b)).All site inspections by the third party inspector must be reported to LURC staff, and must include a log of the inspection with the date and time of the inspection, and the items inspected. Once the site has reached final stabilization, the third party inspector must notify LURC staff in writing within 14 days.

The final selection of the third party inspector is subject to LURC staff review and approval. No construction activities, including clearing, may be initiated until a third-party inspector has been selected. The services of the third party inspector must not be terminated prior to the completion of construction without first gaining written permission from LURC. If warranted, the frequency of inspections may be changed with approval of LURC staff.

D. *Buffers*. Prior to the start of construction, the location of all buffers (including natural resource buffers and storm water buffers) must be clearly marked in the field using durable signs and/or flagging that is visible to construction personnel. The location of protective buffers must be marked on construction drawings and restrictions within these buffers must be explained during the pre-construction meeting with the contractor. The permittee is responsible for ensuring the signs are maintained and visible to construction personnel during the construction phase of the project. Locations of protective buffers must be permanently marked on the ground following the construction phase of the project. Locations of protective buffers must be marked on a plat and given to the landowner as a notification for their land management activities, and submitted to the Commission and to MDEP. The buffers may expire once decommissioning is complete

and the site is stabilized.

E. *Re-vegetation and monitoring*. To assure that re-vegetation of the site has been accomplished, on-site inspections of re-vegetation and any remedial measures taken must be recorded and reported to LURC staff semi-annually for the first year of operation, and annually thereafter until all disturbed areas have achieved 85% vegetation cover; with the exception of roads, parking areas, and open portions of the turbine pads. All monitoring of post-construction erosion/sedimentation and storm water control measures, and subsequent reporting to LURC staff, are the responsibility of the Permittee. Any substantial changes to the approved re-vegetation plans and associated monitoring (*See* Finding of Fact #36, E and H(2)) must be submitted to LURC staff for review and approval.)

9. *Noise.*

A. Control of Noise produced by the BHWP during routine operation must comply with MDEP's sound level limits, 06-096, Chapter 375.10,C in all aspects except that the noise level produced during the routine operation at the nearest quiet protected location, as defined under Chapter 375.10, C, must not exceed 40 dBA at locations within 500 feet of living and sleeping quarters or, if closer, at the property boundary, during the hours 7:00 pm to 7:00 am.

B. Noise associated with nighttime construction is subject to the hourly limits set forth above in #1, except as needed for safety signals, warning devices, emergency pressure relief values, other emergency activities, and traffic on roadways. Noise due to construction activities during daylight hours or 7:00 a.m. to 7:00 p.m., whichever is longer, is not subject to the limits of Chapter 375.10, C but must comply with applicable State and federal laws. Noise associated with construction activities must be consistent with the Permittee's submission regarding construction sound levels. (*See* Exhibit #17, section 6.1)

C. Prior to commercial operation of the wind energy facility, the Permittee shall submit to LURC staff for review and approval a plan to monitor the noise levels produced by the wind energy facility during operation. Sound levels must be monitored for a minimum of three years, as specifically outlined above in Findings of Fact #40 D(5) and these following conditions of approval.

The plan must include but not be limited to the following:

(1) The plan must be designed to ensure compliance with the sound level limits specified in these conditions;
(2) Twelve measurements at any period(s) during the reporting year must be taken during atmospheric conditions that maximize 'worst case scenarios' for measurement of maximum hourly, tonal, and SDRS sound limits.
(3) Thresholds that would dictate if additional monitoring would be required and the methods and scope of such additional study;
(4) Incorporation of response, documentation, and reporting of violation incidents;
(5) SDRS and Tonal measurement protocols, such as addition of 5 dBA penalties;

(6) Noise level compliance reports filed with the Commission must also be copied to officials of the Town of Eastbrook.

D. The Permittee shall submit a sound level complaint reporting and response protocol plan for LURC review and approval. The plan must include, but not be limited to, the following:
   (1) Notice and posting of a contact number and address for complaints regarding noise generated by the wind power facility;
   (2) Notice to all abutters, and posting of the protocol information in locations around the project site and at adjacent municipal and County offices; and
   (3) The procedure once a complaint is reported must include;
      (a) Collecting complaint information and recorded sound, meteorological, operational and applicable facility SCADA data from the compliance location;
      (b) Submission of that information to LURC within 7 days; and
      (c) Proposed types of short term action taken immediately to adjust operations to reduce sound output to applicable limits, if needed.

E. If the LURC staff determines that the project has exceeded the applicable noise standards based upon, for example, the results of the Permittee's post-operation noise monitoring, or the results of the review of a noise complaint, the Permittee shall prepare and submit appropriate remedial measures for LURC staff review and approval.

F. The Permittee shall provide to the Commission funding for the reasonable costs of a qualified sound engineer to assist LURC staff in conducting its review of post-operation monitoring reports, complainant incidents and potential violation documentation and follow-up; short term operational response actions; and design and implementation of long term mitigation measures.

10. *Removal of existing camps.* The Permittee shall remove the two camps whose leases have been terminated prior to commercial operation of the BHWP. Disturbed soils at the camp sites must be re-vegetated, except that access roads or driveways may remain un-vegetated. Prior to removal of the camps, they must not be used in any capacity during the construction of the BHWP for housing, office, or storage space. If the camps contain hazardous wastes, they must be disposed of according to applicable laws and regulations.

11. *Public safety-related setbacks*. The easement granted to the permittee by Tree Top Manufacturing agreeing that turbine #10 may be located less than 714 ft from the property boundary line must remain in place during the life of the BHWP.

12. *Temporary office and storage trailers*. Temporary trailers used for office or storage space for equipment must be removed from the project site no later than three months after commercial operation commences. All temporary trailers must be sited such that the minimum setback requirements of Section 10.26,D,2 of the Commission's Land Use Districts and Standards are met.

13. *Gravel pits.* Any existing gravel pits used by the permittee or its contractors for the construction of the BHWP must be located in an M-GN Subdistrict; must not exceed 5 acres in size, including previously disturbed areas; and must be operated in compliance with Section 10.27,C of the Commission's Land Use Districts and Standards.

14. *Solid waste disposal.*

    A. *Stump dump*. Stumps generated during construction of the BHWP may be buried within the project roadways or turbine pads, or processed for use in erosion control mix. If a stump dump is needed, the location must be determined by the permittee and the contractor in consultation with the third-party inspector during construction, and the selected location submitted to LURC staff for review and approval.

    B. *Concrete disposal.* Wash-down water from concrete delivery trucks and tools used to handle uncured concrete must be contained within the turbine pads or other similar areas such that no untreated water can reach streams or other waterbodies. Cured concrete waste may be buried in the project roadways or turbine pads, but in all cases must be disposed of in accordance with Section 10.25,H of the Commission's Land Use Districts and Standards.

15. *Heavy equipment access*. Heavy Equipment must use the routes described in the application narrative and may not use the Sugar Hill Road.

16. *Operation SPCC Plan*. The Permittee shall submit a Spill Prevention Control and Countermeasures Plan to be used during operation of the BHWP prior to commercial operation. This plan must include the recommendations put forth by the MDEP in Finding of Fact #31,D, and must comply with the provisions of 38 M.R.S., § 1318-C.

17. *Blasting Plan.* When blasting, the Permittee shall follow the blasting plan included as part of the application and, in addition, shall apply the standards for air blast levels found at 38 M.R.S. §490-Z,14,H. Records of individual blasts shall include the information listed at 38 M.R.S. §490-Z,14,L.

18. *O&M building and substation.*

    A. The permanent parking area for the O&M building must not exceed 1 acre in size.

    B. If more 25 people a day for more than 60 days a year, which makes the well a public water source, would use the well at the O&M building as a drinking water source, then the Permittee must contact the Dept. of Human Services' Drinking Water Program to determine the required water quality testing and reporting requirements for the use of the well as a public drinking water source.

    C. The floodlights at the substation must only be used during nighttime work at the substation, and must not remain turned on at other times.

19. *Water withdrawal for dust control*. The withdrawal of water from a surface water body for dust control on project roads must not exceed the weekly threshold volume for a GPA lake or pond over which the withdrawal must be reported, pursuant to 38 M.R.S., § 470-B,2. Specifically, the threshold volume for reporting on withdrawals from a Class GPA lake or pond is determined from the following table:

Lake area in acres	gallons/ week
< 10	30,000
10-30	100,000
31-100	300,000
101-300	1,000,000
301-1000	3,000,000
1001-3000	10,000,000
3001-10,000	30,000,000

In accordance with 12 M.R.S.A. section 689, 5 M.R.S.A. section 11002, and Maine Rules of Civil Procedure 80C, this decision by the Commission may be appealed to the Law Court within 30 days after receipt of notice of the decision by a party to this proceeding, or within 40 days from the date of the decision by any other aggrieved person.

DONE AND DATED AT ELLSWORTH, MAINE THIS 5th DAY OF OCTOBER, 2011.

By:_____
Catherine M. Carroll, Director

STATE OF MAINE
DEPARTMENT OF CONSERVATION
MAINE LAND USE REGULATION COMMISSION
22 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0022

STANDARD CONDITIONS OF APPROVAL FOR ALL DEVELOPMENT PERMITS

1. The permit certificate must be posted in a visible location on your property during development of the site and construction of all structures approved by this permit.

2. This permit is dependent upon and limited to the proposal as set forth in the application and supporting documents, except as modified by the Commission in granting this permit. Any variation therefrom is subject to the prior review and approval of the Maine Land use Regulation Commission. Any variation from the application or the conditions of approval undertaken without approval of the Commission constitutes a violation of Land use Regulation Commission law.

3. Construction activities permitted in this permit must be begun within two (2) years of date of issue and completed within five (5) years from date of issuance of this permit. If such construction activities are not begun and completed within this time limitation, this permit shall lapse and no activities shall then occur unless and until a new permit has been granted by the Commission.

4. The recipient of this permit ("permittee") shall secure and comply with all applicable licenses, permits, and authorizations of all federal, state and local agencies including, but not limited to, natural resources protection and air and water pollution control regulations and the Subsurface Wastewater Disposal Rules of the Maine Department of Environmental Protection and the Maine Department of Human Services.

5. Setbacks of all structures, including accessory structures, from waterbodies, roads and property boundary lines must be as specified in conditions of the permit approval.

6. In the event the permittee should sell or lease this property, the buyer or lessee shall be provided a copy of the approved permit and advised of the conditions of approval. The new owner or lessee must contact the Land Use Regulation Commission to have the permit transferred into his/her name and to reflect any changes proposed from the original application and permit approval.

7. The scenic character and healthful condition of the area covered under this permit must be maintained. The area must be kept free of litter, trash, junk cars and other vehicles, and any other materials that may constitute a hazardous or nuisance condition.

8. The permittee shall not advertise Land Use Regulation Commission approval without first obtaining Commission approval for such advertising. Any such advertising shall refer to this permit only if it also notes that the permit is subject to conditions of approval.

9. Once construction is complete, the permittee shall notify the Commission that all requirements and conditions of approval have been met. The permittee shall submit all information requested by the Commission demonstrating compliance with the terms of the application and the conditions of approval. Following notification of completion, the Commission's staff may arrange and conduct a compliance inspection.