STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

January 29, 2014

To Interested Persons:

RE: Bingham Wind Project Draft Staff Analysis, #L-25973-24-A-N/L-25973-TG-B-N

Dear Interested Person:

The Department of Environmental Protection (DEP) will hold the second of two public meetings at the Quimby School, Main Street, Bingham, Maine, on Wednesday, February 12, 2014 starting at 6:00 PM.

Attached you will find a draft staff analysis for the Bingham Wind Project. This represents the Department's current analysis of the statutory requirements in the Site Location of Development Act, the Natural Resources Protection Act, and the Wind Energy Act as they pertain to this project. The Department is providing this document prior to the February 12, 2014 public meeting in anticipation of gathering public feedback at the meeting.

The primary purpose of the February 12th meeting is to gather public feedback of the Department's draft staff analysis. The Department's Commissioner, Patricia Aho, will preside over the meeting and gather public comments. Other Department staff, including the project manager, Dan Courtemanch will also be in attendance.

In advance of the February 12th meeting, the Department would like to set a few ground rules:

1. Every effort will be made to allow each interested person an opportunity to speak within the allocated time period. As such, it may be necessary to limit the amount of time each individual has available to speak. So, we ask in advance for your understanding in this regard.

2. All questions and comments should be directed to the Department. If you have questions that you believe the applicant failed to address or that they should address in more detail in their application, please make the request to the Department. Provided the areas of concern are relevant to a permitting criteria, the project manager will follow-up with the applicant to ensure that all necessary and appropriate information is in the Department record.

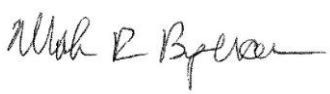
3. The Department requests that all questions asked by interested persons be provided to the project manager in writing at the public meeting at the end of your turn to speak, or as soon as possible after the meeting. This will help to ensure that each question is

specifically addressed prior to the issuance of any final permit decision by the Department. If interested persons wish to provide written comments in addition to questions, they may do so at their discretion.

A copy of the draft staff analysis can be found on the Department's website at: http://www.maine.gov/dep/land/sitelaw/selected-developments/index.html. Interested persons can also view the applicant's application materials on the Department's website at: http://www.maine.gov/dep/ftp/WindPowerProjectFiles/BinghamWind/

The Department welcomes your participation at the public meeting and we will consider all comments during our review of the Bingham Wind Project applications. If you have any questions prior to the meeting, please contact the project manager, Dan Courtemanch at BinghamWindProject.DEP@maine.gov.

Sincerely,



Mark Bergeron, P.E.
Director, Division of Land Resource Regulation
Bureau of Land and Water Quality
Maine Department of Environmental Protection

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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DRAFT DEP STAFF ANALYSIS
of applications for
SITE LOCATION OF DEVELOPMENT ACT and
NATURAL RESOURCES PROTECTION ACT PERMITS
for
THE BINGHAM WIND PROJECT
by
BLUE SKY WEST LLC & BLUE SKY WEST II, LLC
(L-25973-24-A-N/L-25973-TG-B-N)
January 29, 2014

1. PROJECT DESCRIPTION:

A. Summary: The applicants are seeking a permit under the Site Location of Development Act (Site Law) and the Natural Resources Protection Act (NRPA) for their proposal to construct a 62 turbine, up to 206 megawatt (MW) wind energy development to be known as the Bingham Wind Project. The turbines would be located in Bingham, Mayfield Township and Kingsbury Plantation. The transmission line would extend from Mayfield Township though Kingsbury Plantation and Abbot to connect to an existing substation in Parkman. The details of the turbines, access roads, buildings and associated infrastructure are provided on the set of plans entitled "Bingham Wind Project" prepared by Deluca-Hoffman Associates, Inc. and dated September 2012 with the last revision on September 3, 2013. During the review of the project, Deluca-Hoffman Associates, Inc. became Fay, Spofford & Thorndike, Inc. and several plans were revised in November, 2013 under that name. The details of the transmission line and the associated infrastructure are provided on the set of plans entitled "Bingham Wind Project" prepared by SGC Engineering, LLC and dated April 12 2013 or March 20, 2013, with the last revision of any plan on October 29, 2013.

This project qualifies as an expedited wind energy development as defined in the Wind Energy Act (35-A M.R.S.A. §3451(4)). The development of the operations and maintenance (O&M) building would result in approximately 0.91 acres of impervious area. The overall proposed project would include 83.78 acres of impervious area and 88.61acres of developed area.

1. Turbines: The proposed development consists of 62 turbines in 63 possible locations. The applicants propose to use Vestas V112-3.0, Vestas V112-3.3 or Siemens SWT 3.0-113 turbines, which are rated to produce either 3.0 MW or 3.3 MW of power. The project would be capable of producing up to 206 MW. The Siemens turbines would have a total height of 489 feet and the Vestas turbines would have a total height of 492 feet. The turbines would be

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17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

web site: www.maine.gov/dep

placed on Johnson Mountain and on unnamed ridges and hills in the vicinity of Route 16.

2. Turbine Pads: Typical clearing associated with each turbine pad would be approximately 2.5 acres. Following the erection of each turbine, the turbine pad would be re-vegetated so that approximately 0.28 acre of impervious area would remain.

3. Access Road and Crane Path: The applicants would construct 17 miles of crane path in order to provide access to the turbine pads. The applicants would also upgrade 5.3 miles of existing roads. The upgrades will consist of, but are not limited to; widening, straightening, ditching, drainage improvements and changing grades.

4. Electrical Transmission Lines: The applicants propose to construct an underground 34.5 kilovolt (kV) collector line along the ridges. The collector line would transition to above ground for a four mile stretch along Route 16 and would continue above ground until it reaches the collector substation. The applicants would locate a dynamic reactive device (DRD), such as a synchronous conductor, adjacent to the collector substation. From the collector substation in Mayfield Township, a 115 kV transmission line would be constructed that would extend above ground 17 miles through Kingsbury Plantation and Abbot before connecting to an existing substation owned by Central Maine Power Company in Parkman.

5. Operations and Maintenance Building and Associated Structures: The applicants propose to construct an O&M building off of State Route 16, in the center of the project. The building would be 5,880 square feet and would be designed to accommodate a staff of six to ten employees.

6. Meteorological Towers: The applicants propose to construct up to five temporary meteorological (met) towers and up to five permanent met towers. Each met tower would have a maximum height of 341 feet.

The applicants are also seeking approval to permanently fill 1.34 acres of freshwater wetland, temporarily fill 6.32 acres of freshwater wetland, and permanently convert 26.75 acres of freshwater wetland from forested to scrub shrub. In addition, the applicants submitted three Section 19 Permit by Rule Notification Forms (PBR) for impacts to critical terrestrial habitat associated with significant vernal pools. The PBR's (#55936, #55937 and #55938) were accepted by the Department on May 3, 2013. During the course of the Department's review it was determined that PBR #55936 was not necessary because that vernal pool is not on land that is controlled by the applicants.

B. Public Interest: Throughout the processing of the applications, the Department has received comments from interested persons with concerns and questions about

the project. The Department received one timely request to hold a public hearing on the application. The request was denied by the Commissioner on June 17, 2013 on the basis that there is no credible conflicting technical information regarding a licensing criterion for these applications. The Department held a public meeting on July 22, 2013 which is further discussed in Section 25 of this Analysis.

C. Current Use of Site: The site is currently managed for commercial timber. The site contains numerous logging roads, some of which would be upgraded as part of this project.

2. TITLE, RIGHT OR INTEREST:

In order to demonstrate title, right or interest for the proposed development as required in Chapter 2(11)(D) and Chapter 372(9) of the Department's rules, the applicants submitted signed copies of leases, easements and purchase and sale options for the properties on which the proposed project would be located. The submissions include deeds which show that the property owners who are leasing, granting easements or selling their property to the applicants, own the parcels.

3. FINANCIAL CAPACITY:

The applicants estimate the total cost of the project to be $398 million. Blue Sky West LLC and Blue Sky West II, LLC are legal entities authorized to do business in Maine and are wholly owned subsidiaries of First Wind Maine Holdings, LLC, which in turn is a wholly owned subsidiary of First Wind Holdings, LLC (First Wind). The applicants submitted a plan detailing financing for the proposed project, which includes First Wind equity funded from cash balances, bank construction and long-term debt sourced on market terms, tax equity sourced on market terms, and cash contributions from Emera pursuant to its joint venture with First Wind.

4. TECHNICAL ABILITY:

The applicants retained the services of the following companies to prepare the application:

- Stantec Consulting – natural resource assessments, shadow flicker assessment and permitting
- Fay, Spofford and Thorndike (formerly DeLuca Hoffman) – civil engineering and stormwater analysis
- SGC Engineering, LLC – electrical engineering
- Landworks – visual impact assessment
- Kleinshmidt Associates, LLC – user surveys
- Bodwell EnviroAcoustics, LLC – sound assessment
- TRC/Northeast Cultural Resources – prehistoric archaeological resources
- Independent Archaeological Consulting – historic archaeological resources

- Public Archaeology Lab – historical architectural resources
- Albert Frick Associates – soil assessment
- Sewall Engineers – decommissioning plan

5. NOISE:

To address the Site Law standard pertaining to the control of noise, 38 M.R.S.A. §484(3), and the applicable rules, Chapter 375(10), the applicants submitted a Noise Impact Study entitled "Sound Level Assessment Bingham Wind Project," completed by Bodwell EnviroAcoustics LLC (BEA) and dated April 2013. The sound level study was conducted to model expected sound levels from the proposed project, and to compare the model results to the applicable requirements of Chapter 375(10).

The Bingham Wind project must comply with Department regulations applicable to sound levels from construction activities, routine operation and routine maintenance. Chapter 375(10) applies sound level limits ($Leq_{A\text{-}10\ min}$) at facility property boundaries and at nearby protected locations. Chapter 375(10)(G)(16) defines a protected location as "[a]ny location accessible by foot, on a parcel of land containing a residence or planned residence or approved subdivision near the development site at the time a Site Location of Development application is submitted…". In addition to residential parcels, protected locations include, but are not limited to, schools, state parks, and designated wilderness areas. For the proposed project, the nearest protected location is approximately 4,675 feet from a turbine.

As set forth in Chapter 375(10)(I)(2), the hourly sound level resulting from routine operation of a wind energy development is limited to 75 decibels (dBA) at any time of day at any development property boundary. At protected locations the hourly sound level is limited to 55 dBA during daytime hours and 42 dBA during nighttime hours.

To assist with the review of the application, the Department retained an independent noise expert, Peter Guldberg of Tech Environmental, Inc., to review the applicants' prediction model and associated data as well as other evidence received on the issue of noise.

A. Sound Level Modeling. The applicants' noise consultant, Bodwell EnviroAcoustics LLC, developed a sound level prediction model to estimate sound levels from the operation of the proposed project. The sound model for the project was created using Cadna/A software developed by DataKustik of Germany. Cadna/A allows the consultant to construct topographic surface models of area terrain for calculating sound attenuation from multiple sound sources such as wind turbines. The locations of the proposed turbines, roads, parcels, land uses and waterbodies were entered into Cadna/A to calculate sound levels at various points within the proposed project area. Sound level predictions were calculated in accordance with ISO 9613-2, which is an international standard for calculating outdoor sound propagation.

Sound associated with the operational phase of the project was modeled excluding other existing sound sources. Modeling the sound generated from the operation of the 62 turbines was conducted by first obtaining the manufacturer's sound power level specifications. The manufacturer guarantees the Siemens SWT-113 turbine to produce a maximum sound output of 107 dBA, which includes a 1.5 dBA uncertainty factor. The manufacturer guarantees both of the Vestas V112 turbines to produce a maximum sound output of 106.5 dBA, which includes a 2 dBA uncertainty factor. In addition BEA added 1 dBA to the turbine sound power output to compensate for any uncertainty in the model. The total uncertainty factors are 2.5 dBA for the Siemens SWT-113 turbines and 3.0 dBA for both of the Vestas V112 turbines. This resulted in a total sound power level of 108 dBA from the Siemens turbines and 107.5 dBA from the Vestas turbines. The model was run with all 62 turbines operating at full sound power output. No noise reduction operations are proposed for this project.

B. Short Duration Repetitive Sound. Chapter 375(10)(G)(19) defines short duration repetitive sound (SDRS) as "a sequence of repetitive sounds which occur more than once within an hour, each clearly discernible as an event and causing an increase in the sound level of at least 5 dBA on the fast meter response above the sound level observed immediately before and after the event, each typically ±1 second in duration, and which are inherent to the process or operation of the development and are foreseeable." Chapter 375 requires that if any SDRS results from routine operation of a development, 5 dBA must added to the observed level of sound.

The April 2013 sound level study submitted by the applicants summarized measurements of operating wind turbines in Maine and data from published literature that indicate that sound level fluctuations during the blade passage of wind turbines, known as amplitude modulation, typically range from 2 to 5 dBA, with an occasional event reaching 6 dBA or more. The applicants' report states that amplitude modulation is not likely to occur in more than one-third of the measurement intervals, meeting the "worst-case" test protocol criteria, therefore SDRS is not likely. The applicants state that assessment of the 5 dBA penalty to one-third of the compliance measurement intervals will result in an added 1.7 dBA to the measured average 10-minute sound level ($Leq_{A\text{-}10\ min}$) and the project would still be in compliance with the noise standard.

C. Tonal Sound. As defined in Chapter 375(10)(G)(24), a regulated tonal sound occurs when the sound level in a one-third octave band exceeds the arithmetic average of the sound levels in the two adjacent one-third octave bands by a specified dBA amount based on octave center frequencies. Chapter 375 requires that 5 dBA be added to the observed level of any defined tonal sound that results from routine operation of a development.

The applicants' April 2013 sound level study states that both of the Vestas V112 turbines proposed for use carry Sound Level Performance Standard warranties certifying that they would not produce a tonal sound as it is defined by the Department's Noise Regulations. The sound level study also states that confidential information provided by Siemens states that the SWT-113 turbines are not anticipated to produce a tonal sound, however

that information has not been provided to the Department. In his review to date of the applicants' sound level study on behalf of the Department, Mr. Guldberg stated that an analysis of the sound power octave band spectrum for the Vestas V112 and Siemens SWT-113 turbines indicates that they have no potential for creating a tonal sound as defined by the Department's Noise Regulations.

D. Department Analysis. Mr. Guldberg has reviewed Sections 1 and 5 of the project application, which contain the Project Description, and evidence pertaining to Noise. In addition Mr. Guldberg reviewed the applicant's supplemental submission for the use of the Vestas V112-3.3 turbine. Mr. Guldberg commented that the two Vestas V112 models' and the Siemens SWT-113 turbines' maximum sound power levels with conservative uncertainty factors were used in the analysis; the acoustic model and its assumptions are appropriate; the sound receiver locations are appropriate; the decibel contour maps adequately cover the potential impact area; and the Department Regulations on Control of Noise (06-096 CMR 375.10) have been properly interpreted and applied for the Bingham Wind Project. The Town of Bingham has not enacted any quantifiable noise standards.

E. Post-construction Monitoring Program. During the project review, Mr. Guldberg commented that the sound level predictions submitted by the applicants appeared to be reasonable and technically correct according to standard engineering practices and the Department's noise rules. However, he recommended that to ensure compliance with the Maine Noise Regulations, including the provisions regarding SDRS and tonal sound, the Department require post-construction sound monitoring for the project should it be permitted.

If the project is permitted, Mr. Guldberg recommends that the Department require sound compliance testing at Receptor B2 and Receptor B4/B5 as they have highest predicted sound levels of up to 39.6 dBA. A verification of compliance at Receptor B2 and Receptor B4/B5 would help ensure the project complies with the Department's Noise Regulations at all other protected locations. Post-construction monitoring would be required to meet all applicable standards of Chapter 375(10)(I)(8)(e).

F. Sound Complaint Response and Resolution Protocol. If the project is permitted, prior to the start of commercial operation, the applicants propose to develop and implement a formal protocol for responding to sound complaints. The protocol would be required to meet all applicable standards of Chapter 375(10)(I)(7)(j).

6. SCENIC CHARACTER:

The Site Law and the NRPA both have criteria pertaining to scenic impacts that must be met in order to obtain a permit. For grid scale wind energy projects the Site Law requires applicants to demonstrate that a proposed project will not adversely affect existing uses or scenic character. Pursuant to the NRPA applicants must demonstrate that a proposed project will not unreasonably interfere with existing scenic, aesthetic or recreational uses

of a protected natural resource. The Wind Energy Act further specifies those standards and declares that when wind energy developments are being evaluated:

> [T]he [Department] shall determine, in the manner provided in subsection 3, whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character… 35-A M.R.S.A. §3452(1).

The Wind Energy Act, 35-A M.R.S.A. §3452(3), further provides that:

> A finding by the [Department] that the development's generating facilities are a highly visible feature in the landscape is not solely sufficient basis for determination that an expedited wind energy project 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. In making its determination under subsection 1, the [Department] shall consider insignificant the effects of portions of the development's generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance.

With regard to the facilities associated with a wind energy development, such as substations, buildings, access roads and generator lead lines, the Wind Energy Act, 35-A M.R.S.A. §3452(2), provides in pertinent part that:

> The [Department] 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 38, section 484, subsection 3, in the manner provided for development other than wind energy development if the [Department] determines that application of the standard in subsection 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 [Department] for its consideration. The [Department] shall make a determination pursuant to this subsection within 30 days of its acceptance of the application as complete for processing.

The Department determined on June 7, 2013 that the associated facilities would be reviewed in accordance with the Wind Energy Act, 35-A M.R.S.A § 3452.

The proposed wind project contains "generating facilities" including wind turbines as defined by 35-A M.R.S.A. §3451(5) and "associated facilities" such as buildings, access roads, collection lines, and a substation, as defined by 35-A M.R.S.A. §3451(1).

To address the scenic impact criteria, the applicants submitted a Visual Impact Assessment (VIA) entitled "Visual Assessment," prepared by Landworks. The VIA examined the potential scenic impact of the generating facilities and associated facilities

on Scenic Resources of State or National Significance (SRSNS) within eight miles of the proposed project using the evaluation criteria contained in the Wind Energy Act. The applicants also submitted a user intercept survey authored by Kleinschmidt Associates, LLC. The applicant's VIA for the generating facility and associated facilities addresses the criteria set forth in 35-A M.R.S.A. §3452(3):

- The significance of the potentially affected scenic resource of state or national significance;
- The existing character of the surrounding area;
- The expectations of the typical viewer;
- The expedited wind energy development's purpose and the context of the proposed activity;
- The extent, nature, and duration of potentially affected public uses of the scenic resource of state or national significance and the potential effect of the generating facilities' presence on the public's continued use and enjoyment of the scenic resource of state or national significance; and
- The scope and scale of the potential effect of views of the generating facilities on the scenic resource of state or national significance, including but not limited to issues related to the number and extent of 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.

A. Scenic Resources of State or National Significance. Scenic Resources of State or National Significance (SRSNS) are defined in 35-A M.R.S.A. §3451(9). The following is a description of what constitutes a SRSNS and the applicants' summary of potential impacts to each of the SRSNS within eight miles of the proposed generating facilities:

1) National Natural Landmarks. A federally designated wilderness area or other comparable outstanding natural and cultural features, such as the Orono Bog or Meddybemps Heath.

   There are no national natural landmarks within eight miles of the project.

2) Historic Places. Properties listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox.

   There are four places listed on the National Register of Historic Places located within eight miles of the project. The Bingham Free Meetinghouse, Caratunk Falls Archeological District and Concord Haven would not have any views of the project. The Arnold Trail located in Bingham, Concord Township, Embden, Moscow, Pleasant Ridge Plantation and Solon would have views of the turbines. The VIA states the closest turbine visible from the Arnold Trail is T1, which is approximately four miles away. Approximately 9% of the trail

located within eight miles of the project would have views of up to ten turbines.

3) National or state parks. A portion of the Appalachian National Scenic Trail (Appalachian Trail) is located within eight miles of the project. The proposed project would not be visible from the section of trail located within eight miles of the project.

4) Great ponds. A great pond is a SRSNS if it is:

   a. one of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study published by the Executive Department, State Planning Office in October 1989; or,

   b. one of the 280 great ponds in the State's unorganized or de-organized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment" published by the Maine Land Use Regulation Commission in June, 1987.

   There are three great ponds within eight miles of the project that are considered to be SRSNS. They are Punchbowl Pond, Bald Mountain Pond and Jackson Pond. According to the applicant's VIA, the project would be visible from two of the three great ponds within eight miles of the project, Punchbowl Pond and Bald Mountain Pond.

   Punchbowl Pond

   Punchbowl Pond is a 40-acre pond located in Blanchard Township. The pond does not have a public boat launch. The pond is accessible only by a ½ mile long foot trail. The logging road that leads to the trail is currently impassable by vehicle because of a broken bridge. There is a spot where primitive camping is evident. However, there are no public campsites and there is no development on the pond. Punchbowl Pond is rated as outstanding by the Maine Wildlands Lakes Assessment.

   The applicants' VIA indicates that the closest visible turbine is T57, which is approximately four miles away. From approximately 19% of the pond there would be views of up to eight turbines during the daytime, and the turbines would be visible over a horizontal viewing angle of 15 degrees from the midpoint of the pond. The applicants' VIA indicates that up to four nacelles with red warning lights may be visible at night from approximately 2% of the pond.

Bald Mountain Pond

Bald Mountain Pond is a 1,152-acre pond located in Bald Mountain Township. There is a gravel surface public boat launch on the southeastern side of the pond. The immediate shoreline is undeveloped with the exception of a lean-to along the Appalachian Trail on the northern side of the pond and a small campsite near the boat landing. Bald Mountain Pond was rated as outstanding by the Maine Wildlands Lakes Assessment.

The applicants' VIA indicates that the closest visible turbine is T54, which is approximately seven miles away. From approximately 11% of the pond there would be views of up to three turbines, and the turbines would be visible over a horizontal viewing angle of two degrees from the midpoint of the pond. The applicants' VIA also indicates that only one nacelle with red warning lights would be visible at night from approximately 4% of the pond.

Jackson Pond

Jackson Pond is a 32-acre pond located in Concord Township. The pond was rated as outstanding by the Maine Wildlands Lakes Assessment. The project would not be visible from this pond.

5) Scenic Rivers or Streams. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in the 1982 "Maine Rivers Study" by the Department of Agriculture, Conservation and Forestry. There are four scenic river segments within eight miles of the project. These scenic river segments include the Kennebec River (including Wyman Lake), the East Branch of the Piscataquis River, the West Branch of the Piscataquis River and the Piscataquis River.

Kennebec River

The segment of the Kennebec River within eight miles of the project is approximately nine miles long. The applicants' VIA indicates that the closest visible turbine is T1, which is approximately four miles away from this portion of river. Approximately 7% of the section of the river within eight miles of the project would have views of up to ten turbines. The applicants' VIA also indicates that five nacelles with red warning lights would be visible at night from approximately 8% of the river.

Wyman Lake

The applicants' VIA indicates that the closest visible turbine is T1, which is approximately seven miles away from the lake. Approximately 54% of the lake would have views of up to 12 turbines, and the turbines would be visible over a horizontal viewing angle of 17 degrees from the midpoint of the lake.

The applicants' VIA also indicates that six nacelles with red warning lights would be visible at night from approximately 55% of the lake.

East Branch of the Piscataquis River, West Branch of the Piscataquis River and the Piscataquis River

These scenic river segments are all considered SRSNS and are located within eight miles of the project. However, the project is not visible from these SRSNS.

6) Scenic Viewpoints. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Agriculture, Conservation and Forestry designates by rule adopted in accordance with 35-A M.R.S.A., §3457.

There are no scenic view points within eight miles of the project.

7) Scenic Turnouts. A scenic turnout is one constructed by the Department of Transportation pursuant to 23 M.R.S.A. §954 on a public road designated as a scenic highway.

There is one scenic turnout within eight miles of the project. The scenic turnout is located on Route 201 in Solon and would not have a view of the project.

8) Coastal Scenic Viewpoints. A scenic viewpoint in a coastal area is defined in 35-A M.R.S.A. §3451(9)(H).

There are not any coastal scenic viewpoints within eight miles of the turbines.

B. Applicants' Conclusions in the Visual Impact Assessment. According to the applicant's VIA there are 12 SRSNS within eight miles of the project. Of those 12 SRSNS, only five would have turbines visible from them. The applicants' VIA concludes that the proposed project would not have an unreasonable adverse effect on the scenic character or existing uses related to the scenic character of any SRSNS. The applicants propose to incorporate radar assisted lighting on the turbines if that lighting technology is approved by the Federal Aviation Administration and has been made commercially available. This technology could either be implemented during project construction or the project could be retrofitted to incorporate it.

C. Review of the Visual Impact Assessment and other evidence regarding scenic impacts. The Department hired Dr. James F. Palmer of Scenic Quality Consultants, an independent scenic expert, to assist in its review of the evidence concerning scenic impacts. Dr. Palmer provided the Department with review comments on the applicants' VIA in his report entitled "Review of the Bingham Wind Project Visual Impact Analysis,

Part 2: Independent Analysis", dated August 23, 2013. Dr. Palmer assigned a value to the impacts he would expect on the 12 SRSNS in Table 36 of his report, which is summarized below:

Scenic Resources of State or National Significance	Overall Scenic Impact
Historic Sites	
Arnold Trail to Quebec	Low
Bingham Free Meetinghouse	None
National Park/Designated Pedestrian Trail	
Appalachian National Scenic Trail	None
Great Ponds	
Bald Mountain Pond	Low
Jackson Pond	None
Punchbowl Pond	Medium
Segment of a Scenic River	
Wyman Lake	Low
Kennebec River	Low
Piscataquis River	None
East Branch of The Piscataquis River	None
West Branch of The Piscataquis River	None
Scenic Turnout on a Scenic Highway	
Old Canada Scenic Byway (Route 201) Turnout	None

Dr. Palmer rated each of the 12 SRSNS based on the WEA criteria: significance of resource, character of surrounding area, typical viewer expectation, development's purpose and context, extent, nature, and duration of uses, effect on continued use and enjoyment, and scope and scale of project views. For each criterion, Dr. Palmer rated each of the 12 SRSNS with ratings between "none" to "high." Dr. Palmer then provided his overall scenic impact assessment for those SRSNS based on what he considers to be the three core criteria – extent, nature, and duration of uses, effect on continued use and enjoyment, and scope and scale of project views. Dr. Palmer's assessment is that the overall scenic impacts to the 12 SRSNS ranged from none to medium.

7. WILDLIFE AND FISHERIES:

Applicants for Site Law or NRPA permits are required to demonstrate that the project would not cause unreasonable harm to wildlife and fisheries. The applicants retained Stantec Consulting (Stantec) to conduct wildlife surveys; wetland delineations; rare, threatened and endangered plant and animal surveys; and vernal pool surveys. The

applicants consulted with the Department and other federal and state natural resource agencies during the preparation of the applications.

A. Deer Wintering Area: The transmission line portion of the project would impact 21.54 acres of mapped deer wintering area (DWA) in four separate DWA's. DWA's #084029, #084031 and #084033 are located in Parkman and DWA #080604 is located in Kingsbury Plantation. The applicants propose to minimize impacts to DWA #084033 by utilizing single pole structures in a 21 foot wide corridor. Vegetation on either side of the transmission line would be managed so that blow downs would not be able to hit the lines, resulting in a V-shaped vegetation profile. The details of this are on the plan entitled "V Style Clearing" prepared by SGC Engineering, LLC and dated August 14, 2013. To minimize impacts to DWA #084031, the applicants propose to utilize H-frame utility pole structures and incorporate the V-style clearing method around the pole structures. The use of H-frames would allow the applicants to elevate the transmission line higher off the ground, allowing it to maintain additional tree cover under the line, thereby reducing impacts to the DWA. The proposed transmission line would also impact the periphery of DWA #084029 and #080604. MDIFW reviewed the project and acknowledged that the applicants have minimized impacts to the greatest extent possible. In addition, the applicants have proposed a tangible benefits package for MDIFW, which includes a onetime payment and is further described in Section 27. MDIFW commented that the tangible benefits package proposed adequately offsets impacts to the DWA's.

B. Birds and Bats: The applicants retained Stantec to conduct bird and bat surveys to identify species that occur in the area of the proposed project, the extent that they use the project site, and potential impacts from the proposed project. The applicants conducted the following studies: aerial Bald Eagle surveys (fall 2009, spring 2010 and spring 2011), nocturnal radar migration surveys (spring 2010, fall 2010 and fall 2011), acoustic bat surveys (spring, summer and fall 2010), diurnal raptor migration surveys (spring and fall 2010) and breeding bird surveys (spring 2010).

1) Birds: The applicants' migration studies indicate that this site has high passage rates for birds. MDIFW reviewed the project and acknowledged that there were high migration rates at the site, but MDIFW does not expect the project to create an adverse effect on birds. MDIFW recommends that if the permit is granted, the Department require rigorous post-construction monitoring of impacts to birds. The applicants have developed the framework for a post-construction mortality study in conjunction with MDIFW, which would include three years of surveys. The surveys would occur in year one and two of operation with a third year occurring between years three and five of operation.

2) Bats: The results of the applicant's acoustic bat surveys indicate that the majority of the bat calls were of the Genus *Myotis*, which is a typical result of pre-construction surveys. The applicants also state that based on post construction bat mortality studies at facilities across the United States,

including in Maine, bats of the Genus *Myotis* are one of the least common bats to be killed by wind turbines.

MDIFW commented that the northern long-eared bats (*Myotis septentrionalis*) and the little brown bat (*Myotis lucifugus*) are listed as state species of special concern and are currently being considered for listing under the United States Endangered Species Act by the United States Fish and Wildlife Service (USFWS). Widespread deaths among these species are occurring primarily due to White Nose Syndrome. MDIFW expressed concerns about the project resulting in an unreasonable level of bat mortality. In order to be protective of bats and these species in particular, MDIFW has recommended that if a permit is issued, it should include the following language as a special condition:

Wind turbines will operate only at cut-in wind speeds exceeding 5.0 meters per second each night (from at least ½ hour before sunset to at least ½ hour after sunrise) during the period April 20 – June 30; 6.0 meters per second each night (from at least ½ hour before sunset to at least ½ hour after sunrise) during the period July 1 – September 30; and 5.0 meters per second each night (from at least ½ hour before sunset to at least ½ hour after sunrise) during the period October 1 – October 15. Cut-in speeds are determined based on mean wind speeds measured at the hub heights of a turbine over a 10-minute interval. Turbine blades will be feathered during these low wind periods to minimize risks of bat mortality. These cut-in speeds are independent of ambient air temperature.

The applicants agree to implement MDIFW's recommendations to protect bats in the project area.

C. Atlantic Salmon Habitat Streams: There are 28 streams in the project area designated as critical habitat for Atlantic salmon. The applicants do not propose to directly alter any streams as part of this project. The applicants propose to place a 100-foot buffer around all designated Atlantic salmon streams. These buffers are further described in Section 10(B).

D. Rare, Threatened, and Endangered Species:

1) Golden and Bald Eagles: Both the Golden and Bald Eagle are protected under the federal law, the Bald and Golden Eagle Protection Act. The USFWS has the authority for oversight and implementation of that law; however under the Site Law and the NRPA the applicants must demonstrate that the proposed project would adequately protect wildlife.

The applicant conducted aerial Eagle surveys in the vicinity of the project. MDIFW reviewed the applicant's aerial survey and Department records, which include the results from a statewide Eagle survey from 2013, done by MDIFW and USFWS. Golden Eagles have home ranges of approximately

2,000 square miles. MDIFW commented that there is no evidence that Golden Eagles are nesting in the project area and only a small number of transient Golden Eagles may visit the area in any given year. Based on the lack of nesting Golden Eagles in the area, and the small number likely to be present, MDIFW does not believe that the project would impact Golden Eagles. MDIFW stated that should the activity level of Golden Eagles increase in the project area, MDIFW has the ability to advocate that the applicants obtain an incidental take permit under Maine's Endangered Species Act.

There are nine Bald Eagle nests located within 18 miles of the project, with the closest one being approximately five miles away from the closest turbine. MDIFW commented that based on the abundance and distribution of Bald Eagle in Maine there is no anticipated adverse impacts to Bald Eagles as a result of this project.

2) Northern Spring Salamander: The Northern Spring Salamander is a State Species of Special Concern. The applicants identified occurrences in seven streams and identified 20 streams that could potentially contain the salamander. MDIFW commented that the proposed buffers, further discussed in Section 10(E), offer sufficient protection to the species.

3) Roaring Brook Mayfly: The Roaring Brook Mayfly is designated as an Endangered Species under the Maine Endangered Species Act. The applicant found three streams that contain habitat suitable for the mayfly. These three streams also contain habitat for the Northern Spring Salamander. The applicants were unable to find any occurrences of Roaring Brook mayfly in these streams. MDIFW does not agree with the applicants that the species is not present; however, MDIFW stated that the precautions the applicants are taking for the Northern spring salamanders would also protect Roaring Brook Mayflies.

4) Northern Bog Lemming: The Northern Bog Lemming is designated as a Threatened Species under the Maine Endangered Species Act. Seven wetlands within the project footprint were searched to determine the presence of the species. Only one of the wetlands searched contained evidence of the presence of Northern bog lemmings. The applicants are not proposing to impact this wetland. MDIFW concurred with the applicants' assertion that there would be no adverse impact on the Northern Bog Lemmings as a result of the proposed project.

5) Canada Lynx: Canada Lynx is designated as a State Species of Special concern. The applicants conducted snow track and remote camera surveys to determine if Canada Lynx are using the project area. Both the applicants and MDIFW documented use of the area by lynx. MDIFW stated that there are no

anticipated impacts to the species from the construction or operation of the proposed project.

6) Great Blue Heron: Great Blue Herons are designated as a State Species of Special Concern. The applicant's aerial surveys were unable to locate any heron rookeries. MDIFW does not anticipate an adverse impact on the species as a result of the proposed project.

E. Inland Waterfowl and Wading Bird Habitat: The proposed transmission line portion of the project would impact 3.13 acres of a mapped Inland Waterfowl and Wading bird Habitat (IWWH). The applicants propose to mitigate for impacts to the IWWH through a contribution to the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Program (MNRCP) in the amount of $183,958.00. The proposed ILF contribution will compensate for lost functions and values in accordance with 38 M.R.S.A. §480-Z(3).

F. Significant Vernal Pools: The applicants conducted vernal pool surveys in 2010, 2011 and 2012. The applicants identified four significant vernal pools (SVP) within the project site. Two pools (SVP_50KN_N and SVP_108SK_N) occur in the same wetland complex approximately ten feet apart. The applicants propose to alter the critical terrestrial habitat associated with these pools for the clearing associated with the collector line. The applicants are not proposing to impact any of the SVP depressions. The applicants' submitted Permit by Rule (PBR) Notification form #55938 for the impacts associated with SVP_50KN_N and SVP_108SK_N. The applicants propose to alter the critical terrestrial habitat of SVP_07AN_N for the clearing associated with the transmission line. The applicants submitted PBR #55937 for impacts associated with SVP_07AN_N. Lastly the applicants' submitted PBR #55936 for impacts associated with SVP_53KN_N. During the course of the Department's review it was determined that PBR #55936 was not necessary because the vernal pool was not on land controlled by the applicants (§480-BB(2)(A)). All three PBR's were for Section 19 and were accepted by the Department on May 3, 2013.

8. HISTORIC SITES:

The Maine Historic Preservation Commission reviewed the applicant's evidence on historic sites in the proposed project area and commented that the project would have no effect upon any structure or site of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

9. UNUSUAL NATURAL AREAS:

The applicants conducted field surveys in the area of the proposed project to determine whether there are any rare plant species or rare and exemplary natural communities. The field studies did not locate any such species or communities. The Maine Natural Areas Program reviewed the applicants' evidence and its records and did not find any records of documented existence of rare or unique botanical features on the project site.

10. BUFFERS:

The applicants propose to maintain stormwater management buffers and buffers for natural resource protection. The vegetation cutting practices have been proposed to preserve and maintain buffers; these practices include no cutting, limited and selective clearing and mechanized clearing. Herbicides would be used to remove capable species from the safety zone associated with the above ground portions of the transmission line when not within the designated buffer areas. The locations of the proposed buffers are shown on project plans submitted with the application.

A. Stormwater Buffers: The applicants propose to maintain stormwater buffers along the access road and around the turbine pads. The proposed stormwater and phosphorus treatment measures, including the proposed buffers, are more fully described in Section 12.

B. Atlantic Salmon Stream Buffers: There are 28 streams that contain, or have suitable habitat to contain, Atlantic salmon along the transmission and collector line. Buffers proposed around these streams would be 100 feet wide and only trees that are capable of growing within 15 feet of the conductor within the next three to four years would be removed. The applicants state that they plan the placement of poles as close to the edge of these buffers as is practical, thereby elevating the height of the conductor above the stream to the greatest extent practicable and reducing the number of trees that must be removed. Trees within the buffer will be topped unless the tree is dead, dying or topping the tree will not result in sufficient foliage to sustain the tree. No other vegetation would be removed in these buffers. Initial clearing and vegetation maintenance would be completed by hand-cutting or by using low-ground-pressure tree harvesting equipment.

C. Stream Buffers: There are an additional 20 streams located within the transmission corridor that are not be subject to any specific buffer requirements based on habitat. For those streams the applicants propose that initial clearing would extend to 25 feet from the stream. Within 25 feet of the streams, trees above two inches diameter at breast height (dbh) would be cut at ground level. During the operation phase of the project, the buffers around these streams would revert to 100 feet wide. Any maintenance clearing would consist of removing all trees that are eight to ten feet in height or taller, which would be cut at ground level. All other vegetation would remain. Initial clearing and vegetation maintenance would be completed by hand-cutting or by using low-ground-pressure tree harvesting equipment.

D. Significant Vernal Pool Buffers: The applicants propose to maintain a 100-foot no disturb buffer around all significant vernal pool depressions. The applicants propose to cut all capable species that are eight to ten feet in height outside of the no disturbance buffer. All such trees outside of the buffer would be cut at ground level. The applicants intend to cut the trees outside the buffer when needed.

E. Northern Spring Salamander Streams: There are 27 streams located within the transmission corridor that contain, or have suitable habitat to contain, Northern spring salamanders. The applicants propose buffers around these streams that would be 250 feet wide and within those buffers only trees that are capable of growing within 15 feet of the conductor within the next three to four years would be removed. Poles would be placed as close together as possible to increase the height of the buffer along these streams. Trees within the buffer will be topped unless the tree is dead, dying or topping the tree will not result in sufficient foliage to sustain the tree. No other vegetation would be removed. Initial clearing and vegetation maintenance would be completed by hand-cutting or by using low-ground-pressure tree harvesting equipment.

F. Bog Lemming Habitat: The bog lemming habitat occurs in one wetland along the collector line. Buffers proposed by the applicant around this habitat would be 250 feet wide and only trees that are capable of growing within 15 feet of the conductor within the next three to four years would be removed. Trees within the buffer will be topped unless the tree is dead, dying or topping the tree will not result in sufficient foliage to sustain the tree. No other vegetation would be removed in these buffers. Initial clearing and vegetation maintenance would be completed by hand-cutting or by using low-ground-pressure tree harvesting equipment.

G. Vegetation Management Plan (VMP). The applicants submitted a Post-Construction Vegetation Plan for the proposed project, prepared by Stantec, dated April 2013, which describes the plan for routine maintenance activities along the right of way to prevent vegetation from getting too close to the electrical transmission line conductor. The plan summarizes vegetation management methods and procedures that would be utilized by the applicants for all overhead collector lines. The plan describes restrictive maintenance requirements for natural resources and salmon habitat streams. The plan also includes procedures for managing or removing osprey nests built on power line structures, describes a system for identifying restricted areas, and summarizes training requirements for construction personnel.

If the project is permitted, the applicants would be required to comply with all post-construction sections of the VMP in the application. Prior to the start of project construction, the applicants would be required to visually mark all buffers on the ground. Prior to the start of project construction, the applicants would also be required to record all stormwater buffer restrictions in the Registry of Deeds. The applicants would also be required to submit a copy of the executed stormwater buffer deed restrictions to the Department within 60 days of its recording.

11. SOILS:

The applicants submitted a class L soil survey for the access roads and turbine areas, a class B soil survey for the operations and maintenance building and a class D soil survey for the transmission line. The reports from the surveys were reviewed by the Department's Division of Environmental Assessment (DEA). DEA commented that the reports show that soils are suitable for the proposed development. The applicants state

that they intend to perform additional geotechnical investigation in the areas of the access roads and turbine pads. DEA recommends that if the project is permitted, prior to the start of project construction, the applicants be required to submit the results of the geotechnical investigation to the Department for review and approval.

12. STORMWATER MANAGEMENT:

The proposed project would result in approximately 83.78 acres of impervious area and 88.61acres of developed area. It lies within the watersheds of Fall Brook, Gulf Stream, Withee Pond, Rift Brook, Smith Pond, Mayfield Pond, Kingsbury Pond, Baker Flowage, Thorn Brook, Kingsbury Stream, Hilton Pond #1, Gales Brook, Carlton Stream and the Piscataquis River. The applicants submitted a stormwater management plan based on the Basic, General, Phosphorus, and Flooding standards contained in Department Rules, Chapter 500. The proposed stormwater management system consists of 231 stormwater management buffers, 70 ditch turnouts, 50 level spreaders, one wet pond and two underdrained soil filters.

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicants submitted an Erosion and Sedimentation Control Plan that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by the Department's Division of Land Resource Regulation (DLRR).

(2) Inspection and Maintenance: The applicants submitted a maintenance plan that addresses both short and long-term maintenance requirements. This plan has been reviewed by DLRR. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. The applicants would be responsible for the maintenance of all common facilities including the stormwater management system.

(3) Housekeeping: The applicants assert that the project would comply with the performance standards outlined in Appendix C of Chapter 500.

B. General and Phosphorus Standards:

The applicants' stormwater management plan includes general treatment measures that mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. This mitigation would be achieved by using Best Management Practices (BMPs) that would control runoff from no less than 95% of the impervious area and no less than 80% of the developed area for the O&M building, substation and the DRD enclosure. The proposed access road and turbine pads meet the

definition of "a linear portion of a project" in Chapter 500. The applicants propose to control runoff volume from no less than 75% of the impervious area and no less than 50% of the developed area in the linear portions of the project.

Because portions of the proposed project are located in the watersheds of Withee Pond, Smith Pond, Hilton Pond #1, Kingsbury Pond and Mayfield Pond, stormwater runoff from the project site would be treated to meet the Phosphorus standard outlined in Chapter 500(4)(C). The applicants' phosphorus control plan was developed using methodology developed by the Department and outlined in "Phosphorus Control in Lake Watersheds: A Technical Guide for Evaluating New Development." For the five watersheds listed above, the applicants would reduce the phosphorous export from the site to below the allowable amounts though the construction of ditch turnouts, level lip spreaders and the utilization of stormwater buffers. The applicants also reduced the phosphorous export by re-vegetating 0.41 acres of roadway, and through the use of manmade pervious surface in the proposed substation yard.

Watershed	Allowable Phosphorous Export (Pounds Per Year)	Phosphorous Export Without Treatment (Pounds Per Year)	Phosphorous Export With Treatment (Pounds Per Year)
Withee Pond	0.38	0.945	0.189
Smith Pond	0.211	0.403	0.121
Hilton Pond #1	0.944	1.173	0.77
Kingsbury Pond	3.398	6.668	3.236
Mayfield Pond	5.165	16.605	5.121

The stormwater management system proposed by the applicant was reviewed by, and revised in response to comments from, DLRR.

C. Flooding Standard:

The applicants analyzed the cover change (undeveloped to impervious) in the watersheds within the turbine series and the transmission line. That analysis indicated that the potential runoff increase would be insignificant. The applicants request a waiver of the flooding standard pursuant to Chapter 500(4)(E)(2)(b) for the turbine series and the transmission line.

The runoff from the turbine series would be dispersed into 209 different stormwater management buffers. Furthermore, all of the culverts proposed within the turbine series and the transmission line have been sized to convey the 25-year peak flow rate in its watershed.

For the substation, DRD and the O&M building, the applicants propose to utilize a stormwater management system based on estimates of pre- and post-development stormwater runoff flows obtained by using Hydrocad, a stormwater modeling software that utilizes the methodologies outlined in Technical Releases #55 and #20, U.S.D.A.,

Soil Conservation Service and detains stormwater from 24-hour storms of 2-, 10-, and 25-year frequency.

13. URBAN IMPARED STREAMS:

The proposed project is not located in a watershed of an urban impaired stream; therefore, the urban impaired stream standard does not apply to the project.

14. GROUNDWATER:

There are several significant sand and gravel aquifers located in and around the project site. The closest significant sand and gravel aquifer to any turbine is 895 feet away. The proposed O&M building would be located over a significant sand and gravel aquifer. The applicants submitted an example of a typical Spill Prevention Control and Countermeasure (SPCC) plan that they intend to use. The SPCC plan includes general operational requirements, storage and handling requirements, and training requirements to prevent spilling of oil, hazardous materials or waste. The plan also sets out spill reporting and cleanup requirements should such an event occur.

If the project is permitted, prior to operation of the facility, the applicants would be required to submit a site-specific SPCC plan to the Department for review and approval.

15. WATER SUPPLY

The applicants anticipate that the proposed project would use approximately 345 gallons of water per day to supply the O&M building. No water supply would be required for the other portions of the project. The applicants submitted a letter from a well driller which indicated that there would be an ample amount of water available on site.

The applicants also state that non-potable water would be needed for dust abatement during the construction of the project. The applicants state that they would not withdraw any non-potable water from groundwater sources, or any rivers or streams. The applicants anticipate withdrawing water from publicly accessible sites on Kingsbury Pond or Foss Pond.

The proposed water supply plans were reviewed by DEA. DEA did not identify any issues with the applicant's proposal.

16. WASTEWATER DISPOSAL:

The proposed project would discharge approximately 345 gallons of wastewater per day. Wastewater from the O&M building would be disposed of by an individual subsurface wastewater disposal system. The applicants submitted an HHE-200 form for the proposed disposal system prepared by a licensed site evaluator. The subsurface wastewater disposal system would be located in close proximity to a significant sand and groundwater aquifer. This information was reviewed by the DEA, stating it would not

anticipate an adverse effect on groundwater provided that the applicant properly operated and maintained the system.

17. SOLID WASTE:

The proposed project would generate 150 cubic yards of general office solid waste per year. All general solid wastes from the proposed project would be disposed of at the Bingham Transfer Station, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

The proposed project would generate approximately 1,725 cubic yards of construction debris and demolition debris. All construction and demolition debris generated would be disposed of at the Crossroads Landfill, which is currently in substantial compliance with the Maine Solid Waste Management Rules.

Any marketable timber/pulp would be removed from the project site and sold. Stumps would be left in place, used to make erosion control mix, or would be deposited in a stump dump. The applicant proposes to operate any stump dumps in compliance with Maine Solid Waste Management Rules.

Approximately 50 large tires from large trucks or skidders would be disposed of at BDS Waste Disposal. BDS is licensed to handle the tires, and currently is in substantial compliance with Maine Solid Waste Management Rules.

18. FLOODING:

The project as proposed would result in fill being placed within the 100 year floodplain as mapped by the Federal Emergency Management Agency in the following streams:

- Carleton Stream: The applicants would clear 1.03 acres of vegetation and place approximately 3,518 square feet of fill within the floodplain. The clearing would be associated with the transmission corridor. The fill would be for a permanent access road and the placement of one utility pole.
- Unnamed tributary to Kingsbury Stream: The applicants would clear 0.08 acre of vegetation associated with the transmission corridor.
- Unnamed tributary to Gales Brook (Abbot): The applicants would clear 1.48 acres of vegetation associated with the transmission corridor and would fill 64 square feet of floodplain for the placement of four utility poles.
- Gales Brook: The applicants would clear 3.1 acres of vegetation and fill 20,340 square feet of the floodplain. The clearing would be associated with the transmission corridor. The fill would be for a permanent access road and the placement of two utility poles.
- Unnamed tributary to Gales Brook (Parkman): The applicants would clear 1.38 acres of vegetation associated with the transmission corridor and would fill 16 square feet of floodplain for the placement of one utility pole.
- Unnamed tributary to the Piscataquis River: The applicants would clear 0.08 acre of vegetation associated with the transmission corridor.

The applicants evaluated the proposed fill and clearing in the floodway. The applicants state that the removal of forest cover and conversion to dense scrub would improve the floodplain's ability to absorb runoff due to the fact that there would be an increased density of the root mass. The applicants assert that the project would not unreasonably cause or increase flooding of the alteration area or adjacent properties, nor create an unreasonable flood hazard to any structure.

19. BLASTING:

The applicants anticipate that blasting would be required in some locations for access road construction and turbine foundations. DEA reviewed the blasting plan submitted by the applicants which outlined the proposed procedures for removing bedrock. The blasting plan references the overall blasting requirements of 38 M.R.S.A. § 490-Z(14)(H) and (L) for airblast and record keeping. The plan states that ground vibration at structures not owned or controlled by the developer may not exceed the limits shown in Figure B-1 of Appendix B, U.S. Bureau of Mines Report of Investigations 8507 and that flyrock must be controlled so as to remain on the site and may not enter a protected resource unless the Department has previously approved alteration of that resource in the impacted area.

20. AIR EMISSIONS:

The applicants state that there would be no sources of emissions associated with the operation of the project that would require an air emission license. The applicants would control dust generated during construction activities with calcium chloride, water or other approved dust control agents on an as needed basis.

21. ODORS:

The applicants state that no odors would be associated with the construction or operation of the facility

22. WATER VAPOR:

The applicants state that the proposed project would not produce any water vapors as a result of construction or operation activities.

23. SUNLIGHT

The applicants state that the proposed project would not block access to direct sunlight for any structures using solar energy through active or passive systems.

24. PUBLIC NOTICE

The applicants held a public information meeting on March 20, 2012 in Bingham, Maine. Approximately 42 members of the public attended the meeting. Notices were mailed to project abutters announcing the anticipated submission of the application. A public notice was also placed in the Sun Journal on April 11, 2013, the Kennebec Journal on April 12, 2013 and the Franklin Journal on April 12, 2013. The Department placed a notice in the Bangor Daily News and Morning Sentinel on July 15, 2013 notifying the public of the Department's public meeting which was held in Moscow on July 22, 2013.

25. SHADOW FLICKER:

In accordance with 38 M.R.S.A. § 484(10), the applicants must demonstrate that the proposed wind energy development has been designed to avoid unreasonable adverse shadow flicker effects. Shadow flicker caused by wind turbines is defined as alternating changes in light intensity caused by the moving blade casting shadows on the ground and stationary objects. Shadow flicker is the sun seen through a rotating wind turbine rotor. Shadow flicker does not occur when the sun is obscured by clouds or fog or when the turbine is not rotating. The spatial relationships between a wind turbine and receptor, as well as wind direction which cause the turbines to rotate, are key factors relating to shadow flicker occurrence and duration. At distances of greater than 1,000 feet between wind turbines and receptors, shadow flicker usually occurs when the rotor plane is in-line with the sun and receptor (as seen from the receptor), the cast shadows would be very narrow (blade thickness) and of low intensity, and the shadows would move quickly past the stationary receptor. When the rotor plane is perpendicular to the sun-receptor "view line," the cast shadow of the blades would move within a circle equal to the turbine rotor diameter.

The applicants submitted a shadow flicker analysis with their application. The applicants used WindPRO, a wind modeling software program, to model expected shadow flicker effects on adjacent properties from the 63 proposed turbine locations. The applicants assumed a worst case scenario, that all receptors have a direct in-line view of the incoming shadow flicker sunlight, and did not take into account any existing vegetative buffers. The analysis assumed the use of the Vestas turbines, which are the tallest turbines proposed.

The Department generally recommends that applicants conduct a shadow flicker model out to a distance of 1,000 feet or greater from a residential structure, and the applicant's model does so. The applicant's model found only one receptor that would experience shadow flicker. Maine currently has no numerical regulatory limits on exposure to shadow flicker; however, the industry commonly uses 30 hours per year as a limit to reduce nuisance complaints. Receptor A is located 2,200 feet from the closest turbine and is expected to receive two hours and fifty five minutes of shadow flicker yearly.

26. PUBLIC SAFETY:

The proposed project would use Vestas V112-3.0, Vestas V112-3.3 or Siemens 3.0-113 wind turbine generators. All of the turbine options have been certified by Det Norske Veritas for conformity with the International Electrotechnial Commission standards.

The Department recognizes that locating wind turbines a safe distance away from any occupied structures, public roads or other public use areas is extremely important. In establishing a recommended safety setback, the Department considers industry standards for wind energy production in climates similar to Maine, as well as the guidelines recommended by certifying agencies such as Det Norske Veritas. Based on these sources, the Department requires that all wind turbines be set back from the property line, occupied structures, or public areas, a minimum of 1.5 times the maximum blade height for the wind turbine. Based on the Department setback specifications, the minimum setback distance to the nearest property line should be 738 feet for the Vestas turbines, the taller of the turbine options. A review of the application indicates that all turbines are set back more than 810 feet from the nearest non-participating landowner.

The applicants submitted a Fire Safety Plan, dated February 23, 2012 and an Emergency Preparedness and Emergency Action Plan, dated February 15, 2012. The plans outline actions to be taken in case of a fire or other emergency and methods to reduce the risk of fire while preforming ongoing maintenance at the facility. The applicants also submitted a revised Fire Safety Plan dated January 2, 2014 incorporating the use of the Vestas V112-3.3 turbine.

27. TANGIBLE BENEFITS:

In their application, the applicants describe tangible benefits that the project would provide to the host communities, including economic benefits and environmental benefits. The project is anticipated to provide annual tax revenue of approximately $2.1 million to the host communities.

The applicants state that their proposal would benefit the host communities and surrounding areas through construction-related employment opportunities. These would include tree clearing jobs, and jobs in businesses that support construction such as lodging, restaurant, fuel and concrete supply. In addition, the applicants propose annual payments to the Towns of Bingham ($106,900/year), Moscow ($20,000/year), Abbot ($20,000/year), and Parkman ($20,000/year). In addition, the applicants propose to make annual payments to Kingsbury Plantation ($176,000/year). The payments would total $5,530 per turbine per year for 20 years, which exceeds the statutory requirement of $4,000 per turbine per year for 20 years. The Towns and the Plantation would be able to use the funds at their discretion for public purposes including lowering tax rates or investment in municipal assets and/or services.

In addition, the project would make annual payments to the Somerset Economic Development Corporation ($30,000/year), Moose Alley Riders ($10,000/year), New England Mountain Bike Association ($10,000/year) and Valley Riders ($10,000/year).

Lastly the applicant's proposed to make a contribution to MDIFW in the amount of $37,550.00. The contribution will be used for land or natural resource conservation which may include enhancement of existing properties. MDIFW has agreed to accept this contribution.

28. DECOMMISSIONING:

In order to ensure the removal of the wind generation equipment when it reaches the end of its useful life or if the applicants cease operation of one or more of the turbines, the Department requires applicants to demonstrate the means by which decommissioning would be accomplished. The applicants submitted a decommissioning plan which includes a description of a trigger for implementing the decommissioning, a description of the work required for decommissioning, an estimate of decommissioning costs, a schedule for contributions to the decommissioning fund, and evidence pertaining to financial assurance.

A. Trigger for implementation of decommissioning. The proposed wind turbine generators are designed and certified by independent agencies for a minimum expected operational life of 20 years, however other factors may make decommissioning necessary before 20 years have passed. The applicants' proposal is that the wind generation facility, or any single turbine, would be decommissioned when it ceases to generate electricity for a continuous period of twelve months.

The applicants propose an exception to the requirement that decommissioning begin if twelve months of no generation occurs and if a force majeure event occurs. The Department considers a force majeure to mean fire (not caused by the proposed project), earthquake, flood, tornado, or other acts of God and natural disasters; and war, civil strife or other similar violence. If a permit is issued, in the event of a force majeure event which results in the absence of electrical generation for one or more of the turbines for twelve months, by the end of the twelfth month of non-operation the Department would require the applicants demonstrate to the Department that the project would be substantially operational and producing electricity within twenty-four months of the force majeure event. If such a demonstration was not made to the Department's satisfaction, the decommissioning would be required to be initiated eighteen months after the force majeure event.

The applicants also propose that, in the case of a force majeure event which causes the project, or any single turbine, to fail to generate electricity for 12 months, they be allowed to submit to the Department for review and approval reasonable evidence in support of a request that they not be required to decommission the project within the 24 month period following the cessation of operation.

B. Description of work. The description of work contained in the application outlines the applicants' proposal for the manner in which the turbines and other components of the proposed project would be dismantled and removed from the site. Subsurface components would be removed to a minimum of 24 inches below grade, generating facilities would be removed and salvaged and disturbed areas would be re-seeded. The applicants propose that at the time of decommissioning, the applicants would submit a plan to the Department for review and approval for continued beneficial use of any wind energy development components proposed to be left on-site.

C. Financial Assurance. The applicants' estimate that the current cost for decommissioning the project with Vestas turbines is $1,605,410.00 and with Siemens turbines is $1,722,410.00. The applicants propose that financial assurance for the decommissioning costs would be in the form of (i) performance bond, (ii) surety bond, or (iii) letter of credit, or other acceptable form of financial assurance for the total cost of decommissioning. The applicants propose to have the full financial assurance mechanism in place prior to project construction and to re-evaluate the decommissioning cost at the end of years five, ten and fifteen. Proof of acceptable financial assurance would be required prior to the start of commercial operation.

29. LAND USE PLANNING COMMISSION CERTIFICATION:

The proposed project has been reviewed by the Land Use Planning Commission (LUPC) to determine whether the project would be an allowed use in the sub-districts affected and whether the project would meet the LUPC's land use standards applicable to the project that are not a part of the Department's review. In Commission Determination #SLC-3, dated September 9, 2013, the LUPC certified that the project complies with all relevant provisions of the LUPC's Land Use Standards. In addition the LUPC reviewed the addition of the option of using Vestas V112 3.3MW turbines. In a letter dated December 2, 2013, the Commission determined that the use of the 3.3 MW turbine would not impact any of the Commission's Land Use Standards and therefore does not require review by the Commission.

30. WETLAND IMPACTS:

The applicants retained Stantec to locate wetlands and waterbody resources on the proposed project site. The results of the applicants' surveys for wetlands and waterbodies which might be affected by the turbine sites, access roads and collection lines are summarized as follows:

- 414 wetlands were identified along the proposed access roads and the electrical transmission line;
- 67 jurisdictional streams were identified, including 36 perennial streams, none of which would be permanently impacted. There would be 12 temporary timber mat stream crossings;
- 58 vernal pools were identified, including four that met the criteria of a significant vernal pool. One of the pools is not located on land controlled by the applicant

and therefore is not regulated as described in Section 7.f. The remaining significant vernal pools would have impacts of less than 25% of the total canopy cover. The vernal pools are further discussed in Section 7; and,

- 66 wetlands were identified that met the definition of wetlands of special significance.

A. Freshwater Wetland Impacts: The applicants propose to permanently fill 1.34 acres of freshwater wetland, temporarily fill 6.32 acres of freshwater wetlands and permanently convert 26.75 acres of freshwater wetland from forested to scrub shrub.

The Department's Wetlands and Waterbodies Protection Rules, Chapter 310, provide the framework for the Department's analysis of whether a proposed project's impacts to protected resources would be unreasonable, as that term is used in the NRPA, and whether the project meets the NRPA licensing criteria. A proposed project's impacts may be found to be unreasonable if the project would cause a loss in wetland area, functions and values and for which there is a practicable alternative that would be less damaging to the environment. For this aspect of the Department's review an applicant must provide an analysis of alternatives to the project.

B. Avoidance. The applicants submitted an alternatives analysis for the wetland impacts of the proposed project, completed by Stantec. The purpose of the project is to develop a wind power generation facility. The applicants state that the proposed project was designed to avoid wetlands and waterbodies to the greatest extent possible. The applicants originally designed the project to have 138 turbines; however after conducting natural resource studies, the applicants dropped numerous turbines because those additional turbines would have resulted in substantial wetland and stream impacts. The applicants propose to access the project from existing roads when possible to reduce new impacts to protected natural resources. The construction and maintenance of the transmission line would primarily result in a permanent change in vegetative cover type in wetland areas but not in permanent fill. The applicants state that the proposed project avoids wetland and waterbody impacts to the greatest extent practicable while still meeting the project's purpose.

C. Minimal Alteration. In the determination of whether any adverse impacts from a project are unreasonable, the Department looks at whether the amount of wetland and waterbodies proposed to be altered have been kept to the minimum amount necessary for meeting the overall purpose of the project. The applicants state that wetland impacts have been minimized by placing most of the collector line underground and minimizing the width of the collector corridor. The applicants also minimized impacts by utilizing existing roads where possible.

D. Compensation. The applicants conducted functions and values assessments of the various wetlands and waterbodies to be altered by the proposed project. Because of the range of wetland impacts, all different types of functions and values are represented. Pursuant to the Department's Wetland Protection Rules, compensation is required to achieve the goal of no net loss of wetland and waterbody functions and values. To

compensate for the permanent loss of freshwater wetlands, the applicants propose to make a contribution to the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Program (MNRCP) in the amount of $600,087.00. The Department does not typically require compensation for the conversion of forested wetland to scrub shrub wetland.