STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of BNE Energy Inc. for a Declaratory Ruling for the Location, Construction and Operation of a 3.2 MW Wind Renewable Generating Project on New Haven Road in Prospect, Connecticut ("Wind Prospect")	**Petition No. 980**
	May 2, 2011

FAIRWINDCT, INC.'S PROPOSED FINDINGS OF FACT

Pursuant to the Council's invitation to the parties and intervenors to submit briefs and findings of fact by May 2, 2011, FairwindCT, Inc. ("FairwindCT") hereby submits these proposed findings of fact regarding the petition for declaratory ruling filed by BNE Energy Inc. ("BNE") on November 17, 2011. In addition, SPC adopts and incorporates by reference the proposed findings of fact submitted by Save Prospect Corp. as if fully set forth herein

I. Introduction

1. BNE Energy Inc. ("BNE") filed a petition for a declaratory ruling that no certificate of environmental compatibility of public need is required for the proposed construction, maintenance, and operation of a 3.2 megawatt wind renewal generating project in Prospect that was received by the Council on November 17, 2010.

2. BNE is a Delaware corporation headquartered at 29 South Main Street, Suite 200, West Hartford, Connecticut. The petition states that BNE was founded in 2006, though the Secretary of State's records indicate that BNE was incorporated in 2007. According to the petition, BNE was founded 2006 for the purpose of constructing and operating commercial wind generation projects in Connecticut, New England and beyond. (Petition, page 2.) BNE has not yet constructed or operated a wind generation project, commercial or otherwise.

3. The proposed project would qualify as a Class I renewable source as defined by General Statutes § 16-1a(26).

4. BNE claims that its proposed project is eligible for approval by declaratory ruling because it is a grid-side distributed resources facility under 65 MW that complies with the air and water quality standards of the Connecticut Department of Environmental

Protection ("DEP"). (Petition, page 1.) BNE also claims that its proposed project will not have a substantial adverse environmental effect. (Petition, page 2.)

5. The parties to this proceedings include the petitioner, the Town of Prospect, Save Prospect Corp. ("Save Prospect"), FairwindCT, Inc. ("FairwindCT"), John and Cheryl Lamontagne, Thomas and Eileen Satkunas and Eric Bibler. The Connecticut Water Company was a party to this proceeding until its withdrawal, which was received by the Council on March 30, 2011. The Connecticut Light and Power Company is an intervenor.

6. Although not required to do so by statute, the Council chose to hold public hearings on this proceeding. Public notice of the hearings was published in the Waterbury Republican-American and the Citizen's News.

7. The public hearings were held on February 23 and 24, 2011 at the Long River Middle School Gymnasium, 38 Columbia Avenue, Prospect, Connecticut. The public hearings began at 6:30 p.m. and continued until approximately 10 p.m.

8. The Council and its staff conducted a field review of the proposed site on February 23, 2011, beginning at 2 p.m. The petitioner did not fly a balloon at the site based on its claim that balloons cannot be tethered 492 feet above the ground. The proposed turbine locations were marked with signs at ground level.

9. Although the petitioner claims it was not legally required to provide notice of its filing, BNE published a legal notice of its intent to the file the petition with the Council in the Waterbury Republican-American on or about October 29, 2010. (Petition page 32 & Ex. D.)

10. Although the petitioner claims it was not legally required to provide notice of its filing, BNE sent notice of its intent to file the petition with the Council by certified mailing dated October 29, 2010 to abutting property owners of record listed in its petition. (Petition page 32 & Ex. D.) BNE received return receipts from all but one property owner, U.S. Cap, Inc. A second notice was sent to U.S. Cap, Inc. via regular mail. (BNE Responses to Council's First Set of Interrogatories, dated Feb. 3, 2011, Answer 12 & Ex. 1.)

11. On January 31, 2011, BNE sent notice to the property owners at 15 Kluge Road and 177 New Haven Road via certified mail and regular mail. Those property owners had not previously received notice from BNE. (BNE Responses to Council's First Set of Interrogatories, dated Feb. 3, 2011, Answer 23 & Ex. 1.)

12. Although the petitioner claims it was not legally required to provide notice of its filing, BNE also sent copies of its petition to the state and local officials listed in its petition by Federal Express on November 17, 2010. (Petition page 32 & Ex. E.)

13. BNE posted a sign giving public notice of its pending petition on the proposed site. The sign included the sate of the scheduled public hearings and field review and contact information for the Council. (Memorandum regarding pre-hearing procedure, dated Feb. 4, 2011.)

II. State Agency Comment

14. On January 21, 2011, March 22, 2011 and April 1, 2011, the Council solicited comments on BNE's petition from the following state agencies: Department of Agriculture, Department of Environmental Protection ("DEP"), Department of Public Health ("DPH"), Council on Environmental Quality, Department of Public Utility Control ("DPUC"), Office of Policy and Management, Department of Economic and Community Development, Department of Transportation ("DOT") and Department of Emergency Management and Homeland Security. (Council Hearing Package dated January 21, 2011; Council Letters to State Agency Department Heads, dated March 22 & April 1, 2011.)

15. The Council received comments dated January 5, 2011 from the Drinking Water Section of DPH, which recommended taking certain precautions to protect the public water supply watershed of the Long Hill Reservoir, an active source of public drinking water. (DPH Letter, dated January 5, 2011.)

16. The Council received comments dated January 20, 2011 from the DOT, which expressed concern that the proposed project may encroach on the Route 69 highway line and therefore may require an encroachment permit. (DOT Letter, dated January 20, 2011.)

17. The Council received comments dated March 14, 2011 from the DEP, which offered comments including concern over the visual impact of the proposed project on nearby residences and suggested shifting the location of the southern turbine further downslope. DEP also recommended that if blasting is needed, BNE conduct pre-blasting survey work at selected residences to establish baseline water quality data in light of the proximity of the contaminated former U.S. Cap and Jacket property at 214 New Haven Road. Finally, DEP requested that a post-construction bat monitoring program be established at the site for at least two but preferably three years to monitor bat fatalities.

III. Site Description

18. The proposed site is an irregularly shaped 67.5-acre parcel of land located at 178 New Haven Road in Prospect, Connecticut. The site is approximately 1,760 feet from the Prospect and Bethany town line and approximately 430 feet from the New Naugatuck Reservoir. (Petition, page 4.) The site is located within the public supply watershed of the Long Hill Reservoir. (DPH Letter, dated January 5, 2011.)

19. The majority of the site is presently undeveloped and covered by second growth upland forest. An early old field meadow habitat of approximately nine acres is situated at the

highest elevation on the site. A 160-foot tall telecommunications tower stands in the southeast corner of the site, in that hilltop meadow. (Petition, pages 7, 21.)

20. The site is abutted to the west and north by the New Naugatuck Reservoir property, which is owned by the Connecticut Water Company ("CT Water") and consists of approximately 500 acres of undeveloped land. (Petition, page 7.) The site slopes down toward the New Naugatuck Reservoir.

21. To the east, the site is abutted by several residential lots, several industrial lots and state highway Route 69. To the south, the site is abutted by residential lots and Kluge Road, a town road that is paved at its intersection with Route 69 and turns into a gravel access road as it gets closer to the CT Water property. (Bulk Filing, Town of Prospect Zoning Map.)

22. Directly across from the site, on the opposite side of Route 69, is an almost exclusively residential neighborhood consisting of several subdivisions. (Bulk Filing, Town of Prospect Zoning Map.)

23. There are 53 residential homes within 2,000 feet of the originally proposed turbine locations. (BNE Responses to Council's First Set of Interrogatories, dated Feb. 3, 2011, Answer 22.) More than 900 homes are located within 1.25 miles of the site. (Reilly Pre-Filed Testimony, page 6.)

24. Abutting the site to the southeast is a 5.1-acre property owned by U.S. Cap, Inc., known as the U.S. Cap and Jacket Property. That property is a U.S. Environmental Protection Agency Brownfield Target Site and contains volatile and semi-volatile organic compounds that have migrated into the groundwater plume. As a result of this pollution, activated carbon filters have been installed at several nearby residential groundwater wells. (Stamberg Pre-Filed Testimony, pages 2-8.)

25. Although several lots in immediate proximity to the site contain commercial enterprises, including a used car dealership and a commercial office building, nearly the entire southern half of the town of Prospect, where the site is located, is zoned residential. (Bulk Filing, Town of Prospect Zoning Map; Corey Pre-Filed Testimony, page 3; 3/31/11 Tr. 64:23-65:6, 74:14-21 (Satkunas).)

IV. Power Plant Description

26. The proposed project, known as Wind Prospect, consists of the installation of two GE 1.6 MW wind turbines and associated ground equipment, an ancillary building, upgrading and installation of an access road and an electrical interconnection. The ancillary building would provide storage, office space and an educational area. (Petition, page 7.)

27. BNE proposes installing two 100-meter tall turbines, each with blade lengths of either 40.3 or 50 meters. Although BNE has at times during this proceeding indicated that it

will use 40.3 meter blades if this project is approved, it has not withdrawn its request for approval of the longer blade length. (3/3/11 Tr. 148:19-150:17 (Corey).)

28. The turbine hubs (towers) will stand approximately 328 feet from ground to nacelle. The equipment used to operate the turbines is contained within the nacelle, including the gearbox, a magnet generator and an automatic lubrication system. (Petition, page 7.)

29. In order to access the project, BNE proposes utilizing an access road off of Kluge Road that will be upgraded. (Petition, page 7.) Kluge Road itself will need to be improved to bear the load of the oversized trucks that will carry the turbines and cranes to the site. (3/3/11 Tr. 74:6-75:19 (Cline).)

30. BNE proposes to construct an electrical collector yard on the site, as well as additional equipment to monitor circuit voltage and to disconnect the facility from the grid as needed to protect the system during system outage. (Petition, page 8.)

31. Interconnection would be made to CL&P's 13.8-kV distribution system at Kluge Road. BNE has not yet completed a System Impact Study or a Transmission Study with CL&P, nor has BNE executed an Interconnection Agreement with CL&P. (Petition, page 8.)

32. The turbines can be controlled automatically or manually from either an interface located inside the nacelle or from a control box at the bottom of the tower. They can also be controlled remotely. Each turbine has emergency stop buttons located in the base of the hub and in the nacelle. (Petition, page 8.)

33. The turbine blades are controlled by a rotor that can adjust blade pitch angles during operation and brake or otherwise regulate the blade speed. A controller within the nacelle aligns the nacelle and blades to the average wind direction based on a wind vane sensor mounted on the nacelle. (Petition, page 8.)

34. BNE states that Wind Prospect will meet all applicable safety requirements for construction, operation and electrical interconnection and will follow all applicable GE guidelines and requirements. (Petition, page 8.)

35. The rotor blades of the turbines are equipped with lightning receptors mounted in the blade and the turbines are grounded and shielded to protect against lightning. The turbines are also built to handle seismic loads. (Petition, page 14.)

36. BNE expects to enter into an operations and maintenance agreement with GE to remotely monitor and maintain the turbines. BNE operations and maintenance personnel will also be located on-site to supplement the services provided by GE. (Petition, page 14.)

37. BNE did not provide details regarding the BNE on-site personnel in its petition. During the course of this proceeding, BNE testified that BNE plans to hire three to five employees who will rotate between the site and BNE's two proposed wind turbine sites in

Colebrook. BNE anticipates that its personnel will be located on site in the proposed ancillary building during normal business hours. BNE testified that its personnel would also be present on site during icing events and during re-starts of the turbine following icing events. (2/24/11 Tr. 75:18-76:7; 3/31/11 Tr. 225:11-24 (Corey).)

38. The proposed ancillary building would provide storage, office space for BNE operations and maintenance personnel and an area for education and tours by appointment for schools, organizations or members of the public. The ancillary building would contain restroom facilities and utilize an on-site well to meet sanitary and drinking needs. BNE proposes disposing of wastewater to an on-site septic system, but has not provided plans for the system. (Petition, page 8.)

39. BNE concedes that wind turbines are by definition intermittent electric energy generation facilities that operate only when there is sufficient wind to turn the rotor and produce electricity from the electric generator. (Petition, page 12.) The GE 1.6 MW turbines generate power when the wind speeds are at or above 3.5 m/s (approximately 7.8 miles per hour) and below 25 m/s (approximately 56 miles per hour). (BNE Responses to Council's First Set of Interrogatories, dated Feb. 3, 2011, Answer 7; Heraud Pre-Filed Testimony, Ex. 2, page 2.)

40. BNE claims that the GE turbines it has selected will be "available" to produce electricity 98 percent of the time and have an expected capacity factor of approximately 30 percent. Based on output from two 1.6 MW turbines, BNE states that Wind Prospect would produce approximately 8,410 MWh of Class I renewable energy each year. (Petition, pages 9, 11, 12.)

41. David Pressman testified that wind's capacity factor is highly variable but typically ranges from 20 to 32 percent, and noted that BNE did not provide any details on how it reached this assumed capacity factor. (Pressman Pre-Filed Testimony, page 3.) BNE's Wind Assessment reports calculated capacity factors of 20 to 35 percent at an 80-meter hub height based on nearly 15 months of wind data. (Petition, Ex. N, Wind Assessment, page 1.) Pressman testified that the average annual capacity for 19 wind generation projects located throughout the Northeast for the years 2007 to 2009 has ranged from 25 to 26.8 percent. (Pressman Pre-Filed Testimony, page 5.)

42. Wind Prospect is unlikely to achieve 30 percent capacity. Based on other wind projects located in the northeast and BNE's Wind Assessment, a capacity of 20 to 25 percent is more likely, which would significantly lower the estimated energy to be produced annually by this proposed project. (Pressman Pre-Filed Testimony, page 5.)

43. The proposed project would have an estimated service life of 20 years or more. (Petition, page 9.) Mr. Corey testified that the turbines could be in service for 30 years. (3/31/11 Tr. 53:18-23 (Corey).)

44. As a general rule, the industry standard is that 60 acres of land is needed for each industrial-size turbine. (BNE Responses to Council's First Set of Interrogatories, dated Feb. 3, 2011, Answer 6.) BNE proposes to site two turbines on less than 68 acres of land.

V. Environmental Considerations

A. Site Clearing

45. In its petition, BNE stated that the area to be cleared would be 217,240 square feet (approximately 4.99 acres) and the area to be disturbed would be 364168 square feet (approximately 8.36 acres). (Petition, Ex. F, Sheet C-002.)

46. Since that petition, BNE has revised its plans three times. The first revision was not significantly different in disturbed area (up slightly to 8.39 acres), and the area to be disturbed decreased slightly (down to 4.22 acres). (BNE letter to Council attaching revised plan sheets and memo, dated Feb. 16, 2011, Sheet C-500.)

47. In the second revision, both the "tree area" to be cleared and the disturbed area increased by more than an acre, to 5.74 acres and 9.79 acres, respectively. (Cline Supp. Testimony dated Mar. 8, 2011, Ex. 1, Sheet C-002.)

48. In the third revision, the numbers reverted closer to those of the second revision, proposing that 4.28 acres of "tree area" be cleared and 8.38 acres be disturbed. (Cline Supp. Testimony dated Mar. 28, 2011, Ex. 1, Sheet C-002.)

49. Based on these revisions and BNE's own estimates, the site clearing could be nearly 6 acres and the total disturbed area could be nearly 10 acres.

B. Wetlands

50. There are four wetland systems located on the site. (Petition, page 27.)

51. BNE classifies Wetland 1 as one of the highest quality wetland resources on the site. Wetland 1 is on a hillside and contains permanently saturated depressions which generally provide higher wetland functions and values than the other hillside seep wetlands. It drains via well-defined and diffuse surface flows west before terminating at a drainage swale along a dirt road that traverses the western boundary of the site. Flows are then conveyed northerly within a swale along the road. (Petition, page 14, 27.)

52. Wetland 2 is a forested hillside seep draining northerly off-site into a perennial watercourse which flows southwest into the New Naugatuck Reservoir. A watercourse flows into the southern tip of this system from beneath Route 69. Field observations indicate this watercourse may be perennial. It is characterized by a wide, deeply scoured channel, abundant sediment loading, lack of silty deposits and steeply incised banks. Flows within the channel appear to be extremely flashy. (Petition, page 28.)

53. Wetland 3 is a hillside seep that occurs where a gradual decrease in topographical gradient exists. This wetland boundary is diffuse and not clearly defined by a slope break, soil type or change in vegetation. The delineated wetland boundary generally captures a complex of somewhat poorly drained soil types and diffuse surface water drainage patterns. This wetland area drains via an intermittent watercourse towards an off-site perennial watercourse, which flows southwest into the New Naugatuck Reservoir. (Petition, page 28.)

54. Wetland 4 is a forested hillside seep complex consisting of three areas where groundwater exfiltration is occurring. Diffuse surface drainage patterns were observed connecting these delineated wetland systems. However, the diffuse surface flow patterns observed connecting these distinct wetland areas did not contain bank or channel characteristics and no wetland soil types were found in these areas. Therefore, these diffuse surface drainage areas were determined to be uplands and not regulated areas. (Petition, page 28.)

55. BNE worked to avoid direct impacts to wetland resources on the site, and claims that its proposed project was successful in avoiding any direct wetland impacts. (Petition, page 29.)

56. However, BNE concedes that there will be significant disturbance of areas in close proximity to wetland resources on the site. In its petition, BNE stated that the area to be disturbed or cleared within 100 feet of wetlands would be 26,319 square feet (approximately 0.6 acres). (Petition, Ex. F, Sheet C-002.)

57. Its first set of revised plans does not change that estimate. (BNE letter to Council attaching revised plan sheets and memo, dated Feb. 16, 2011, Sheet C-500.)

58. BNE's second set of revised plans, however, shows a significant increase in the area to be disturbed or cleared within 100 feet of wetlands. The area increases to 1.1 acres. (Cline Suppl. Testimony dated Mar. 8, 2011, Ex. 1, Sheet C-002.)

59. BNE's third set of revised plans, submitted three days before the evidentiary hearing in this proceeding closed, shows a significant decrease in the area to be disturbed or cleared within 100 feet of wetlands, down to 0.43 acres. (Cline Supplemental Testimony dated Mar. 28, 2011, Ex. 1, Sheet C-002.)

60. Based on these revisions and BNE's own estimates, the area to be disturbed or cleared within 100 feet of wetlands could be more than 1 acre.

61. Save Prospect Corp and FairwindCT presented witnesses who testified that there likely will be direct impacts to wetland resources on the site due to the nature of the wetlands delineation methods used by BNE. The wetlands delineation was conducted with several inches of snow cover, and the petition acknowledges that the boundaries of Wetlands 3

and 4 are diffuse. (Petition, Ex. I, Attachment 1, Wetland Delineation Field Forms; Klein Pre-Filed Testimony, pages 14-15.)

62. Mr. Klein and Mr. Carboni testified that the petitioner's method of measuring the wetland boundaries provides, at best, a margin of error of 3 feet. The petitioner's plans show that, for example, the blade laydown assembly area for Turbine 2 may be as close as 7 feet to the estimated boundary of Wetland 3. Thus, the assembly area itself, or the grading or other erosion control measures associated with the laydown area, may actually extend into Wetland 3 once the petitioner conducts detailed surveying. (Carboni Supp. Pre-Filed Testimony, pages 2-3; Klein Pre-Filed Testimony, pages 14-15.)

63. Based on those observations, BNE's statements that there will be no direct wetland impacts and that the area to be disturbed or cleared within 100 feet of wetlands is 1 acre may not be accurate.

C. Wildlife

64. With its petition, BNE submitted an interim bat acoustic survey, a breeding bird survey and a terrestrial wildlife habitat and wetland impact analysis. (Petition, Exs. I, L, M.)

1. Terrestrial Wildife

65. BNE conducted a desktop wildlife evaluation that identified potential mammal, reptile and amphibian species that may exist on the site. (Petition, Ex. I, pages 8, 9.)

66. The DEP informed BNE that the Eastern box turtle, a state-listed species of special concern, occurs in the vicinity of the site. BNE did not conduct an on-site survey for the Eastern box turtle, as recommended by the DEP. (Petition, Ex. K, Letter from DEP dated Sept. 3, 2010.)

67. BNE stated that the site does not contain vernal pools; however, that statement was based in large part on a wetlands delineation that took place with snow cover on the ground. (Petition, Ex. I, pages 4, 11.)

68. During BNE's breeding bird survey on the site, an incidental observation of the wood frog was recorded. (Petition, Ex. M, page 11.) The wood frog is a vernal pool obligate species. Its presence on the site indicates that vernal pools may exist on the site. (Klein Pre-Filed Testimony, page 3.)

69. BNE did not conduct an amphibian survey or an in-season vernal pool survey on the site. (Petition, Ex. I.)

2. Bats

70. BNE's consultant, Western Ecosystems Technology, Inc. ("WEST"), conducted an acoustic bat study. The petition contains an interim report on that study. The final acoustic bat study was filed nearly three months later. The purpose of the study was to characterize seasonal and spatial activity by bats during the summer maternity and fall migration seasons, and provide species identification of calls recorded to document presence of bat species. (Petition, Ex. L; Tidhar Pre-Filed Testimony, Ex. 2, page i.)

71. Data collected over the last several years has shown that the migratory bats (hoary bats, red bats, silver-haired bats) are more susceptible to wind turbine mortality than are hibernating bats (the Myotis bats and big brown bat). Specifically the hoary bats, red bats, and silver-haired bats usually account for over 80% of all bat mortalities. (Reynolds Pre-Filed Testimony, page 4.)

72. Connecticut does not have guidelines regarding pre-construction monitoring for bat activity at proposed wind turbine sites. Several states, including Pennsylvania, New Jersey and New York, do have such guidelines. (Reynolds Pre-Filed Testimony, page 18; Reynolds Supp. Pre-Filed Testimony, pages 10-14.) The U.S. Fish and Wildlife Service ("USFWS") also has guidelines for such monitoring. (BNE Admin. Notice, Item 8.) WEST testified that it followed the USFWS guidelines. (Tidhar Pre-Filed Testimony, page 2.)

73. Most acoustic bat studies encompass the entire active season for bats, which typically stretches from early to mid-April through late October. (Reynolds Pre-Filed Testimony, pages 12, 18.) The USFWS guidelines recommend acoustic monitoring for a full year, collected concurrently with environmental variables such as temperature and wind speed. (Reynolds Supp. Pre-Filed Testimony, page 13.) WEST did not monitor for a full year.

74. WEST stated that its bat study took place during the "estimated summer maternity season." (Tidhar Pre-Filed Testimony, Ex. 2, page 3.) However, the maternity season for bats typically begins in mid-May. For the Indiana myotis, the USFWS characterizes the maternity season as May 15 through August 15. (Reynolds Pre-Filed Testimony, pages 12-13.) WEST did not start sampling until late June. (Tidhar Pre-Filed Testimony, Ex. 2, page 3.) The WEST survey therefore missed 41 days (44%) of this summer maternity sampling period. (Reynolds Pre-Filed Testimony, pages 12-13.)

75. WEST's bat study was conducted with two Anabat detectors placed at two fixed locations on the site between June 25 and November 1, 2010. WEST also used a Wildlife Acoustic SM2Bat Unit ultrasonic detector for 10 days between June 25 and August 15 and for 26 days between August 16 and November 1. WEST used the SM2Bat Unit to identify the bat species using the study are and estimate the relative levels of activity by different species within the site. (Tidhar Pre-Filed Testimony, Ex. 2, page i.)

76. The Anabat detectors were placed near the ground. One detector was placed at the base of the met tower located on the site. The other was located at approximately the originally proposed location of Turbine 2. The SM2Bat Unit was placed at the base of the met tower approximately 3.3 feet from the Anabat detector at that location. (Tidhar Pre-Filed Testimony, Ex. 2, page 3.)

77. Ideally, an acoustic monitoring survey will use both ground and elevated detectors. (Reynolds Pre-Filed Testimony, pages 14-15; DEP comments, page 5.) The DEP noted that using elevated detectors may have increased the quality and detection rate, particularly of the hoary bats, which forage at the top of the tree canopy and is the species most often negatively impacted by turbines. (DEP comments, page 5.)

78. Elevated detectors allows for sampling to take place within the anticipated rotor-swept area of the turbines. Elevated detectors are generally placed on met towers where available. (Reynolds Pre-Filed Testimony, pages 14-15.)

79. The USFWS guidelines recommend placing acoustic detectors on existing met towers, approximately every two kilometers across the site where turbines are expected to be sited and state that acoustic detectors "should be placed at high positions" and "near the rotor swept zone." (Reynolds Supp. Pre-Filed Testimony, page 9, citing USFWS guidelines, page 37.) WEST did not follow these recommendations.

80. BNE has a met tower on the site. Dr. Reynolds opined that placing ground-based monitors next to a met tower is unjustifiable. (Reynolds Pre-Filed Testimony, page 15.) BNE claimed that no elevated monitoring was done because placing a detector on the met tower would have required lowering the tower to the ground, which may have resulted in damage to the instrumentation and study delay. (BNE Response to SPC's Second Set of Interrogatories, dated Feb. 16, 2011, Answer 64.)

81. Lowering met towers to service the meteorological equipment and to attach bat acoustic detectors is a standard industry practice. Dr. Reynolds testified that he has been involved in the lowering of more than 100 met towers throughout his career and has never seen damage to a tower or piece of meteorological equipment. (Reynolds Supp. Pre-Filed Testimony, pages 3-4.)

82. Experts and pre-construction monitoring guidelines recommend using elevated acoustic monitoring because stationary ground-based monitoring fails to capture special heterogeneity and the vertical variation in bat activity of a project site, both of which are indicative of collision risk with wind turbines. (Reynolds Pre-Filed Testimony, page 15.)

83. WEST concluded that the project is not in the vicinity of any known bat colonies or features likely to attract large numbers of bats. (Tidhar Pre-Filed Testimony, Ex. 2, page 18.) Bats are attracted to permanent water features such as the New Naugatuck Reservoir, which is located adjacent to the site. (Reynolds Supp. Pre-Filed Testimony, pages 7-9.)

84. The DEP noted that the presence of forested wetlands and field edges on the site is a resource that is favorable to supporting bat populations. (DEP comments, page 6.) The project is therefore in the vicinity of features likely to attract bats. Permanent water bodies generally have more bat activity than any other habitat type. (Reynolds Supp. Pre-Filed Testimony, pages 14-15.)

85. Mr. Tidhar testified that WEST worked closely with BNE to minimize impacts to the bat population by not creating or locating the turbines near permanent standing water. (Tidhar Pre-Filed Testimony, pages 2-3.) While there may not be permanent standing water on the site itself, the site is adjacent to the New Naugatuck Reservoir, which is permanent standing water.

86. WEST drew many conclusions from its studies regarding the species of bats likely to occur on or near the site based on the frequency of the bat calls recorded. One conclusion was that eight different species of bats have the potential to occur on the site, all of which have been recorded as casualties at wind-energy facilities. (Tidhar Pre-Filed Testimony, Ex. 2, page 19.)

87. WEST's SM2Bat Unit identified six species of bats at the site, five of which have been recorded as casualties at wind-energy facilities. (Tidhar Pre-Filed Testimony, Ex. 2, pages 16, 19.)

88. WEST concluded that the proposed project site contains forestlands and some forested wetlands, which likely support tree-roosting bat species common to the region. (Tidhar Pre-Filed Testimony, Ex. 2, page 19.) River valley systems such as the Champlain and Connecticut River have been a regional "hotspot" for Indiana myotis and eastern small-footed myotis; this is particularly true near reservoirs. (Reynolds Pre-Filed Testimony, page 8.)

89. WEST did not gather data on the potential for bat roosting habitat on the project site. qq

90. Based on DEP staff concerns regarding the timing of the bat monitoring, BNE hired WEST to conduct additional acoustic bat monitoring from May to October 2011. (BNE Responses to DEP comments, page 5.) The results of that study will not be available to the Council before its statutory deadline for deciding this petition.

91. If this project is approved, BNE will conduct post-construction bat fatality monitoring for two years at the site, between May and October each year. (BNE Responses to DEP comments, page 5.)

3. Birds

92. WEST also conducted breeding bird surveys. The purpose of the surveys were to provide site-specific bird resource and use data that would be useful in evaluating potential impacts from the proposed wind energy facility, provide information that could be used

in project planning and design of the facility to minimize the impacts to birds and recommend further studies or potential mitigation measures, if needed. (Petition, Ex. M, page i.)

93. Based on the results of these surveys, WEST concluded that the proposed project will not have undue impacts to the breeding bird populations in the Prospect area because the breeding birds identified at the site are regionally common and no high value bird habitats are located within the Wind Prospect development area. (Tidhar Pre-Filed Testimony, page 3.)

94. WEST identified 525 individuals representing 35 unique bird species. Three species comprised nearly one-third of the individual observations: unidentified passerines, Eastern Towhee ad American Robin. (Petition, Ex. M, pages i, 6-8.)

95. Thirty bird species, totaling 58 individuals, were recorded incidentally. (Petition, Ex. M, pages i, 10-11.)

96. WEST's report concludes that direct results to individuals may result from operation of the proposed project. WEST further concludes that currently, there is no evidence that observed impacts to individuals resulting from collisions at other wind turbine sites have an effect on populations. Finally, WEST concludes that the breeding bird habitats at the site are regionally common and no high value bird habitats such as wetlands are located within the proposed development areas. (Petition, Ex. M, page 12.)

97. Connecticut does not have guidelines regarding pre-construction monitoring for bird activity at proposed wind turbine sites. Several states, including New Jersey and New York, do have such guidelines. (E. Davison Pre-Filed Testimony, page 3.) The U.S. Fish and Wildlife Service ("USFWS") also has guidelines for such monitoring. (BNE Admin. Notice, Item 8.) WEST testified that it followed the USFWS guidelines. (Tidhar Pre-Filed Testimony, page 2.)

98. Nearly all guidelines call for a minimum of one full year of sampling, to include spring migration, summer breeding, fall migration, over-wintering and nocturnal surveys. (Klein Supp. Pre-Filed Testimony, page 6.)

99. WEST's bird surveys took place on three different days between June 28 and July 12, 2010. (Petition, Ex. M, page i.) BNE claims that the late June to mid-July dates were selected to maximize coverage of the peak breeding season because they occurred when the most number and the greatest species richness of breeding birds would be expected to occur. (BNE Responses to SPC's Second Set of Interrogatories, Answer 50.)

100. WEST's surveys took place outside of the ideal breeding bird survey period in Connecticut. (DEP comments, page 6.) At the time WEST's surveys were conducted, the peak song period for most male birds had ended. (E. Davison Pre-Filed Testimony, page 5.) DEP noted that by these dates, many nesting species are calling for greatly

limited time periods or using only call and chirp notes, making accurate identification extremely difficult. (DEP comments, page 6.)

101. In this state, breeding bird surveys should begin in late May and end in mid to late June. The peak period for singing by territorial males is between June 1 and June 15 each year, making that two-week period especially important for breeding bird surveys. (E. Davison Pre-Filed Testimony, page 5; FairwindCT Admin, Notice Item No. 9 (Description of the Forest Interior Bird Survey Program).)

102. Michael Klein testified that the DEP's Forest Interior Breeding Bird Survey protocol requires that surveys be conducted three times: once between May 20 and June 2, once between June 3 and June 16 and once between June 17 and June 30. (Klein Supp. Pre-Filed Testimony, page 7.)

103. WEST used a total of 12 data points for its surveys. A WEST biologist was stationed at each point for a total of 5 minutes. This method provided a total of 3 hours of collected data for the site. (Petition, Ex. M, pages 4-6.)

104. DEP staff stated that the 5-minute survey period at each data point was too short to adjust for the reduced level of calling activity of birds during the late-season time period of the surveys. (DEP comments, page 6.)

105. Eric Davison testified that this number of data points was small for a 67-acre site. He also testified that using the 5-minute, 50-meter radius survey protocol, an observer typically can collect data at 20 to 30 points in a morning sampling period, i.e., between 5 and 9 a.m. (E. Davison Pre-Filed Testimony, page 5.)

106. BNE stated that due to difficulty walking through the underbrush of the largely forested site, no more than 12 5-minute data points could be surveyed in one day between sunrise and 10 a.m. (BNE Responses to SPC's Second Set of Interrogatories, Answer 47.) Four of the 12 data collection points were in the meadow on the site, which does not contain underbrush. (BNE Responses to SPC's Second Set of Interrogatories, Exhibit 1.)

107. BNE's interrogatory responses show that its field surveys on the three mornings sampled concluded at 8 a.m., 8:13 a.m. and 8:40 a.m. (BNE Responses to SPC's Second Set of Interrogatories, Exhibit 3.)

108. Michael Klein testified that these ending times for the surveys demonstrates that additional data points could have been included in the surveys. He also testified that a woods road generally corresponds with many of WEST's survey points, so those points were not located in dense underbrush. Finally, he testified that additional data points could have been included by increasing the number of survey days to more than three. (Klein Supp. Pre-Filed Testimony, pages 5-6.)

109. Collection of data at additional points would have provided a more robust dataset for statistical analysis. (E. Davison Pre-Filed Testimony, page 5.)

110. Five of the 12 data points were located offsite and another five data points were located close to the boundary of the site. Only two data points were located in the interior of the site. (BNE Responses to SPC's Second Set of Interrogatories, Exhibit 1.)

111. Eric Davison opined that even just five data points located in the interior of the site would be inadequate to characterize the 67-acre parcel. (E. Davison Pre-Filed Testimony, page 5.)

112. BNE stated that the survey points were chosen along a roughly linear transect bisecting the site. The maps provided by BNE of the survey points show that four points are located in a roughly north to south transect and another five points are located in a roughly northwest to southeast transect. (Petition, Ex. M, page 3, Figure 2; BNE Responses to SPC's Second Set of Interrogatories, Answer 46 & Exhibit 1.)

113. Michael Klein testified that a grid distribution pattern for the data points would have been more effective at sampling the areas surrounding the proposed turbine locations. (Klein Supp. Pre-Filed Testimony, page 5.)

114. The high number of unidentified passerines noted in the breeding bird survey confirm that identification was challenging, as predicted by DEP and Eric Davison. A total of 58 unidentified passerines were observed during the 3 hours of observation. (Petition, Ex. M, pages i, 6; E. Davison Pre-Filed Testimony, page 6; DEP comments, page 6.)

115. The high number of unidentified passerines equates to 11 percent of total observations within the 3-hour period, which is a significant data gap that affects any conclusions regarding species richness and species diversity that may be drawn from the survey results. (E. Davison Pre-Filed Testimony, page 7.)

116. BNE stated that this high number of unidentified passerines was due to the dense understory and forest canopy, which limited the potential for the surveyors to visually identify the birds. BNE also stated that many auditory observations were chirps and therefore not easily identifiable to species. (BNE Responses to SPC's Second Set of Interrogatories, Answer 56.)

117. Michael Klein testified that the understory and canopy vegetation would not have limited identification if the surveys had begun in late May, as recommended by the DEP. He also testified that the high proportion of unidentified passerine observations severely limits the conclusions that may be drawn from the surveys, particularly with respect to species diversity. (Klein Supp. Pre-Filed Testimony, pages 10-11.)

118. DEP staff noted that WEST's report indicates that no sensitive species were recorded yet reports observations of several species of regional conservation concern due to declining

population trends and habitat loss. DEP identified by name the Chestnut-Sided Warbler, Chimney Swift and Eastern Towhee, a species described as common on the site. (DEP comments, pages 6-7.)

119. Twelve of the species observed on the site are considered to be species of conservation concern by the DEP and national conservation organizations due to declining populations. These species include Eastern Towhee, Field Sparrow, Indigo Bunting, Eastern Kingbird, Rose-Breasted Grosbeak, Scarlet Tanager, Wood Thrush, Black-Throated Green Warbler, Chestnut-Sided Warbler, Ovenbird, Baltimore Oriole and Chimney Swift. Several of these species, including the Field Sparrow, Indigo Bunting, Eastern Kingbird, Wood Thrush, Black-Throated Green Warbler, Chestnut-Sided Warbler and Ovenbird are species listed at Greatest Conservation Need. (E. Davison Pre-Filed Testimony, pages 7-8; DEP comments, pages 6-7.)

120. WEST did not provide an analysis of impact for these twelve species of conservation concern in its petition. (Petition, Ex. M.) WEST stated that no sensitive or protected species were recorded during scheduled breeding bird surveys. (BNE Amended Interrogatory Response to SPC's Second Set, Answer 59; DEP comments, page 6.)

121. In response to interrogatories issued by Save Prospect, BNE provided bird fatality data for these species and others of conservation concern that was compiled from wind turbine facilities across the United States. That data reports fatalities for all but one (Baltimore Oriole) of the species of conservation concern identified by Eric Davison. (BNE Amended Interrogatory Response to SPC's Second Set, Answer 59.)

122. BNE did not conduct an early spring survey to observe species such as the American Woodcock, which is a declining species known to occur in agricultural and forest edge habitat. (E. Davison Pre-Filed Testimony, page 5.)

123. BNE stated that its objective was to sample during the season when the majority of breeding birds would be present, although some species, such as the American Woodcock, may breed earlier in the season. (BNE Responses to SPC's Second Set of Interrogatories, Answer 52.)

124. Michael Klein opined that this omission affects the reliability of the impact assessment, because other site surveys were in progress during the early spring breeding period of the American Woodcock, and because the American Woodcock is a declining species that utilizes wooded swamps, edge habitats and fields similar to those found on the site. (Klein Supp. Pre-Filed Testimony, page 7.)

125. BNE did not conduct spring or summer nighttime call-back surveys to inventory nocturnal species, such as owls and nightjars. Several species of owls in Connecticut are state-listed and are known to occur in the vicinity of forested wetlands and large waterbodies such as the New Naugatuck Reservoir. (E. Davison Pre-Filed Testimony, page 5.)

126. BNE stated that it did not conduct such studies because the vast majority of pre-construction wind energy breeding bird surveys do not include nocturnal bird surveys and the impacts to nocturnally active resident birds have generally been low in the eastern United States. (BNE Responses to SPC's Second Set of Interrogatories, Answer 51.)

127. Michael Klein testified that many of the survey protocols in existence in fact include nocturnal surveys. He also testified that impacts to nocturnally active birds at wind turbine sites can only be characterized as generally low if both pre- and post-construction nocturnal surveys were conducted on the sites. (Klein Supp. Pre-Filed Testimony, page 7.)

128. BNE did not conduct multi-season surveys at the site or compare the 2010 data that WEST collected to other breeding bird survey sites with respect to species richness and diversity. (BNE Responses to SPC's Second Set of Interrogatories, Answer 53.)

129. Michael Klein testified that this omission calls WEST's conclusion that the results of its surveys were characteristic of deciduous forest and open grassland areas of central Connecticut. (Klein Supp. Pre-Filed Testimony, page 8.)

130. BNE did not conduct spring or fall migration studies. (E. Davison Pre-Filed Testimony, page 5.) WEST's breeding bird survey report states that two-thirds of bird fatalities documented during post-construction mortality monitoring were assumed to be migrants. (Petition, Ex. M, page 12.)

131. BNE stated that it did not conduct migration surveys because the site does not appear to be in an area that would concentrate migratory birds. It further stated that most waterfowl and waterbirds (also known as shore birds) migrating through Connecticut are concentrated along the shorelines. (BNE Responses to SPC's Second Set of Interrogatories, Answer 54.)

132. Michael Klein testified that migration of waterfowl and waterbirds is not the concern at this site, because the most potentially significant migratory groups at the site are raptors and passerines. (Klein Supp. Pre-Filed Testimony, page 9.)

133. BNE plans to conduct a spring migratory bird study on the site from March to April 2011. (BNE Response to DEP comments, pages 1, 6.) The results of that study will not be available to the Council before its statutory deadline for deciding this petition.

VI. Cultural Resources

134. At BNE's request, the State Historic Preservation Office issued a "no effect" letter for this project. (Petition, Ex. B.)

135. BNE states that the project is not anticipated to have any impact on scenic or recreational values in the area. However, BNE acknowledges that the project may be visible from a

"brief portion" of the Beacon Cap Trail, which is off the Naugatuck Trail. (Petition, page 21.)

136. In supplemental filings, a BNE witness testified that the project is likely to be visible from other "points of interest" up to 13 miles away, including Sleeping Giant State Park, Mt. Higby, West Rock Ridge State Park, York Mountain and Southington Mountain. (Libertine Supp. Pre-Filed Testimony, Ex. 3.)

VII. Noise

137. Noise is unwanted sound. (Petition, Ex. N, page 2; 3/15/11 Tr. 108:6; 177:14-15.)

138. Connecticut's public policy with respect to noise is contained in Section 22a-67(a)(1) of the General Statutes, in which the legislature found that "Excessive noise is a serious hazard to the health, welfare and quality of life of the citizens of the state of Connecticut . . ."

139. "[E]ach person has a right to an environment free from noise that may jeopardize his health, safety or welfare." Conn. Gen. Stat. § 22a-67(a)(5).

140. The policy of the state is to promote an environment free from noise that jeopardizes the health and welfare of the citizens of the state of Connecticut. Conn. Gen. Stat. § 22a-67(b).

141. People living near wind turbines may experience sleep disturbance and other health problems due to the noise associated with the turbines. (Bronzaft Pre-filed Testimony, pages 7-9; SPC Admin. Notice 14, Audiology Today (Jul.Aug 2010): "Wind Turbine Noise – What Audiologists Should Know," page 28; Ford Pre-filed Testimony, pages 2-3; Lindgren Pre-Filed Testimony; SPC Admin. Notice 29, "Wind Turbines, Noise and Health," by Dr. Amanda Harry (Feb. 2007), page 3.)

142. BNE's consultant, VHB, conducted a Noise Evaluation for Wind Prospect. VHB selected ten "receptor" locations in the vicinity of Wind Prospect. The methods used to predict project sound levels at the receptors are not worst case. (Petition, Ex. N, pages 8-10; 3/15/11 Tr. 155:14-20; Bahtiarian Pre-filed Testimony, pages 4-6.)

143. The residential building "receptors" were not located at property lines. VHB did not do calculations to property lines. (3/31/11 Tr. 126:13-23.)

144. Connecticut's noise regulations dictate that noise be measured at the property line, not at a dwelling. (R.C.S.A. § 22a-69-1 et seq.; Conn. Gen. Stat. § 22a-69(a)(2).)

145. The state noise regulations establish three types of land classifications. The three categories are Class A, generally residential; Class B, generally commercial; and Class C, generally industrial. (R.C.S.A. § 22a-69-1 et seq.)

146. BNE argues that the correct standard to apply here is Class C emitter to Class A receptor, based on the actual use of the project site. Those opposing the petition argue that the standard should be Class A emitter to Class A receptor, based on zoning.

147. The Town of Prospect has its own noise regulations. Those regulations, while generally consistent with the state noise regulations, expressly define permissible noise levels from emitters to receptors by zone. (Town of Prospect Ex. 5, Noise Ordinance, Section 2.)

148. The Town's regulations also expressly state that noise levels are to be measured at property boundaries. (Town of Prospect Ex. 5, Noise Ordinance, Section 6(a).)

149. BNE has not applied for a zoning change. The proposed project site is zoned residential. (Bulk Filing, Town of Prospect Zoning Map.)

150. The permissible noise levels under the Town's ordinance are therefore 55dBA in the day time hours and 45 dBA at night time hours. (Town of Prospect Ex. 5, Noise Ordinance, Section 6(b).)

151. Day time hours are defined as 7 a.m. to 8 p.m., Monday through Saturday and 9 a.m. through 7 p.m., Sunday. Night time hours are defined as 8 p.m. to 7 a.m., Monday through Friday, 8 p.m. to 9 a.m., Saturday and 7 p.m. to 8 a.m., Sunday. (Town of Prospect Ex. 5, Noise Ordinance, Section 2.)

152. The noise levels of the proposed project will not comply with the Town's noise ordinance. (Bahtiarian Pre-Filed Testimony, page 9 & Ex. 5.)

153. BNE's noise evaluation does not address prominent discrete tones (or pure tones) or infrasonic noise, which is likely to emit from a wind turbine. The lower frequency sounds can adversely affect the health of people exposed to wind turbines. (Petition, Ex. N; Bronzaft Pre-filed Testimony, page 15; Bahtiarian Pre-filed Testimony, page 4.)

154. BNE conducted noise measurements at the site for 5 to 15 minutes. BNE did not measure noise levels at Fusco Field during the day, Lacey Lane or Coachlight Circle during the night. (Bahtiarian Pre-filed Testimony, page 4.)

155. BNE did not measure noise on the C-weighted sound level (dBC). The World Health Organization has found that when the difference between dBC and dBA decibel values is greater than 20 dB, there will be annoying low frequency issues. (3/31/11 Tr. 124:16-24.)

156. BNE did not conduct an independent verification of GE's noise emission characteristics, which specify that the GE 1.6 MW turbine has a maximum sound level of 106 dBA. (3/31/11 Tr. 124:25-125:9.)

157. BNE chose not to update its noise study to account for BNE's "alternate" proposed location of the northern turbine. (3/31/11 Tr. 120:4-9.)

158. If this project is built and the noise levels violate the Town and state standards, the only effective measure for mitigating turbine noise to comply with the law is by turning off the turbines. (Bahtiarian Pre-Filed Testimony, page 9; 3/15/11 Tr. 130:3-131:4, 183:15-187:18.)

VIII. Air Quality

159. If constructed, the project will comply with air quality standards because it will have no air emissions. (Petition, pages 11, 33.)

IX. Water Quality

160. DEP water quality standards are contained in several publications, the most expansive of which are the 2004 Connecticut Stormwater Quality Manual and the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. (Council Admin Notice Item Nos. 9 ("2002 Guidelines"), 25 ("2004 Manual").)

161. The goals of these water quality standards are to provide guidance on methods and techniques for minimizing erosion and sedimentation, and to protect the waters of the State of Connecticut from the adverse effects of post-construction stormwater runoff, thereby preventing pollution to the waters of the State. (2004 Manual at 1-2; 2002 Guidelines at 1-1.)

162. If a project complies with the 2004 Connecticut Stormwater Quality Manual and the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, it is unlikely to have adverse effects on the waters of the State.

163. As referenced briefly above, BNE has revised its original site plans three times. BNE has also revised the accompanying stormwater management plan with stormwater pollution prevention plan (SMP) and erosion and sediment control plan (ECP) twice. (Petition, Exs. F-H; Letter from BNE dated Feb. 16, 2011; Cline Supp. Testimony dated Mar. 8, 2011; Cline Supp. Testimony dated Mar. 28, 2011.)

164. Two of the revisions include what BNE called an "alternative" proposed location for the northernmost turbine. (Cline Supp. Testimony dated Mar. 8, 2011; Cline Supp. Testimony dated Mar. 28, 2011; 3/15/11 Tr. 68:15-70:5.)

165. BNE stated that it proposed the alternative location based on concerns raised by parties to this proceeding. The alternative location is located approximately 160 feet northwest of the original location. (3/15/11 Tr. 64:21-65:1.)

166. BNE stated in its petition that its project, then including the original site plans, SMP and ECP, met DEP water quality standards. (Petition, page __.) Those original plans, submitted with its petition, were conceptual plans, which is defined as 15% construction

drawings. (3/31/11 Tr. 132:23-133:6 (Cline).) Mr. Cline testified that the original plans met water quality standards to the extent possible with 15% construction drawings. (Id.)

167. BNE then revised those plans in response to concerns of the CT Water Company. (Letter from BNE dated Feb. 16, 2011.) Mr. Cline testified that those revised plans met DEP water quality standards. (Cline Pre-Filed Testimony, pages 2-3.) He later qualified his testimony to note that the plans were conceptual in nature and therefore complied with water quality standards to the extent possible based on the information available at the time. (3/31/11 Tr. 135:2-8 (Cline).)

168. Mr. Carboni testified that neither the original plans nor the plans as first revised complied with the 2002 Guidelines or the 2004 Manual. (Carboni Pre-Filed Testimony, pages 1, 18; Carboni Supp. Testimony, page 2.)

169. Mr. Carboni's most significant concern regarding the original plans and the first revised plans concerned slope stabilization. BNE used 1:1 slopes extensively throughout the site in its original plans and the first revised plans. (Carboni Pre-Filed Testimony, page 3.) The 2002 Guidelines require slopes of 2:1 or shallower in the absence of geotechnical analysis that shows steeper slopes will be stable with engineered design features. (2002 Guidelines, 5-2-5.) BNE has not done any geotechnical analysis. (3/31/11 Tr. 140:3-140:5 (Cline).)

170. Mr. Carboni also expressed concern regarding structural fabrication, road section, temporary sediment basin, water quality swale, hydrology, outlet protection, water quality and stormwater quantity. (Carboni Pre-Filed Testimony, page 5.)

171. In the second set of revised plans, BNE proposed moving the northern turbine and also removed the 1:1 slopes from the projects, replacing them with 1.5:1 and 2:1 slopes. (Cline Supp. Testimony, page 2.) Mr. Cline testified that the second set of revised plans met DEP water quality standards. (Cline Supp. Testimony, pages 2-3.) He later qualified his testimony to state that the second set of revised plans complied with the water quality standards to the extent possible with the information then available. (3/31/11 Tr. 136:21-137:7 (Cline).)

172. Mr. Carboni testified that the second of revised plans, although an improvement, still failed to comply with the 2002 Guidelines or the 2004 Manual. (Carboni Second Supp. Testimony, page 2.) He also testified that many of his concerns about the first set of plans had not been alleviated. (Carboni Second Supp. Testimony, page 2.)

173. Mr. Carboni's most significant concern regarding the second revised plans remained slope stabilization, due to BNE's continued use of slopes steeper than 2:1 in the absence of geotechnical analysis and engineered design features. (Carboni Second Supp. Testimony, page 2.)

174. BNE then revised its second set of revised plans in response to additional concerns of the CT Water Company. (Cline Supp. Testimony, dated Mar. 28, 2011, page 1.) This third set of revised plans was submitted three days before the evidentiary hearing in this matter closed.

175. Changes made in the third set of revised plans included decreasing the width of the access road, decreasing the slope of the road between the turbines, rotating the traps and ponds to better match the existing topography and using temporary erosion control blankets on all fill slopes with 2: 1 slopes in place of riprap. (Cline Supp. Testimony, dated Mar. 28, 2011, pages 1-2.)

176. Mr. Cline testified that this third set of revised plans met DEP water quality standards. (3/31/11 Tr. 138:20-140:2 (Cline).) The third set of revised plans, submitted on March 28, 2011, is most protective of the waters of the State. (3/31/11 Tr. 151:6-10 (Cline).)

177. BNE has not done a geotechnical investigation of the site, collected test pit or infiltration data or determined the depth of the season-high groundwater on the site. (3/31/11 Tr. 140:3-140:14 (Cline).)

178. BNE has not yet determined if off-site grading will be required. (3/31/11 Tr. 146:5-147:3 (Cline).)

X. Public Health and Safety Issues

A. Ice Throw

179. Ice can be and has been thrown from wind turbines. Ice throw is a safety issue with wind turbine projects. (3/3/11 Tr. 146:6-8 (Heraud).)

180. Any ice thrown from a wind turbine is dangerous. (2/24/11 Tr. 66:13-18; 3/3/11 Tr. 146:9-11 (Heraud).)

181. Connecticut has weather conditions that will result in ice buildup on the proposed wind turbines if they are built. (3/3/11 Tr. 146:12-15 (Heraud).) Glaze ice is generally considered the most dangerous type of ice because it has the highest density. (2/24/11 Tr. 66:4-12.)

182. With appropriate setbacks and mitigation measures, the risk of injury to people and property due to ice throw can be reduced to zero. (3/3/11 Tr. 146:16-18.)

183. BNE submitted an ice throw report using the 100-meter blade diameter and the original proposed turbine locations. (Heraud PFT, Ex. 2) That report calculated the probability that ice would drop or throw and hit a one square meter "receptor." (2/24/11 Tr. 70:4-7.)

184. Dr. Heraud, BNE's witness, determined the probability of ice throw and ice drop based on a two-step process. The first step involved a MonteCarlo analysis, in which inputs, or assumptions, regarding the size and shape of the possible ice throw were used. Dr. Heraud compared the MonteCarlo analysis to rolling a dice to determine the probability of where ice will land. (3/3/11 Tr. 168:5-13.)

185. The MonteCarlo analysis assumed that ice would throw or drop in 1 and 2 kilogram chunks. (3/3/11 Tr. 168:13-169:6.) The analysis also assumes no lift. (3/3/11 Tr. 169:14-24.)

186. Using an analysis that included blade-shaped ice fragments and included lift would result in a calculation of a greater distance for ice throw. (3/3/11 Tr. 169:7-170:21.)

187. In the second step of Dr. Heraud's analysis, he looked at climate data obtained from the met tower data from one winter season at the site. Based on that data, he assumed a total of 8 icing days per year at the site. (2/24/11 Tr. 66:18-67:19; 173:23-174:5.)

188. Dr. Heraud typically looks at historical weather data to conduct ice throw analyses. He did not do so here. There are nearby locations from which historic climate data, including assessment of icing days, could be reviewed. (2/24/11 Tr. 37:20-68:16; 174:8-174:24.)

189. Dr. Heraud has done ice throw assessments elsewhere in New England, including an assessment related to the Kingdom Community Wind Power Project in Vermont. In that assessment, Dr. Heraud used 25 icing days in his analysis, based on years of historical data. (3/3/11 Tr. 174:25-17.)

190. Using a larger number of icing days in the analysis would increase the probability of the risk of ice throw injury. (3/3/11 Tr. 176:21-177:3.)

191. The maximum distance the ice could drop is 69 meters, or approximately 226 feet. (Heraud Pre-Filed Testimony, Ex. 2, page 16.) There are no residences or property lines located within that distance from the turbine.

192. The "typical range" for ice throw is 155 meters, or about 508 feet. (Heraud Pre-Filed Testimony, Ex. 2, page 16.) Ice in the "typical range" for ice throw could therefore cross the boundaries of the project site if thrown from either proposed turbine. (BNE Response to Save Prospect First Set of Interrogatories, Answer 13.)

193. The ice throw assessment determined that the maximum distance ice could be thrown from the turbines is 275 meters, or approximately 908 feet. Ice in the maximum range for ice throw could therefore cross the boundaries of the project site if thrown from either proposed turbine. In this scenario, ice could also cross residential property lines and potentially strike at least two residences. (BNE Response to Save Prospect First Set of Interrogatories, Answer 13; Heraud Pre-Filed Testimony, Ex. 2, pages 12-13; 2/24/11 Tr. 68:17-70:16.)

B. Blade Throw

194. Blades can be thrown and have been thrown from wind turbines. (3/3/11 Tr. 172:18-21.)

195. BNE did not submit a blade throw analysis. (3/3/11 Tr. 172:12-17.) Nor did it respond to the Council's interrogatory asking for the approximate distance that parts of the blades could be thrown from a turbine. (BNE Response to Council's Interrogatories, Set One, Answer 26.)

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CERTIFICATION

I hereby certify that a copy of the foregoing document was delivered by first-class mail and e-mail to the following service list on the 2nd day of May, 2011:

Carrie L. Larson
Paul Corey
Jeffrey J. Tinley
Hon. Robert J. Chatfield
Thomas J. Donohue, Jr.
Eric Bibler

and sent via e-mail only to:

John R. Morissette
Christopher R. Bernard
Joaquina Borges King

Emily A. Gianquinto