

### **Petition of BNE Energy Inc.**

for a Declaratory Ruling for the Location, Construction and Operation

of a 4.8 MW Wind Renewable Generating Project on Flagg Hill Road in Colebrook, Connecticut ("Wind Colebrook South")

**December 6, 2010** 

# TABLE OF CONTENTS

I.	INTRODUCTION				
	A. B. C.	Purpose and Statutory Authority	2		
	C.	1. Site			
		2. Electrical Interconnection			
		3. Community Relations			
		4. Development Strategy and Schedule	5		
II.		AL NAME AND ADDRESS OF PETITIONER AND CONTACT DRMATION			
III.	DES	CRIPTION OF PROPOSED PROJECT	7		
	A.	Property Description			
	В.	Project Description			
		1. The Turbines			
		2. Access Road	8		
		3. Ground Equipment	8		
		4. Interconnection	9		
	C.	Service Life and Capacity Factor	9		
	D.	Control Systems	10		
IV.	PRO	JECT BENEFITS	10		
V.	REL	IABILITY AND SAFETY INFORMATION	12		
VI.	SITE	IDENTIFICATION AND EVALUATION PROCESS	13		
VII.	POT	ENTIAL ENVIRONMENTAL EFFECTS	14		
	A.	Public Health and Safety	14		
	B.	Local and State Land Use, Conservation and Development Plans			
		1. The State Conservation and Development Policies Plan			
		2. Local Regulations and Plan of Conservation and Development			
	C.	Existing and Future Development	19		
	D.	Adjacent Land Use			
	E.	Visual Resources Evaluation			
	F.	Scenic, Historic and Recreational Values			
	G.	Ecological, Vegetation, Wildlife Habitat and Natural Diversity Database			
	Н.	Bat and Bird Studies			
	I.	Noise			
	J.	Wetlands			
	K.	Storm Water Management	30		

VIII.	PROJ	ECT SCHEDULE	31
137	COLU		21
IX.		ERNMENT APPROVALS	
		Storm Water Permit	
X.	COM	MUNITY RELATIONS	33
XI.	PETIT	ΓΙΟΝ FILING FEE	33
XII.	BULK	K FILING OF MUNICIPAL DOCUMENTS	34
XIII.	CONO	CLUSION	34

# LIST OF FIGURES

Figure 1.	Site Location Map	Page 4
Figure 2.	Weekly Bat Activity	Page 24
Figure 3.	Summary of Overall Bird Use	Page 26
Figure 4.	Wetland Resources Map	Page 28

# LIST OF VOLUMES AND EXHIBITS

# **VOLUME 1: (Petition and Exhibits A-E):**

G.E. 1.6 MW Factsheet
State Historic Preservation Office Correspondence
FAA Preliminary Determination
Abutters Certification
Certification of Service Exhibit E
<b>VOLUME 2 (Site Engineering Information):</b>
Site Plans Exhibit F
Storm Water Management Plan Exhibit G
Soil Erosion and Sedimentation Control Plan
<b>VOLUME 3 (Environmental Assessment Information):</b>
Terrestrial Habitat and Wetland Impact Analysis Exhibit I
Visual Resource Evaluation Exhibit J
Interim Bat Acoustical Study Exhibit K
Breeding Bird Study Exhibit L
Noise Study Exhibit M

#### I. INTRODUCTION

#### A. Purpose and Statutory Authority

Pursuant to Section 16-50k(a) and Section 4-176(a) of the Connecticut General Statutes ("CGS") and Section 16-50j-38 *et seq.* of the Regulations of Connecticut State Agencies ("RCSA"), BNE Energy Inc. ("BNE") requests that the Connecticut Siting Council ("Siting Council") issue a declaratory ruling for BNE's proposed location, construction, operation and maintenance of three GE Energy ("GE") 1.6-megawatt ("MW") wind turbines, and associated ground equipment, an access road, an ancillary building and a 23-kiloVolt ("kV") electrical interconnection (together, the "Project" or "Wind Colebrook South") at 29 Flagg Hill Road and 17 Flagg Hill Road in Colebrook, Connecticut (together, the "Property"). <sup>1</sup>

### CGS § 16-50k(a) provides:

Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling . . . (B) the construction or location of any . . . grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Environmental Protection . . .

Pursuant to CGS § 16-50k(a), the Siting Council should approve the Project by declaratory ruling since 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"). Further, CGS § 16a-35k establishes the State's energy policies, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum extent possible." As demonstrated from the extensive information included in this petition, Wind Colebrook South will result in no air emissions, have minimal impacts that comply with

<sup>&</sup>lt;sup>1</sup> BNE is simultaneously filing a petition for declaratory ruling for another project located at Winsted-Norfolk Road (Route 44) at the intersection with Rock Hall Road in Colebrook known as "Wind Colebrook North." Wind Colebrook North is less than one half mile to the north of the Wind Colebrook South Property.

DEP's water quality standards and will further the State's energy policy by developing renewable energy resources. Additionally, the Project will not have a substantial adverse environmental effect.

#### **B.** Project Overview

BNE is based in West Hartford and was founded in 2006 for the purpose of constructing and operating commercial wind generation projects in Connecticut, New England and beyond. Wind Colebrook South is an exciting, state-of-the-art wind generation project located in the northwest portion of the state. The Project is located on approximately 79.44 acres of undeveloped land, portions of which are over one thousand four hundred seventy (1,470) feet above sea level.

The Property is ideally situated for a wind generation project due to its elevation, orientation and topographical characteristics. The Property sits high on a ridge adjacent to conservation land (owned by the Nature Conservancy) and a gun club known as the Northwestern Connecticut Sportsmen Association, Inc. (the "Gun Club"). The Property is unobstructed and overlooks a valley corridor approximately eight hundred feet below to the west and more than one thousand feet below to the east. As the wind travels through the valley corridor and is forced up to the ridge, the wind accelerates as it merges with higher altitude winds where the turbines will be located at more than one thousand eight hundred (1,800) feet above sea level. The wind acceleration increases wind shear and wind power density, which in turn will improve the turbine performance of Wind Colebrook South.

Renewable energy offers societal benefits which are increasingly recognized with each news story relating to the United States' continued dependence on foreign oil and the environmental impacts associated with fossil fuels. Local renewable energy projects reduce dependence on foreign fuel sources, reduce or eliminate emissions of pollutants and greenhouse

gases and reduce the environmental harm that can result from the extraction and use of fossil fuels.

The State of Connecticut has recognized the benefits of local renewable energy development and implemented renewable portfolio standards ("RPS") to encourage the development of renewable energy resources not only to lessen the country's dependence on foreign oil but also to reduce the environmental impacts associated with fossil fuel sources. The RPS require that 14 percent of electric generation in the State is produced via renewable sources for 2010. By 2020, the State RPS requirements will increase to 27 percent, a minimum of 20 percent of which must derive from Class I renewable energy sources, including wind. Further, many of the State's cities and towns have pledged to obtain 20 percent of their electricity from renewable sources by 2020.

Wind Colebrook South will play an important role in the State's renewable energy goals and provide numerous benefits to the Town of Colebrook. The value of the Project to the Colebrook community is significant and will be long lasting. The Project will provide a significant source of clean, renewable energy produced locally. The Project will provide over two times the annual electric power needs of the Town's residential electric users on average over the course of a year. Wind Colebrook South will produce 100 percent clean, renewable electricity with zero emissions and no water consumption and will result in significant environmental benefits. The power is domestic to Connecticut and located in Litchfield County, in and around some of the most constrained capacity areas in New England. Further, the Project reduces the demand on interstate transmission lines and will act as a symbol of Connecticut's commitment to generating clean reliable energy. Wind Colebrook South offers significant

economic, environmental and societal benefits to the citizens of the Town of Colebrook and the State of Connecticut.

### C. Key Project Elements

The Project consists of the construction and installation of three GE 1.6 MW wind turbines on the Property and electrical interconnection of the same.

### 1. Site

The Property is located at 29 Flagg Hill Road and 17 Flagg Hill Road and consists of 79.44 acres in total. The Property is located along the Norfolk town line and approximately 600 feet from the Winsted/Winchester town line.

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Figure 1. Site Location Map

### 2. Electrical Interconnection

The Project is proposed to be interconnected to the Connecticut Light and Power Company ("CL&P") at an existing 23 kV distribution feeder on the existing distribution system

on Winsted-Norfolk Road (Route 44) in accordance with CL&P technical standards and State of Connecticut, ISO-New England ("ISO-NE"), and the Federal Energy Regulatory Commission ("FERC") requirements. The interconnection will be made pursuant to CL&P and United Illuminating Company ("UI") Guidelines for Generator Interconnection and will include Company Scoping, an Application Request, Application Review, a Feasibility Study, a System Impact Study, a Transmission Study, an Interconnection Agreement, Interconnection Authorization, Installation, Commissioning Test(s), and final approval to energize.

### 3. Community Relations

BNE has developed a good relationship with the Colebrook community by pursuing a multi-faceted communications approach, including:

- Obtaining local approval for the installation of a meteorological ("Met") tower at the
   Property on November 24, 2008;
- Regular discussions with local officials;
- An informational filing submitted to the Town of Colebrook on October 8, 2010 (see copy of informational filing included in the bulk filing);
- A legally noticed, public informational meeting held in Colebrook on November 10,
   2010, which numerous members of the public attended; and
- Public access to information on the internet at: http://www.bneenergy.com.

### 4. Development Strategy and Schedule

BNE is committed to establishing and solidifying the strength and viability of the Project.

BNE has (1) met with the Siting Council; (2) consulted with representatives of the Department of

Environmental Protection ("DEP") and filed Project information concerning the Natural

Diversity Database ("NDDB"); (3) filed information with the Federal Aviation Administration

("FAA"); (4) filed Project information with the State Historic Preservation Office ("SHPO"); (5)

completed a pre-petition consultation with the Town of Colebrook including a public

informational session held on November 10, 2010 in the Town of Colebrook; and (6) contracted

with qualified environmental, engineering and construction firms to ensure timely and accurate

completion of the Project.

BNE anticipates receipt of permits by May, 2011 and commencement of construction

shortly thereafter with commercial operation anticipated in late 2011.

II. LEGAL NAME AND ADDRESS OF PETITIONER AND CONTACT

**INFORMATION** 

The legal name of the petitioner is BNE Energy Inc. BNE is a Delaware corporation with

a principal place of business in West Hartford, Connecticut.

**Mailing address:** BNE Energy Inc.

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West Hartford, CT 06107

**Internet address:** http://bneenergy.com/

Correspondence and other communications concerning the Project are to be addressed to,

and notices, orders and other papers may be served upon the following:

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6

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III. DESCRIPTION OF PROPOSED PROJECT

> A. **Property Description**

The Property is located at 29 Flagg Hill Road and 17 Flagg Hill Road, assessor's map 1,

lots 6 and 6-1, which together consist of 79.44 acres. The Property is located along the Norfolk

town line and approximately 600 feet from the Winsted/Winchester town line. The Property is

located in the R-2 residential zone. Currently, the Property is undeveloped with the exception of

the meteorological tower, which is approximately 197 feet in height and a residence located on

the 17 Flagg Hill Road parcel. The Property is abutted by the undeveloped land owned by the

Nature Conservancy to the west, land owned by the Gun Club to the north and residential

properties to the east and south.

В. **Project Description** 

The Project consists of the installation of three GE 1.6 MW wind turbines and associated

ground equipment, an ancillary building (which will provide storage, office space and an

educational area), upgrading and installation of an access road and an electrical interconnection.

A copy of the site development plans are included as Exhibit F.

1. The Turbines

The Project consists of three GE 1.6 MW wind turbines. Each turbine consists of a hub

(tower), nacelle and rotor. The turbine hub is 100 meters (approximately 328 feet) in height. All

of the equipment used to operate the turbines is contained within the nacelle, including the

gearbox, a magnet generator and an automatic lubrication system. The rotor blades are 40.3

7

meters in length, have an 82.5 meter diameter and consist of three blades. However, BNE is requesting approval for rotor blades up to 50 meters in length and 100 meters in diameter.<sup>2</sup> A copy of the GE 1.6MW turbine factsheet is attached hereto as Exhibit A.

### 2. Access Road

The Property will be accessed off of Flagg Hill Road. As depicted in Exhibit B, BNE will construct a new driveway over the 17 Flagg Hill Road parcel it has acquired to facilitate access during construction and operation of Wind Colebrook South.

### 3. Ground Equipment

An electrical collector yard will be constructed on the Property. At the point of common coupling with CL&P, BNE will provide a utility class circuit breaker or recloser equipped with a multifunctional relay to serve as the Interconnection Interruption Device. Revenue metering will be provided on the utility side of the breaker. A gang operated disconnect switch will be provided on the utility side of the metering. Additional equipment to monitor circuit voltage and to disconnect the facility from the grid will also be installed as needed on existing grid circuits to protect the system during system outage.

An ancillary building will be constructed on the Property to provide storage, office space for operations and maintenance personnel and an area for education and tours by appointment for schools, organizations or members of the public (*see* Exhibit F). The ancillary building will contain restroom facilities and will require an on-site well to meet sanitary and drinking needs. BNE will dispose of wastewater to an on-site septic system designed in accordance with applicable standards to accommodate wastewater loading rates and soil conditions. As a result,

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<sup>&</sup>lt;sup>2</sup> While BNE is committed to using GE turbines, BNE has not signed a contract to purchase these specific turbines. GE has approved the proposed Project layout and has been kept apprised of the regulatory approval process of Wind Colebrook South. Due to ever-evolving technological advances, a longer blade length of up to 50 meters may be employed. Therefore, the visual resources evaluation utilizes a 50 meter blade length to account for potential technological upgrades.

BNE submits that its proposed minimal water consumption and disposal will not have a substantial adverse effect on groundwater resources. This construction is necessary for the ongoing operations and maintenance of the Project, and will also provide additional community benefits.

#### 4. Interconnection

Interconnection will be made to CL&P's 23-kV distribution system at Winsted-Norfolk Road (Route 44) in accordance with all applicable CL&P technical standards and State of Connecticut, ISO-NE and FERC requirements. The interconnection will be made pursuant to CL&P's and UI's Guidelines for Generator Interconnection. BNE is fully engaged in the generator interconnection process and has successfully completed a Scoping Meeting, an Application Request, and an Application Review and is now completing a Feasibility Study with CL&P. The Feasibility Study includes Circuit Modeling, Power Flow Analysis, Voltage Impact Study, Thermal Impact Study, Short Circuit Study, Review of Distribution Equipment Interrupting Ratings, Protection Coordination Review, Assessment of Transfer Trip Requirements and Review of Protection Schemes. Upon completion of the Feasibility Study, BNE will engage in the System Impact Study and the Transmission Study as final steps for an Interconnection Agreement, Interconnection Authorization, Installation, Commissioning Test(s) and final approval to energize.

### C. Service Life and Capacity Factor

To optimize turbine reliability and availability, BNE has selected technology with availability that exceeds 98 percent, a 20+ year service life, rapid Return-to-Service (RTS) and an expected annual capacity factor of approximately 30 percent.

### **D.** Control Systems

The proposed 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. Control signals can also be sent from a remote computer via a Supervisory Control and Data Acquisition (SCADA) System with local lockout capacity provided at the turbine controller.

Service switches at the tower top prevent service personnel at the bottom of the tower from operating certain systems of the turbine while service personnel are in the nacelle. To override any machine operation, emergency stop buttons located in the tower base and in the nacelle can be activated to stop the turbine in the event of an emergency.

The rotor utilizes independent electric pitch motors for each blade to provide adjustment of the blade pitch angle during operation. The pitch controller enables the turbine rotor to brake and regulate speed by allowing the blade to spill excess aerodynamic lift when needed. The turbine is also equipped with a mechanical brake located at the output shaft of the generator. This brake is only applied as an auxiliary brake to the main aerodynamic brake and to prevent rotation during certain service activities.

Planetary yaw drives are provided to steer the turbine. A controller activates the yaw drives to align the nacelle to the average wind direction based on a wind vane sensor mounted on the nacelle. Automatic yaw brakes engage to prevent overloading from turbulent wind.

### IV. PROJECT BENEFITS

The Project will provide substantial benefits to the State of Connecticut and the Town of Colebrook, including:

 Generation of 100 percent renewable energy – New England has an abundant, inexhaustible amount of wind created naturally in the atmosphere, and the Project is sited in an area of the State ideally situated to capitalize on natural wind power;

- Energy generation without any air emissions;
- Energy generation without any water consumption or pollution;
- A reliable source of energy that diversifies the State's generation portfolio mix and contributes Class I renewable energy to meet the State's RPS standards;
- Numerous economic benefits to the Town and the area, including significant tax revenue to the Town of Colebrook;<sup>3</sup>
- Creation of jobs; and
- Significant environmental benefits with minimal impact to the land.

Based on the output from three 1.6 MW GE turbines at a capacity factor of 30 percent, approximately 12,614 MWh of Class I renewable energy will be generated annually. To put this into perspective, the Project will provide over two times the annual electric needs of the Town's residential electric users on average over the course of a year. The Project would provide the following reduction of air pollutants when compared to conventional fossil fueled generation:

- 3,532 (lbs/yr) total nitrogen oxides reduction
- 7,190 (lbs/yr) total sulfur oxides reduction
- 6,332 (tons/yr) total carbon dioxide (greenhouse gas)

The electricity generated by the wind turbines will provide power without carbon emissions equivalent to the following:

- 1,731 cars taken off the road
- 21,069 barrels of oil not combusted for electric generation
- 232,299 tree seedlings grown for 10 years

<sup>&</sup>lt;sup>3</sup> While economic issues are not relevant to the Siting Council's jurisdiction and decision-making criteria, economic benefits associated with the Project are included for illustrative purposes.

### • 1,932 acres of pine or fir forest

In summary, Wind Colebrook South is an exciting state-of-the-art project that offers significant economic, environmental and societal benefits to the citizens of the Town of Colebrook and the State of Connecticut. Wind Colebrook South will exclusively generate 100 percent clean, green, renewable wind energy adding much needed wind-generated electricity to Connecticut's fuel mix and increased access to renewable electricity in the region.

#### V. RELIABILITY AND SAFETY INFORMATION

Wind turbines are extremely reliable and safe with an availability often exceeding 98 percent. 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. However, through careful selection of the Property and generation technology, the capacity factor of the Project is expected to be approximately 30 percent. The technology selected is manufactured by GE and has been tried and proven as one of the most reliable systems used worldwide with an expected availability of 98 percent. GE wind turbine technology features robust designs for long-lasting and reliable performance, variable speed control, independent blade pitch for reduced loads and cost-effective operation. GE is one of the world's leading wind turbine suppliers with more than 13,500 GE wind turbine installations operating worldwide to provide clean renewable energy. The proposed unit is one of the world's most widely-used wind turbines in its class with operation in 19 countries, 170+ million operating hours and 100,000+ gigawatt-hours (GWh) produced.

GE's design includes a reinforced tower design to enable reliable and safe operation that meets product and regulatory compliance expectations. Operational maximum extreme gust for a three second period is 56 m/s (over 125 mph) and for ten minutes is 40 m/s (over 89 mph) according to International Electrotechnical Commission (IEC) standards. GE's reinforced tower

sections have the same length and external diameter as the standard GE North American modular system and are specially built to handle seismic loads.

BNE will complete the Project with electrical engineering under review by CL&P and facility construction under review by GE. With the proposed technology, the expected capacity factor, construction by proven professionals, interconnection developed with utility grade equipment consistent with utility standards and utility oversight and with the wind resources on the Property, it is fully expected that the Project will be reliable and safe.

#### VI. SITE IDENTIFICATION AND EVALUATION PROCESS

As a developer of wind energy, BNE is familiar with the wind resources in the State of Connecticut. The Town of Colebrook is located at a high elevation in Litchfield County and has potential wind resources to provide sufficient fuel for electrical generation. Once BNE identified the Town of Colebrook as potentially having the necessary wind resources, BNE focused its search for available property with sufficient acreage to support several turbines. In addition, BNE focused its search on property in favorable locations to interconnect with the electrical grid and in areas with relatively low residential populations nearby. BNE identified the Property as being very high in elevation and abutting vast amounts of undeveloped land, thus minimizing potential residential impact. BNE owns the Property.<sup>4</sup>

On or about November 24, 2008, BNE obtained a zoning permit from the Town of Colebrook to install a temporary Met tower on the Property to collect wind data. The Met tower was installed in December 2008 and has been collecting wind data since installation. That data has established that the Property is an ideal location for the placement of wind turbines due to wind speed, direction, shear and density.

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<sup>&</sup>lt;sup>4</sup> BNE's principals, Paul J. Corey and Gregory J. Zupkus co-own both 29 Flagg Hill Road and 17 Flagg Hill Road with BNE

#### VII. POTENTIAL ENVIRONMENTAL EFFECTS

BNE and its consultants conducted a comprehensive environmental assessment of the Project. The Project has been designed to minimize environmental impacts. BNE worked carefully through numerous iterations of potential turbine locations and spacing to balance capturing optimum wind conditions while avoiding/minimizing effects to the existing environment and habitat. In fact, the Project will have minimal adverse environmental impacts including impacts on scenic, historic or recreational values, as mandated by C.G.S. § 16-50g and as discussed in more detail below.

### A. Public Health and Safety

The Project represents a clean and safe method of electricity generation in a manner consistent with state and federal policy to protect public health and safety. In terms of public health, the Project will generate electricity in a cleaner and more environmentally acceptable manner compared to conventional generation such as nuclear, natural gas, coal, or oil as fuel.

In terms of safety, the Project will meet all applicable safety requirements for construction, operation and electrical interconnection. As discussed above, the technology selected is manufactured by GE, one of the world's leading wind turbine suppliers, with over 13,500 GE wind turbine installations operating safely worldwide providing clean, renewable energy. Variable speed control and independent blade pitch will be used for aerodynamic braking to reduce blade speed during high winds. The reinforced tower design will enable reliable and safe operation that meets product and regulatory compliance expectations up to operational maximum extreme gusts for a three second period of 56 m/s (over 125 mph) and for ten minutes of 40 m/s (over 89 mph) according to IEC standards. The wind turbine machine 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. Control signals can also be sent from a remote

computer via a SCADA. 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. Service switches at the tower top prevent service personnel at the bottom of the tower from operating certain systems of the turbine while service personnel are in the nacelle. To override any machine operation, emergency stop buttons located in the tower base and in the nacelle can be activated to stop the turbine in the event of an emergency. The rotor blades are also equipped with lightning receptors mounted in the blade and the turbines are grounded and shielded to protect against lightning. The turbines are also specially built to handle seismic loads.

Furthermore, the Project will not burn fuel such as natural gas, coal or oil for operation. Consequently there will not be any need to consider release and ignition of combustible fuels at pipelines, compressors or storage facilities. The absence of combustible fuels for facility operation completely eliminates the risk of environmental damage due to fuel spillage or explosion due to inadvertent ignition of natural gas or other fossil fuels.

Overall, the Project will meet or exceed all health and safety requirements applicable for electric power generation.

### B. Local and State Land Use, Conservation and Development Plans

The Project will be consistent with the State Conservation and Development Policies Plan as well as the Town of Colebrook's local regulations and plan of conservation and development.

### 1. The State Conservation and Development Policies Plan

The State Conservation and Development Policies Plan was adopted in 2005 and will stay in effect until 2013 due to recent legislative changes (the "Plan").<sup>5</sup> The Plan highlights six

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<sup>&</sup>lt;sup>5</sup> Available at www.ct.gov/opm/cwp.

major growth management principles including "concentrating development around transportation nodes" and "conserve and restore the natural environment, cultural and historic resources and traditional rural lands." See Plan at 41, 55. The location of the Project on the transportation corridor of Route 44, along with its proposed generation of 4.8 MW of 100 percent renewable energy is consistent with these overriding growth management principles. Further, in reference to the need to redevelop and revitalize regional centers, the Plan notes that "[t]he State of Connecticut imports most of its current energy supply, including oil, coal, natural gas and uranium. In addition, the state continues to be particularly dependent on oil, which is generally imported from foreign countries" and then goes on to delineate the ability to "[s]ecure a sustainable supply of energy at the best possible cost and promote its efficient use" as a policy to further the interests of the citizens of the State. The Plan also advocates a policy to reduce the risk of global climate change by reducing the statewide carbon dioxide emissions to 1990 levels by 2010 and to 10 percent below 1990 levels by 2020 and lists the development and use of renewable energy projects such as solar, hydroelectric, wood and wind as means to accomplish this goal. The development of Wind Colebrook South will be consistent with these goals and will assist in the State achieving the reduction in carbon dioxide emissions delineated in the Plan.

Further, the locational guide map that accompanies the Plan indicates that the area of Colebrook in which the Property is located is either a "conservation area," a "preservation area" or "rural lands." *Id.* at Locational Guide Map for Colebrook. The Plan identifies the goals associated with "conservation areas" as "plan for the long-term management of lands that contribute to the state's need for food, fiber, water and other resources and environmental quality by ensuring that any changes in use are compatible with the identified conservation value." *See* Plan at 6. The Plan identifies the goals associated with "preservation areas" as "[p]rotect

significant resource, heritage, recreation and hazard-prone areas by avoiding structural development, except as directly consistent with the preservation value." *Id.* Goals associated with "rural areas" are listed as "[p]rotect the rural character of these areas by avoiding development forms and intensities that exceed on-site carrying capacity for water supply and sewage disposal" and "[e]ncourage development in Rural Lands of a form, density, and location compatible with the carrying capacity of the natural environment, and which avoids the need for large scale and costly urban infrastructure for water supply, waste disposal, and transportation." *See* Plan at 6, 76.

BNE believes that the development of Wind Colebrook South on the Property – as opposed to the development of multiple residences that could be approved on the Property – is consistent with the goals associated with both preservation areas and conservation areas.

### 2. Local Regulations and Plan of Conservation and Development

While the Project is not required to obtain local zoning approval(s), Wind Colebrook South will be consistent with all applicable local regulations including the Town of Colebrook's zoning regulations, wetlands regulations and plan of conservation and development.

The Town of Colebrook's zoning regulations were amended on May 28, 2008 (the "Regulations"). A copy of the Regulations is included in the bulk filing filed herewith. The Property is zoned R-2, which requires the minimum lot area of two acres to develop single family residences. Sections 3.3 and 3.5 of the Regulations delineate the special exception uses and the permitted uses, respectively, in zone R-2. Of note, wind turbines – along with electric generating facilities of any kind – are not discussed in the Regulations and not included as a permitted use in this or any zone in the Town. Section 4.5 requires a 50 foot front setback, a 30 foot side setback and a rear setback of 50 feet. In addition, Section 4.5 permits a maximum lot

area coverage of 10 percent. As can be seen from the plans attached as Exhibit F, Wind Colebrook South will comply with all of these setback and coverage requirements.

Colebrook's inland wetlands and watercourses regulations were last amended in May 2008 (the "Wetlands Regulations"). A copy of the Wetlands Regulations is included in the bulk filing filed herewith. The Wetlands Regulations define "Regulated Activity" as "any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution of such wetlands or watercourses. . . ." Additionally, any clearing, grubbing, filling, grading, paving, excavating, constructing, depositing or removal of material or discharge of storm water on the land within 100 feet measured horizontally from the boundary or any wetland or watercourse is a regulated activity. As discussed in the Terrestrial Habitat Habitat and Wetlands Impact Analysis Report attached hereto as Exhibit I, construction of the Project will result in permanently impact 4,702 square feet of wetlands and an additional 213 square feet of temporary wetlands impact.

Finally, the Town's 2004 plan of conservation and development became effective on September 4, 2005 (the "Town Plan"). A Copy of the Town Plan is included in the bulk filing filed herewith. The Town Plan recognizes the rural character of Colebrook and notes that a large percentage of the land in Colebrook is under permanent protection as state forest or otherwise protected from development. The Town Plan also emphasizes the importance of controlled growth and protecting environmental resources including forest land and habitat. BNE notes that its development of the Property will result in minimal forest conversion and will maintain the majority of the Property as undisturbed habitat for existing wildlife in keeping with the goals of the Town Plan. In addition, the Town Plan notes the importance of reducing the dependence on residential tax revenues and encouraging activities that bring in tax revenue while not requiring

municipal services. With the development of Wind Colebrook South and Wind Colebrook North, BNE will become the largest tax payer in the Town of Colebrook while requiring virtually no municipal services. BNE believes that its development of Wind Colebrook South at the Property – as opposed to multiple residences that could otherwise be developed – is consistent with the Town Plan.

### C. Existing and Future Development

BNE has consulted with the Town of Colebrook and the Project will not interfere with any existing or future development plans known in the area.

### D. Adjacent Land Use

The Nature Conservancy owns wooded, undeveloped land adjacent to the Property on the west. The Gun Club land is located to the north of the property. Flagg Hill Road abuts the Property to the east. A private residence and additional undeveloped woodlands bound the Property to the south. Land use within the vicinity of the Property is comprised of sparse residential development.

#### E. Visual Resources Evaluation

BNE retained Vanasse Hangen Brustlin, Inc. ("VHB") to conduct several environmental impact analyses including the visual resources evaluation. VHB has developed a predictive computer model to provide a preliminary assessment of potential visibility of the wind turbine facilities during "leaf-on" conditions throughout a 5-mile Study Area. Using ArcGIS Spatial Analyst, a computer modeling tool developed by the Environmental Systems Research Institute, VHB can calculate the areas from which the tops of the turbines (including both the hub height and blade tip height at its zenith) are expected to be visible. This is based on information entered into the computer model, including the hub and blade heights, each facility's ground elevation, the surrounding topography and existing vegetation. Data incorporated into the predictive model

includes a digital elevation model (DEM) and a digital forest layer for the Study Area. The DEM was derived from the Connecticut LiDAR-based digital elevation data. The LiDAR data was produced by the University of Connecticut Center for Land Use Education and Research (CLEAR) in 2007 and has a horizontal resolution of 10 feet. In order to create the forest layer, digital aerial photographs of the Study Area are incorporated into the computer model. The mature trees and woodland areas depicted on the aerial photos are manually traced in ArcGIS and then converted into a geographic data layer. The aerial photographs were produced in 2006 and have a pixel resolution of one foot.

Once the data layers are entered, a series of constraints are applied to the computer model to achieve an estimate of where the facilities will be visible. A conservative average tree canopy height of 65 feet was overlaid on the DEM and the visibility calculated. As a final step, the forested areas are extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that at least portions of the Project will be visible at some locations within this range. Also included on the map is a data layer, obtained from the State of Connecticut Department of Environmental Protection ("DEP"), which depicts various land and water resources such as parks and forests, recreational facilities, dedicated open space and other categories.

The results of the analysis are attached hereto as Exhibit J. These results indicate that a total of 208 acres within the Study Area would have some visibility of the turbine hub above the tree canopy during leaf-on conditions. This represents less than one-half of one percent of the 52,560-acre Study Area. At its apex, the blade(s) may be visible from within approximately 428 acres (less than one percent of the Study Area). The majority of potential views would occur on

the Property itself and its immediate environs, including portions of the adjacent road, the Gun Club and Nature Conservancy properties, as well as select locations along Route 44 and higher elevations to the north and Lake Winchester and higher elevations to the south. Views would be limited to the west beyond the adjacent Nature Conservancy woodlands significant ridgelines. Similar conditions exist to the east. In addition, the analysis indicates that approximately 115 residential properties may have at least partial views of the turbine hub during leaf-on conditions and an additional 9 residential properties may have at least partial views of the turbine blade at its apex. The analysis indicated that a total of 1,188 acres (approximately two percent of the Study Area) will have potential views of the turbine hub during leaf-off conditions along with an additional 18 residential properties that could have partial views of the turbine hub during leaf-off conditions.

### F. Scenic, Historic and Recreational Values

VHB also completed a review of the Project with the SHPO. The SHPO has rendered a determination that the Project will have no adverse impact on historic and cultural resources in the State of Connecticut. *See* SHPO correspondence attached hereto as Exhibit B. In addition, the Project is not anticipated to have any impact on scenic or recreational values in the area. As noted in the Visual Resources Evaluation, portions of two State-designated scenic roads are located in the Study Area. No visibility is anticipated from either of these scenic roads. Further, portions of Winchester Road in Norfolk are locally designated as scenic. There is a small area of potential spotty visibility from this road, limited to 450 feet of roadway.

### G. Ecological, Vegetation, Wildlife Habitat and Natural Diversity Database

The attached Terrestrial Wildlife Habitat and Wetlands Impact Analysis Report describes in detail the existing habitat at the Property. *See* Exhibit I. The report indicates that the Property contains four different habitat types including second growth, northern hardwood forest,

Palustrine forested wetland, Palustrine open water and early old field meadow. The Property contains a large wetland complex that includes an approximately 6.70-acre beaver pond centrally located within the Property. An unnamed perennial watercourse outlets from the pond in the vicinity of the southern Property boundary, flowing south.

The Project may temporarily disturb some terrestrial wildlife species during construction activities and would permanently convert approximately 2.69 acres of forest. The forested areas that would be subject to disturbance are characterized as a second growth Northern Hardwood forest type. The loss or conversion of this small amount of forested land is not expected to have a significant or long-term negative impact on local terrestrial wildlife populations, as this type of forest is abundant in proximity to the Property as well as throughout northwest Connecticut. The Project will likely provide benefits to local wildlife populations by preserving open space and protecting existing habitat from suburban development and habitat fragmentation.

An NDDB Request Form and supporting materials were submitted to DEP. Written confirmation was received indicating that Great St. John's-wort, a state species of special concern, occurs in a wetland to the east of the Property. DEP has recommended that if any direct or indirect activities are proposed for this area, that a description of work is provided. As such, VHB has submitted design drawings to DEP to confirm that the proposed project will not adversely affect this species. Great St. John's-wort prefers streambanks, wet meadows and thickets. Wetlands impacts on the Property will not affect this habitat type and therefore, are not likely to adversely affect this species.

If utilized, federal funding available for projects such as Wind Colebrook South typically requires a full review pursuant to the National Environmental Policy Act to further ensure that the Project will comply with all applicable environmental regulations.

#### H. Bat and Bird Studies

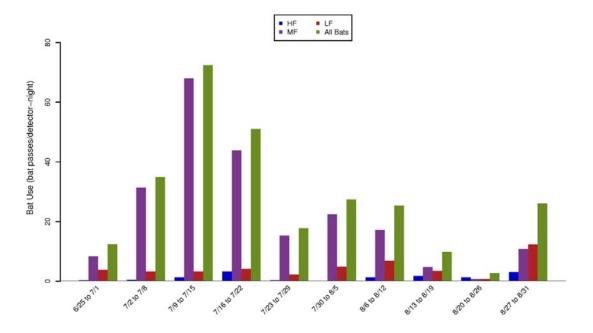
#### 1. Bat Studies

Western EcoSystems Technology, Inc. ("West") initiated surveys in June, 2010 on behalf BNE to assess bat activity within the proposed Colebrook Wind Resource Area (CWRA) in both the maternity season and the migratory season. Bat activity was surveyed using AnabatTM SD1, AnabatTM SD2 and Wildlife Acoustic™ Song Meter SM2Bat™ ultrasonic detectors from June 25, 2010 through November 1, 2010. See interim report attached hereto as Exhibit K. A copy of the complete report, including the fall migratory season data, will be supplied upon completion. As can be seen from a review of this interim report, the objective of the acoustic bat surveys was to characterize seasonal and spatial activity by bats within the CWRA during the maternity season. Bat activity was monitored at two fixed stations: (1) along an abandoned forest track within deciduous forest at one of the proposed turbine locations in the northeast portion of the Property("CA1"), and (2) along an abandoned forest track at the proposed turbine in the northwest corner of the Property ("CA2"). The two Anabat detectors recorded 3,645 bat passes during 125 detector-nights. Averaging bat passes per detector-night across stations, a mean of 28.07 bat passes per detector-night was recorded – a value within the range of the five facilities in the eastern United States where pre- and post-construction data is available (range: 0.3-38.3; mean: 19.58).

The CWRA is not in the vicinity of any known bat colonies or features likely to attract large numbers of bats. The Property is located along a forested ridge with little variation in vegetation or topography relative to the surrounding landscape. Eight species of bat have the potential to occur within the CWRA, all of which have been recorded as casualties at windenergy facilities. Acoustic bat passes recorded by AnaBat detectors were classified to frequency groups. Overall, passes by mid-frequency bats (82.4% of all passes) outnumbered passes by

low-frequency bats (13.7%), and high frequency bats (4.0%). This suggests a higher relative abundance of mid-frequency species, little brown and eastern red bats, during the survey period. The relatively small detection rate for eastern red bats (five calls) suggests the majority of mid-frequency activity during the study period was comprised of little brown bats.

The overall number of bat calls detected per night at the CWRA was highest during mid-July and likely corresponds to the time when pups are being weaned and have joined the adult population in foraging. Comparing peak bat activity between frequency groups within any given 7-day period during the maternity season, high and mid-frequency bat activity peaked in mid-July, while low-frequency activity peaked during the last week of August



**Figure 4.** Weekly activity of high-frequency (HF), mid-frequency (MF), and low-frequency (LF) bats within the Colebrook Wind Resource Area, based on 52 weeks during the calendar year beginning January 1, and corresponding to the start and end dates of the study period; June 25 – August 31, 2010.

There appears to be some latitudinal variation in the eastern United States, such that higher numbers of fatalities are estimated for more southerly sites compared to those further north. Bat fatality patterns observed at facilities within the region in similar forest-dominated

landscapes have been low to moderate based on regional study results. If latitudinal, landscape and patterns of bat activity rates relative to fatality rates for the CWRA are consistent with regional study results, predicted fatality rates for bats will be moderate.

### 2. Breeding Bird Study

West conducted surveys in June 2010 to assess breeding bird activity within the proposed Project area. The principal objectives of the study were to: (1) provide site-specific bird resource and use data that would be useful in evaluating potential impacts from the Project; (2) provide information that could be used in Project planning and design to minimize impacts to birds; and (3) recommend further studies or potential mitigation measures, if warranted. A copy of the breeding bird study is attached hereto as Exhibit L.

Breeding bird surveys were conducted three times between June 29, 2010 and July 15, 2010, for a total of 36 surveys. A total of 461 individual bird observations within 443 separate groups were recorded, representing 39 unique bird species. Cumulatively, three species (7.7 percent of all species) comprised 26.5 percent of the individual observations: unidentified passerine (46 observations), red-eyed vireo (39 observations) and ovenbird (37 observations). Each other species individually composed less than ten percent of the observations. No state or federal listed sensitive species were recorded during the breeding bird surveys. Mean use for passerines (12.03 birds/plot/5-min survey) was the highest of all major bird types; the passerine subtypes warblers and thrushes had the highest use of all passerine subtypes (4.00 and 1.44 birds/plot/5-min survey, respectively). Waterfowl comprised less than 1% of overall bird use, and were recorded during 5.6% of surveys. Woodpeckers comprised 3.5% of overall bird use within the project area and were recorded during 36.1% of all surveys.

**Figure 3.** Summary of overall bird use (number of birds/plot/5-min survey), species richness (species/plot/5-min survey), and sample size during the breeding bird surveys in the Colebrook Wind Resource Area, June 29 to July 15, 2010.

	# of Visits	Mean Use	Species		# Surveys
Survey			Richness	# Species	Conducted
6/29/2010	1	13.58	9.25	27	12
7/6/2010	1	12.5	8.25	30	12
7/15/2010	1	12.33	7.92	24	12
	3	12.78	8.44	39	36

Two mammal species and six amphibian species were also recorded incidentally. No state or federal listed sensitive species were recorded as an incidental observation.

The most probable direct impact to birds from wind energy facilities is direct mortality or injury due to collisions with turbines or guy wires of met towers. Collisions may occur with residents foraging and flying within the Project area or with migrants seasonally moving through the Project area. Common species such as eastern towhee and American robin comprised the majority of identified species observed during breeding bird surveys. Direct impacts to individuals may result from operation of the Project. Currently there is no evidence that observed impacts to individual birds resulting from collisions with wind turbines have an effect on the population as a whole. Post-construction mortality studies conducted at 12 wind facilities throughout the nation indicate a national avian mortality rate of 2.3 birds per turbine per year (birds/turbine/year). Of those, two thirds of fatalities documented during post-construction mortality monitoring studies were assumed to be migrants. Breeding bird habitats at the Property are regionally common and no high value habitats are located within the proposed development areas.

#### I. Noise

The Project is designed to meet the Noise Regulations of the State of Connecticut. VHB has completed a comprehensive noise evaluation of the Project. *See* Exhibit M. The noise

analysis evaluated the potential noise impacts associated with the proposed construction and operation of the Project, as well as existing and future sound levels at the Property. Existing condition sound levels were determined by conducting a noise monitoring program under calm conditions (0 to 10 miles per hour). The Project-generated sound levels were calculated using manufacturer's sound data for the wind turbines and the principles of acoustical propagation of sound over distance. The Project-generated sound levels were calculated based upon a maximum sound level which occurs at wind speeds of 9 meters per second (m/s) and greater, roughly equivalent to 27+ miles per hour (mph). Wind data collected at the Property indicates that the average wind speed is 6.7 to 7.0 m/s (approximately 15 mph) at 100 meters, which results in lower wind turbine sound levels.

DEP's noise control regulations (RCSA 22a, §§ 22a-69-1 to 22a 69-7) and the Town of Colebrook's Noise Ordinance were used to evaluate sound levels from the Project. Both state that the noise standards for a Class C Emitter (Utility) to a Class A Receptor (Residential) are 61 dBA in the daytime and 51 dBA in the nighttime.

Using a worst-case scenario analysis, the evaluation demonstrated that Wind Prospect will generate sound levels ranging from 33 dBA to 49 dBA under maximum sound level conditions at the nearest residential receptor locations during daytime hours and 32 dBA to 47 dBA during nighttime hours. Even utilizing this worst-case scenario, sound levels are below both the daytime and nighttime standards for residential receptor locations pursuant to both State and local standards. The results indicate that the Project will be in full compliance with both State and local noise regulations and therefore the Project will not have a substantial adverse impact on the surrounding area in terms of noise impacts.

### J. Wetlands

As can be seen from the Terrestrial Wildlife Habitat and Wetlands Impact Analysis Report attached hereto as Exhibit I and as demonstrated in Figure 4 below, there are three wetland systems located on the Property and two additional wetlands systems located off-Property that are also discussed.

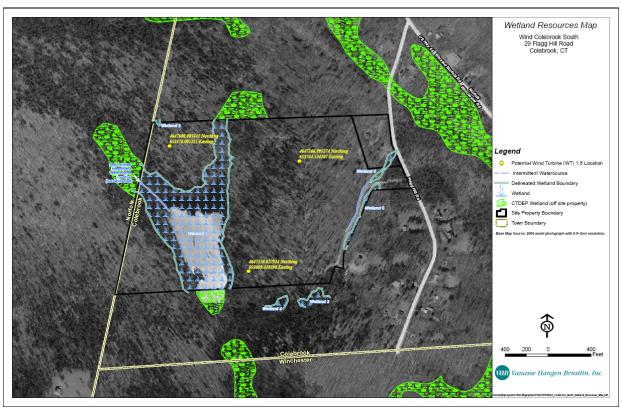


Figure 4: Wetland Resources Map.

Wetland 1 is a large wetland complex that is dominated by a beaver pond. Forested wetland lobes extend to the north and west of the beaver pond and drain into this system.

Within the western lobe, an intermittent watercourse generally having a diffuse meandering flow pattern drains into the beaver pond from the west property boundary. While soil characteristics within this wetland complex are consistent throughout with the aforementioned soil catena, the vegetation and hydrology vary. Open water areas are permanently inundated and generally

unvegetated. The forested wetland lobe extending to the north of the pond is seasonally saturated and dominated by hardwood tree species such as red maple, yellow birch and American beech. The wetland lobe extending to the west of the pond is a seasonally saturated hemlock wetland.

Wetland 2 is a small wetland finger extending onto the site from a wetland on the adjacent property to the north. While the narrow interior is generally void of woody vegetation, the fringes are dominated by American beech and eastern hemlock.

Wetland 3 is a seasonally saturated forested wetland located immediately south of the southern property boundary (off-site). It is a portion of a larger wetland extending in a southeasterly direction. This wetland drains towards the east.

Wetland 4 is a seasonally saturated forested wetland located to the south of the southern property boundary (off-site). It is a portion of a larger wetland draining southwesterly to an unnamed perennial watercourse.

Wetland 5 is a forested hillside seep wetland draining northeast along the east property boundary. An intermittent watercourse feature, having diffuse flows and intermittent channel, flows within the wetland interior. Flows are conveyed beneath an existing gravel driveway with a 36" CMP. An additional intermittent watercourse feature was delineated along the west side of the existing driveway. This feature is characterized as a dug drainage ditch that intercepts groundwater (has base flow). It drains into Wetland 5 north of the existing driveway.

BNE worked carefully through numerous iterations of potential turbine locations and spacing to balance capturing optimum wind conditions while minimizing impacts to wetland resources on the Property. Due to the need to locate turbines in a manner that effectively captures wind and maximizes electrical generation efficiency and the location and proximity of

the on-site wetland resources, the proposed Project would require permanent direct wetland impacts associated with the construction of a gravel access road over a forested wetland (Wetland 1) totaling 4,702 square feet. In addition, approximately 213 square feet of temporary direct impacts related to a tree clearing to construct this crossing are necessary. Clearing and grading to construct the Blade Laydown and Assembly Areas associated Turbines One and Three will cause temporary disturbance in proximity to Wetland 1.

The portion of Wetland 1 that would be subject to disturbance related to the proposed access road crossing is characterized as a seasonally saturated forested wetland. This area was previously utilized for a skid road crossing and as such, has been subject to historic disturbance activities. The proposed access road crossing would result in a minimal adverse effect to wildlife habitat, the principal function associated with this area. In terms of water quality, this portion of this wetland that would be subject to disturbance does not provide sediment, toxicant or pathogen retention, nutrient removal, nutrient retention or nutrient transformation at a principal level or secondary level and does not provide sediment/shoreline stabilizations functions at a principal or secondary level. No wetlands impacts associated with the Project will affect the preferred habitat of Great St. Johns-wort.

Best Management Practices will be utilized in accordance with the 2002 Connecticut Guidelines for Erosion and Sediment Control throughout the course of construction activities on the Property and will be maintained until disturbed areas have been permanently stabilized. A Wildlife/Conservation seed mix containing native grasses and forbs will be used to stabilize exposed areas post-construction.

#### K. Storm Water Management

Attached hereto as Exhibit G is a detailed storm water management analysis and plan. As shown, BNE will employ a storm water management plan that will result in no net increase in runoff to any surrounding properties.

#### VIII. PROJECT SCHEDULE

BNE anticipates obtaining approval from the Siting Council by May 2011. BNE expects to begin construction of the Project shortly after obtaining all required regulatory approvals. Wind farm construction can take as little as 3-6 months from groundbreaking to commercial operations. Wind Colebrook South is expected to begin commercial operations in late 2011.

#### IX. GOVERNMENT APPROVALS

#### A. Storm Water Permit

Since construction of the Project will disturb 11.34 acres, BNE will register under the DEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities at least thirty days prior to commencing any construction activities. BNE intends to request coverage under the existing Connecticut General Permit, DEP-PED-GP-015, by submitting a complete and accurate General Permit Registration Form and Transmittal prior to construction activities and in accordance with applicable rules at the time of filing. In connection with that registration, BNE will implement a storm water management plan to minimize any potential adverse environmental effects. *See* Exhibit G. These procedures have been outlined in the Storm Water Management Plan with Storm Water Pollution Prevention Plan ("SWMP" with "SWPPP") for the Project. Upon receipt, the Letter of Coverage will become part of the SWMP with SWPPP for the Project. In addition, an Erosion and Sediment Control Plan has been developed in accordance with Connecticut General Statutes §§ 22a-325 through 22a-329 and is attached hereto as Exhibit H.

#### **B.** Federal Aviation Administration

On September 22, 2009, BNE filed Form 7460-1 with the FAA requesting a Determination of No Hazard to Air Navigation for one turbine located on the Property. The FAA conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine Wind Colebrook

Location: Colebrook, CT

Latitude: 41-57-04.00N NAD 83

Longitude: 73-08-17.00W

Heights: 492 feet above ground level (AGL) 1907 feet above mean sea level (AMSL)

On December 15, 2009, the FAA issued its determination that the aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation. FAA's determination letter is attached hereto as Exhibit C.<sup>6</sup>

As a condition to this determination, the structure will be marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, 24-hr med-strobes – Chapters 4, 6 (MIWOL) & 12. Pursuant to this Advisory, light fixtures should be placed as high as possible on the turbine nacelle to be visible from 360 degrees. Flashing red (L864) or white (L-865) lights may be used to light wind turbines. The FAA has determined that studies have shown that red lights are most effective and should be the first consideration for lighting wind turbines. BNE anticipates utilizing red lights on the turbines as recommended by the FAA. Additionally, the FAA has determined that bright white or light off-white paint most often found on wind turbines has been shown to be most effective, and if used, no lights are required during the daytime. The turbines will be white and therefore no lights will be required during the daytime. BNE does not anticipate that the nighttime

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<sup>&</sup>lt;sup>6</sup> The FAA determination letter was based on a filing indicating one turbine with a 100 meter hub and 100 meter diameter rotor blade. Based on the updated configuration of three turbines at Wind Colebrook South, BNE has refiled with the FAA. BNE's updated FAA determination letter will be filed with the Siting Council upon receipt.

illumination will create any new areas of visibility. The FAA will also be notified via FAA Form 7460-2 ("Notice of Actual Construction or Alteration") within 5 days after the construction reaches its greatest height.

On October 24, 2010, BNE revised its filing with the FAA requesting a Determination of No Hazard to Air Navigation for three turbines at the proposed locations of the turbines on the Property. BNE will comply with all requirements imposed by the FAA.

### X. COMMUNITY RELATIONS

As discussed, the Project was initially presented to the Town of Colebrook in the fall of 2008 in order to obtain a zoning permit for the Met tower. Since that time, BNE has kept the Town and its elected local and state officials apprised of the Project's progress. In addition, while not legally required, in preparation of filing this petition, BNE and its representatives submitted preliminary information to the Town on October 8, 2010. A copy of this municipal report is included in the bulk filing filed herewith. At the request of the First Selectman of Colebrook, BNE and its representatives conducted a public informational presentation for the residents of Colebrook on November 10, 2010. The informational meeting was well attended by members of the public. A copy of informational meeting presentation is also included in the bulk filing.

Simultaneous with the filing of this petition, again while not legally required, BNE sent a certified mailing to all abutting property owners notifying such owners of the filing of this petition and published a legal notice in the <u>Litchfield County Times</u>. A copy of the list of abutting property owners, correspondence sent thereto along with the legal notice is attached hereto as Exhibit D. In addition, while not legally required, BNE has sent copies of this petition to all local and state officials included in Exhibit E.

#### XI. PETITION FILING FEE

In accordance with RCSA § 16-50v-1a, a \$625 filing fee is included with the filing of this petition.

### XII. BULK FILING OF MUNICIPAL DOCUMENTS

Included in the bulk filing filed herewith are four copies of the Town of Colebrook's zoning and wetlands regulations. In addition, four copies of the Town of Colebrook's Plan of Conservation and Development are included in the bulk filing. In addition, BNE has included copies of the report filed with the Town of Colebrook on October 8, 2010 as well as a copy of the presentation from the public informational meeting held on November 10, 2010 in the bulk filing.

### XIII. CONCLUSION

Wind Colebrook South will provide numerous and significant benefits to the Town of Colebrook, the State of Connecticut and its citizens, and will place the Town of Colebrook at the forefront of green energy development while producing significant environmental benefits with minimal environmental impact. Pursuant to CGS § 16-50k(a), the Council shall approve by declaratory ruling the construction or location of a grid-side distributed resources project or facility with a capacity of not more than 65 MW, as long as such project meets DEP air and water quality standards. The Project meets these criteria. The Project is a "grid-side distributed resources" facility, as defined in CGS § 16-1(a)(43), because the Project involves "the generation of electricity from a unit with a rating of not more than sixty-five megawatts that is connected to the transmission or distribution system . . ." and, as demonstrated herein, the Project will meet DEP air and water quality standards. The Project will not produce air emissions, will not utilize

water to produce electricity, was designed to minimize wetland impacts, will employ a storm water management plan that will result in no net increase in runoff to any surrounding properties and furthers the State's energy policy by developing and utilizing renewable energy resources. In addition, as demonstrated above, the Project will not have a substantial adverse environmental effect in the State of Connecticut.

Accordingly, BNE Energy respectfully requests that the Siting Council approve the location, construction and operation of the Project by declaratory ruling.

Respectfully Submitted,

By: Can I La

Attorney For BNE Energy Inc.

Carrie L. Larson, Esq.

Pullman & Comley, LLC

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Hartford, CT 06103-3702

Ph. (860) 424-4312

Fax (860) 424-4370

clarson@pullcom.com

# EXHIBIT A

## 1.6-82.5 50 Hz Wind Turbine

## fact sheet

### Introduction

GE continues to advance its 1.5 MW wind turbine series product line with the introduction of GE's 1.6-82.5 50 Hz wind turbine.

GE's 1.6-82.5 50 Hz wind turbine provides additional annual energy production relative to the 1.5-82.5 wind turbine. Coupled with industry-leading low cost of electricity, this additional output equates to higher customer value.

Focusing on performance, reliability, efficiency, and multi-generational product evolution, GE's 1.6-82.5 50 Hz wind turbine continues to deliver wind product leadership.

## **Applicable Platforms**

GE's 1.6-82.5 wind turbine is available in both 50 and 60 Hz for use in IEC Class II environments.

### **Technical Description**

GE's 1.6-82.5 50 Hz wind turbine has a rotor diameter of 82.5 meters. This wind turbine also incorporates advanced load controls which reduces the loads on the blades and other mechanical components to allow increased power production while maintaining a 20-year design life.

Enhancements to GE's 1.6-82.5 50 Hz wind turbine include: strengthened generator frames, an improved gearbox design and an upgraded pitch system.

GE's 1.6-82.5 50 Hz wind turbine utilizes GE Energy's proven Mark VIe\* controller and advanced diagnostic capability to increase troubleshooting efficiency.



### Features and Benefits

- A 15% increase in swept area relative to the 1.5-77 allows wind farms to be located in areas of lower average annual wind speeds, providing a strong return on investment.
- Based upon GE's 1.5 MW series turbine, the 1.6-82.5 50 Hz turbine offers the same industry workhorse reliability with increased output.
- A sophisticated set of grid friendly features enable operators to meet stringent grid requirements.

## **Product Specifications**

GE's 1.6-82.5 50 Hz with advanced load controls offers the following technical specifications:

- 50/60 Hz
- 80 and 100 meter tower configurations
- Cold weather extreme configuration option
- IEC Class II



For more information, please visit www.ge-energy.com/wind.

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# **EXHIBIT B**

## Transportation Land Development Environmental •

Services





**imagination innovation energy** Creating results for our clients and benefits for our communities

September 30, 2010

Vanasse Hangen Brustlin, Inc.

Ref: 41604.00

Ms. Susan Chandler Commission on Culture & Tourism State Historic Preservation Office One Constitution Plaza, Second Floor Hartford, CT 06103

Re:

Proposed Wind Energy Facility

Wind Colebrook South 29 Flagg Hill Road Colebrook, Connecticut STATE HISTORIC PRESERVATION OFFICE

Date /1 · 29 · 10 Project\_\_\_\_\_

Dear Ms. Chandler:

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by BNE Energy, Inc. ("BNE") to review historic and cultural resource information as part of a submission to the Connecticut Siting Council. BNE is proposing to construct a wind energy facility on portions of property located at 29 Flagg Hill Road in Colebrook, Connecticut. The proposed facility would include the construction of three (3) 1.6 megawatt GE wind turbines, associated access roads, and electrical utility interconnections. The turbine hubs (blade center) would be located at a height of approximately 100 meters (±328 feet), onto which a 100 meter (±328 foot) diameter blade would be affixed. The total turbine hub and blade length height is 150 meters (±492 feet).

VHB reviewed historic and cultural resources within a 1-mile radius of the three proposed ±492-foot tall wind turbines. Our Cultural Resources Map (attached) did not reveal the existence of any historic resources listed or eligible for listing on the National Register of Historic Places, or Archeological Sensitive Areas at or within 1-mile of the proposed wind turbines. As a result, it is VHB's opinion that the proposed project will have no visual or direct effects upon historic or cultural resources.

We respectfully request a written opinion from your office regarding the proposed activities relative to historic and cultural resources. At your earliest convenience, please forward correspondence to my attention. Thank you in advance for your prompt consideration of this request.

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.

Nicole Dentamaro

Environmental/GIS Analyst

Enclosure



<sup>&</sup>lt;sup>1</sup> Although not specific to wind facilities, we have reviewed the Federal Communications Commission's Nationwide Programmatic Agreement regarding the Section 106 National Historic Preservation Act Review Process (NPA), which indicates the presumed area of potential effect (APE) for visual effects for the construction of new facilities with a tower height greater than 400 feet is 1.5 miles from the proposed tower site.

# EXHIBIT C



Issued Date: 12/15/2009

Gregory Zupkus BNE Energy Inc 38 Colonial Drive Prospect, CT 06712

### \*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\*

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine Wind Colebrook

Location: Colebrook, CT

Latitude: 41-57-04.00N NAD 83

Longitude: 73-08-17.00W

Heights: 492 feet above ground level (AGL)

1907 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, 24-hr med-strobes - Chapters 4,6(MIWOL),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

	At least 10 days prior to start of construction (7460-2, Part I)
X	Within 5 days after the construction reaches its greatest height (7460-2, Part II

This determination expires on 12/15/2011 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights. Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-7081. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-WTE-9005-OE.

Signature Control No: 655786-120899132 (DNE -WT)

Michael Blaich Specialist

# EXHIBIT D

### **CERTIFICATION OF SERVICE TO ABUTTING PROPERTY OWNERS**

I hereby certify that a copy of the foregoing letter sent by certified mail, return receipt requested, to each of the following abutting landowners:

<u>Abutter</u>	<u>Premises</u>	<u>Mailing</u>
The Northwestern Connecticut	Flagg Hill Road	PO Box 618
Sportsman Association, Inc.	Winsted, CT 06098	Winsted, CT 06098
Carole Marchetti	33 Flagg Hill Road	36 Edgewater Drive
,	Winsted, CT 06098	Old Greenwich, CT 06870
Robin L. Dziedizic	29A Flagg Hill Road	· · · · · · · · · · · · · · · · · · ·
	Winsted, CT 06098	
Mark & Mary Matarainen	45 Flagg Hill Road	
	Winsted, CT 06098	
State of Connecticut	Winsted-Norfolk Road	DEP
	Winsted, CT 06098	79 Elm Street
	7	Hartford, CT 06106
Bank of America	8 Flagg Hill Road	4161 Piedmont Parkway
	Winsted, CT 06098	Greensboro, NC 27410
		·
Nature Conservancy of	Beckley Road	c/o R. Richard Goodwin
Connecticut, Inc.	Norfolk, CT 06098	55 High Street
		Middletown, CT 06457-3741

Dated December 6, 2010

By: Car ele

Attorney For BNE Energy, Inc. Carrie L. Larson, Esq. clarson@pullcom.com
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702
Ph. (860) 424-4312
Fax (860) 424-4370



CARRIE L. LARSON 90 State House Square Hartford, CT 06103-3702 (860) 424-4312 (860) 424-4370 clarson@pullcom.com www.pullcom.com

November 24, 2010

Via Certified Mail/ Return Receipt Requested

To Whom It May Concern:

Please be advised that this office represents BNE Energy Inc. ("BNE"). This is to advise you that BNE will be filing a petition for declaratory ruling with the Connecticut Siting Council on or after December 3, 2010 concerning property located at 29 Flagg Hill Road and 17 Flagg Hill Road in Colebrook (collectively the "Property") in connection with the proposed development of three wind turbines at the Property. You are receiving this notice as a courtesy from BNE because your property abuts the Property. Copies of the petition will be available as described in the attached legal notice, which will run in the Litchfield County Times on Friday, December 3, 2010. Should you have any further questions or concerns regarding this matter, please contact our office or the Connecticut Siting Council.

Respectfully,

Canil R. Lamon / kfp

Enc.

cc: BNE Energy Inc.

ACTIVE/72955.2/KFERRIS/2287878v1

#### NOTICE

Notice is hereby given of a petition for declaratory ruling to be submitted to the Connecticut Siting Council ("Siting Council") on or about December 3, 2010 by BNE Energy Inc. ("Petitioner"). The Petitioner will file a petition for declaratory ruling that no certificate of environmental compatibility and public is needed from the Siting Council for the construction, maintenance and operation of a 4.8 MW wind electric generating project in Colebrook, Connecticut. The Petitioner is proposing to construct three wind turbines at 29 Flagg Hill Road and 17 Flagg Hill Road in Colebrook. The location, height and other features of the proposed facility are subject to review and potential change by the Connecticut Siting Council pursuant to Connecticut General Statutes § 16-50g et. seq.

Interested parties and residents of the Town of Colebrook are invited to review the Application during normal business hours at any of the following offices:

Connecticut Siting Council 10 Franklin Square New Britain, CT 06051

Town of Colebrook Town Hall 562 Colebrook Road Colebrook, CT 06021

or the offices of the undersigned. All inquiries should be addressed to the Connecticut Siting Council or to the undersigned.

Carrie L. Larson
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702
Attorneys for the Petitioner

# **EXHIBIT E**

### **CERTIFICATION OF SERVICE**

I hereby certify that on this, the 6th of December, 2010, copies of the Petition for Declaratory Ruling and Attachments were sent by Federal Express to the following:

### **COLEBROOK TOWN OFFICIALS**

Thomas D. McKeon, First Selectman Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

Debra L. McKeon Office of the Town Clerk Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

John C. Garrels, III Chairman, Planning and Zoning Commission Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

Fred P. Williams Chairman, Zoning Board of Appeals Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

Thomas B. Stanton Chairman, Inland Wetlands Commission Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

Jerry Rathbun Chairman, Conservation Commission Town of Colebrook, Town Hall 562 Colebrook Road PO Box 5 Colebrook, CT 06021

## WINCHESTER/WINSTED TOWN OFFICIALS

Mayor Althea Candy Perez Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

Sheila Sedlack Town Clerk Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

John "Jack" Winn Chairman, Planning and Zoning Commission Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

Richard Nalette Chairman, Zoning Board of Appeals Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

Tim O'Meara Chairman, Inland Wetlands Commission Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

Susan Closson Chairman, Conservation Commission Town of Winchester, Town Hall 338 Main Street Winsted, CT 06098

### **NORFOLK TOWN OFFICIALS**

Susan M. Dyer, First Selectman Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

Linda S. Perkins Town Clerk Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

William O. Riiska Chairman, Planning and Zoning Commission Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

Scott Eisenlohr Zoning Officer Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

Martin G. Johnson Chairman, Inland Wetlands Commission Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

Marjory Sue Frisch Chairman, Conservation Commission Town of Norfolk, Town Hall 19 Maple Avenue Norfolk, CT 06058

### **STATE OFFICIALS**

Office of the Attorney General State of Connecticut Attorney General Richard Blumenthal 55 Elm Street Hartford, CT 06106

Senator Joseph Lieberman One Constitution Plaza, 7<sup>th</sup> Floor Hartford, CT 06103

Senator Christopher Dodd 30 Lewis St., Suite 101 Hartford, CT 06103

Congressman John B. Larson Hartford Office 221 Main Street, 2<sup>nd</sup> Floor Hartford, CT 06106

State Representative John Rigby House Republican Office Legislative Office Building Room 4200 Hartford, CT 06106

State Senator Kevin Witkos Legislative Office Building Room 3400 Hartford, CT 06106

Litchfield Hills Council of Elected Officials c/o Director Richard Lynn 42 North Street Goshen, CT 06576

State of Connecticut
Department of Environmental Protection
c/o Amey Marrella, Acting Commissioner
79 Elm Street
Hartford, CT 06106

State of Connecticut Department of Public Health c/o J. Robert Galvin, M.D., M.P.H., M.B.A., Commissioner 410 Capitol Avenue, MS#13COM Hartford, CT 06106 State of Connecticut
Department of Agriculture
c/o F. Philip Prelli, Commissioner
165 Capitol Avenue
Hartford, CT 06106

State of Connecticut
Department of Public Utility Control
c/o Kevin M. DelGobbo, Chairman
Ten Franklin Square
New Britain, CT 06051

State of Connecticut Office of Policy and Management c/o Acting Secretary Brenda L. Sisco 450 Capitol Avenue Hartford, CT 06106

State of Connecticut
Department of Economic and Community Development
c/o Joan McDonald, Commissioner
505 Hudson Street
Hartford, CT 06106

State of Connecticut
Department of Transportation
c/o Jeffrey A. Parker, Commissioner
2800 Berlin Turnpike
Newington, CT 06111

State of Connecticut Council on Environmental Quality c/o Karl J. Wagener, Executive Director 79 Elm Street Hartford, CT 06106

Connecticut Commission on Culture & Tourism State Historic Preservation Office c/o David Bahlman, Division Director One Constitution Plaza, 2<sup>nd</sup> Floor Hartford, CT 06103

Connecticut Siting Council Ten Franklin Square New Britain, CT 06051

## **ELECTRIC COMPANY**

Connecticut Light & Power P.O. Box 270 Hartford, CT 06141-0270

By: Cen e cen

Attorney For BNE Energy Inc. Carrie L. Larson, Esq. clarson@pullcom.com Pullman & Comley, LLC 90 State House Square Hartford, CT 06103-3702 Ph. (860) 424-4312 Fax (860) 424-4370

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