STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of BNE Energy Inc. for a Declaratory Ruling for the Location, Construction and Operation of a 4.8 MW Wind Renewable Generating Facility on Flagg Hill Road, Colebrook, Connecticut

Petition No. 983

March 15, 2011

PRE-FILED TESTIMONY OF MELVIN L. CLINE

Q1. Mr. Cline, please state your name and position.

A. Melvin L. Cline. I am Manager of the Energy Systems Division at Zapata Incorporated (ZAPATA). I am a licensed Professional Engineer and licensed General Contractor. ZAPATA is located at 6302 Fairview Road, Suite 600 in Charlotte, North Carolina.

Q2. Please state your qualifications.

A. I have a BET in Civil Engineering from the University of North Carolina at Charlotte. I have more than 33 years of professional engineering and construction experience in the utility industry and private sectors. My engineering experience includes project management, program management, construction management, civil design, structural design, contracts administration, emerging technologies assessments, and business development. My current responsibilities include project management, client development, and relationship management with existing clients, primarily in the electric utility industry. I serve as head of the Energy Systems Division managing a wide variety of projects. I provide technical direction and oversight for projects, staffing for projects, developing and meeting project schedules and budgets, preparing cost estimates, and providing construction management for multiple projects.

Q3. Please describe your involvement in this matter.

A. ZAPATA was responsible for the preliminary civil engineering drawings, Storm Water Management Plan with Storm Water Pollution Prevention Plan ("SWMP"), and the Erosion and Sediment Control ("E&SC") Plan, at the proposed site at 29 Flagg Hill Road in Colebrook (the "Property"). The original drawings and plans were prepared by Mr. Richard Shane Smith of ZAPATA. Mr. Smith cannot be here for these proceedings. He is currently serving our country in Afghanistan; having been called to active duty as a member of the Air National Guard. I am responsible for revisions to the civil engineering drawings and calculations associated with this project.

Q4. Please describe the data used to prepare the preliminary civil engineering drawings.

A. At the request of BNE, ZAPATA began the process of reviewing the specifications and guidelines required to prepare a layout of the job site. The review included information on the equipment used to transport the components to the erection location and their specific requirements for the road surface and the clearances required. Also information was obtained on the cranes used for the erection and installation process. The majority of this information was available from the turbine manufacturer GE and specific to the 1.6MW units.

Multiple site visits were conducted by several Zapata personnel between June 2010 and February 2011. ZAPATA representatives walked the site to determine the optimal access points and road location to the proposed turbine locations. Throughout the design process, Zapata coordinated closely with BNE and VHB, and at our request,

obtained detailed site-specific information that had not been obtained during our site visits.

Topographical data on the site was obtained from the State of Connecticut Department of Environmental Protection (DEP). A site perimeter survey was performed by Riordan Land Surveying. VHB performed a wetland determination and all data was transferred to the plans using generally accepted survey adjustment methods. Construction companies with experience in the erection and installation of wind turbines were consulted, as well as transportation engineering firms providing modeling assistance for blade transport vehicles.

Q5. Please describe the preparation of the SWMP and E&SC plans.

A. The SWMP and the E&SC plans were prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and the 2004 Connecticut Stormwater Quality Manual. The Stormwater Management Plan and the Erosion and Sediment Control Plan are consistent with these guidance documents.

The E&SC plan highlights existing conditions, proposed construction activities, temporary and permanent best management practices (BMP), and backup data. The plan mirrors what is on the engineering drawings by providing written descriptions of the installation of, inspection of, and maintenance of the Connecticut approved BMPs in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. The plan provides information on erosion control BMPs such as: sediment fence, hay bale barrier, stone check dam, pipe slope drain, diversions, fill berm, sediment trap, construction entrance, tree protection, and erosion control blankets. The plan provides

information on soil stabilization BMPs such as: seeding, fertilizer, mulching, and topsoiling.

During the estimated six months of construction, the plan requires erosion control features that will be inspected once per week and after each rainfall event greater than 0.1 inch to ensure they continue to function as designed and installed. These inspections will be documented on an Erosion and Sedimentation (E&S) Control Site Inspection Form (Appendix B of the plan). This E&SC inspection procedure will help avoid erosion and sedimentation problems by ensuring that the erosion control devices are installed, maintained and functioning properly, thereby protecting nearby wetland and watershed resources. Mitigation of failed erosion control measures will be repaired within 24 hours.

Post-construction, an upland meadow seed mix containing native grasses will be used to stabilize exposed areas of the site. Erosion control blankets have been incorporated into the plans to prevent erosion and sedimentation and aid in the establishment of vegetation and permanent stabilization. Post construction inspections will take place in accordance with the DEP General Stormwater Discharge Permit until vegetation is established.

The SWMP highlights the stormwater management practices to be incorporated in this project. The plan includes post construction stormwater treatment by bioretention ponds located throughout the site. The bioretention ponds are primary stormwater treatment practices according to the 2004 Connecticut Stormwater Quality Manual. The bioretention ponds are expected to capture and treat the design water quality volume; capture and treat 80% of the average annual total suspended solid load; and remove 80% of floatable debris. Stormwater discharge from the bioretention ponds will be properly

dissipated (i.e., level spreaders and riprap aprons) to prevent erosion and sedimentation of adjacent resources.

The SWMP also addresses hazardous substance and oil spill reporting. For example, the SWMP requires adherence to a US EPA Spill Prevention Controls and Countermeasures (SPCC) Plan that will include precautions to contain and properly mitigate a fuel or petroleum spill. The plan requires good housekeeping practices, material safety data sheets (MSDS) to be kept onsite, and a spill containment kit.

Q6. Have there been any site plan revisions since filing of this petition?

A. Yes. A revised set of site plans are attached hereto as Exhibit 1. The associated revised Stormwater Management Plan is attached hereto as Exhibit 2 and revised soil and erosion control plan is attached hereto as Exhibit 3.

Q7. Please describe the revised plans.

A. In an effort to minimize the project footprint and minimize the impact to the environment, we elected to use a narrow track crane for construction of the turbines. The required road width for the narrow track crane is 20', allowing the width of the crane access road to be revised down from 35' to 20'. This reduces the impact to the environment.

With the narrower access road cross section, the location of the temporary laydown areas, crane pad, and turnarounds were revised. With these proposed changes, the SWMP and E&SC Plan were revised to manage and treat stormwater. SWM Plan and E&SC Plan calculations were revised to support the revised site plans. The

drawings are submitted as Exhibit 1, the Stormwater Management Plane as Exhibit 2, and the Erosion and Sedimentation Control Plan as Exhibit 3.

Q8. Do the revised plans comply with the Connecticut Public Health Code, the Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities, the 2004 Connecticut Stormwater Quality Manual, the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, the 2004 Connecticut Department of Transportation's ("CT DOT") Standard Specifications for Roads, Bridges and Incidental Construction (Form 816) and the CT DOT 2000 Drainage Manual?

A. Yes. The revised plans comply with the Connecticut Public Health Code, the Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities, the 2004 Connecticut Stormwater Quality Manual, the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, the 2004 Connecticut Department of Transportation's ("CT DOT") Standard Specifications for Roads, Bridges and Incidental Construction (Form 816) and the CT DOT 2000 Drainage Manual. The revised plans meet or exceed the required Connecticut standards and specifications. Additional information and revised calculations have been submitted along with the Storm Water Pollution Prevention Plan and the Erosion and Sediment Control Plan demonstrate compliance with applicable Connecticut standards.

The access road design will exceed the requirements of the CT DOT. The access road will be designed to more rigorous standards than the CT DOT standards. This is necessary to accommodate the loads of the cranes and trucks transporting the turbine components.

Q9. How does the project comply with DEP air and water quality standards?
A. The Project will fully comply with Connecticut Department of Environmental Protection ("DEP") air standards. Wind turbines produce zero emissions and thus will comply with DEP air quality standards.

The Project also complies with CT DEP Water Quality Standards. Discharges from the proposed project are related to stormwater management, but will also include a small septic system associated with a proposed Facility Support Building. No direct discharges are proposed to the State's surface waters. Many of the Water Quality Standards are related to discharges into surface waters, matters of compliance are primarily related to potential secondary impacts associated with stormwater discharge to uplands in proximity to surface waters (site inland wetlands). It should be noted that wind generation projects are significantly different, in that they do not discharge cooling water or wastewater often associated with other types of electric generation power plants. In addition, the access road, parking areas and temporary laydown and construction areas will have a gravel surface to minimize runoff and promote infiltration and recharge of groundwater.

The applicable Surface Water Quality Standards (WQS) include the following:

1. It is the State's goal to restore or maintain the chemical, physical, and biological integrity of surface waters. Where attainable, the level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water shall be achieved.

No direct impacts or discharges to surface waters are proposed. Stormwater discharged to uplands in proximity to the site's surface waters will be properly treated by utilizing best management practices in accordance with the CT DEP 2004 Connecticut

Stormwater Quality Manual. Potential non-point source pollutants originating from erosion and sedimentation during construction primarily consist of suspended particulate soil media that will be minimized by incorporating best management practices detailed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual. Due to the unmanned nature of the Project and low traffic it generates, the proposed development would not be considered to be classified as a land use with potential for high pollutant loads (i.e., heavy metals, hydrocarbons, synthetic organic chemicals, trash, etc.). Additional measures have been implemented by BNE Energy to address the potential for secondary impacts to surface waters during construction, including third party erosion and sedimentation control inspections and adoption of a Spill Prevention Control and Countermeasure Plan. Therefore, the Project will comply with the State's goal to maintain the chemical, physical, and biological integrity of surface waters.

2. Existing and designated uses such as propagation of fish, shellfish and wildlife, recreation, public water supply, and agriculture, industrial use and navigation, and the water quality necessary for their protection is to be maintained and protected.

As noted above, existing and designated uses will be protected by maintaining and protecting the quality of surface water both during and after construction of the Project.

18. Best Management Practices for control of non-point source pollutants may be required by the Commissioner on a case-by-case basis.

As noted above, potential non-point source pollutants originating from erosion and sedimentation during construction will be minimized by incorporating best management practices detailed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual. Additional measures will be required to address the potential

for secondary impacts to surface waters during construction, including third party erosion and sedimentation control inspections and adoption of a Spill Prevention Plan.

19. The Commissioner shall require Best Management Practices, including imposition of discharge limitations or other reasonable controls on a case-by-case basis as necessary for point and nonpoint sources of phosphorus and nitrogen, including sources of atmospheric deposition, which have the potential to contribute to the impairment of any surface water, to ensure maintenance and attainment of existing and designated uses, restore impaired waters, and prevent excessive anthropogenic inputs of nutrients or impairment of downstream waters.

With the exception of a small septic system, which will be designed in accordance with the Connecticut Public Health Code and applicable local regulations, contribute negligible quantities of nitrogen and phosphorus to the site, the Project will not result in discharge of phosphorous and nitrogen that will impair surface water or groundwater quality. Disturbed areas of the site will be revegetated following construction with a variety of native herbaceous vegetation which will not require fertilization or maintenance with herbicides or pesticides. Therefore, the Project will not result in excessive anthropogenic inputs of nutrients or synthetic organic chemicals that might impair surface waters.

With respect to groundwater, the Site is located in an area which is mapped by the Connecticut DEP with a groundwater quality which is "GA and GAA_s." The GA and GAA_s designations are defined by the CTDEP as:

GA – Ground water within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells. The

Department presumes that ground water in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment.

GAA_s – Ground water that is tributary to a public water supply reservoir.

The designated use for GAA_s groundwater is described by the CTDEP as "Existing or potential public supply of water suitable for drinking without treatment; baseflow for hydraulically-connected surface water bodies."

The proposed operations will include a well which will be drilled on-site and withdraw water from the on-site aquifer. The well water will be used in a restroom that will be utilized by site personnel and potentially visitors. The restroom will discharge to a septic system that will also be located on-site. The well and septic system will be designed and constructed in accordance with local and state health codes.

No other use of groundwater or discharge to the ground or subsurface will be created. Operation of the turbine does not require bulk storage of fuel or other hazardous materials which could be accidentally released to the environment. Normal operations will not require any discharges, other than for sanitary purposes. The potential for impacts to groundwater resulting from a release of hazardous materials during construction will be minimized through the adoption of a Spill Prevention Control and Countermeasure Plan.

The proposed well and septic system will be similar to, or have less of an impact, than a typical residential dwelling. Based upon this information, the Project will comply with the Connecticut Water Quality Standards.

Q10. Do the revised plans conform to good engineering practice and to Chapter 5, Section 2 (Preserve and Conserve Soils, Land Grading) of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control?

A. Yes. The existing topography and natural features have been utilized to the extent possible to minimize the degree of land disturbance. The plans were prepared to control surface runoff and reduce erosion potential and prepare for the establishment of a vegetative cover on those areas where the existing land surface is to be reshaped by grading. All proposed slopes on the site are 2:1 or 3:1 as prescribed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

The revised plans divert the majority of runoff from the undisturbed areas away from the site. This is accomplished via temporary and permanent fill berms and conveyance swales. Energy dissipaters will also be incorporated to reduce the stormwater runoff energy.

Primary treatment will capture and treat the design water quality volume (WQV) or design water quality flow (WQF), remove at least 80% of the average annual suspended solids (TSS) loads, remove at least 80% of the floatable debris for all flow rates up to the design water quality flow, and acceptable performance or operational longevity in the field.

Non-point discharges are primarily related to erosion and sedimentation during construction, which will be managed by best management practices outlined in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual. All discharges will result from stormwater management features. Primary treatment is proposed as detailed in the 2004 CT Stormwater Quality Manual and thus ensuring the quality of stormwater to be discharged to the uplands. The Erosion and Sediment Control will be in compliance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual. We will comply with the principles of site planning for erosion and sediment

control, including the following: plan development will fit environmental conditions, keep land disturbance to a minimum, slow the flow, keep clean runoff separated, reduce on-site potential internally and install perimeter controls, implement a thorough maintenance program, and provide a third party environmental company to inspect erosion control measures prior to and during construction.

Q11. What steps were taken to ensure a design having the least amount of environmental impact?

A. The Project has been designed to minimize environmental impacts. The BNE team, including ZAPATA and VHB, 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.

Realizing the minimum requirements in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control in an effort to reduce the construction footprint, the original plans designed many slopes as 1(h):1(v) slopes. The revised plans have incorporated a 2:1 maximum slope for all aspects of the project.

Q12. Please briefly summarize your testimony?

A. The biggest challenge in designing the proposed drawings was incorporating the general requirements of the turbine manufacturer for the layout of the project with topographical and environmental features of the site. Zapata worked closely with BNE, VHB and other members of the BNE team to ensure a proper design of the Project from a civil engineering perspective while minimizing environmental impacts and reducing the size of the project footprint. Close cooperation between BNE, the transportation

company, the installation contractor, the turbine manufacturer and ZAPATA will ensure a safe and timely execution of the project. ZAPATA made an effort to be as conservative as possible in the preparation of the civil engineering designs with the expectation that as we move forward to complete designs for construction even smaller environmental impacts than the minimal ones already expected will be realized.

Q13. Is this the end of your testimony?

A. Yes.

March 15, 2011
Date

Melvin L. Cline, PE, GC

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EXHIBIT 1

Due to the size of this document, an electronic version will be filed with the Siting Council on disk.

EXHIBIT 2

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EXHIBIT 3

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