

## CONNECTICUT SITING COUNCIL

### Colebrook South - Post Construction Noise Monitoring Program

The purpose of this section is to establish a post construction noise monitoring program to determine if the construction of three 1.6 megawatt (MW) wind turbines located on BNE Energy Inc.'s (BNE) property at 29 Flagg Hill Road in Colebrook, Connecticut (Colebrook South) will meet the noise impact criteria. A noise monitoring program will be conducted to demonstrate that the operation of the wind turbines at Colebrook South will meet the Connecticut Department of Energy and Environmental Protection's (DEEP) noise control regulations (Title 22a, §§ 22a-69-1 to 22a-69-7), which are contained in the Regulations of Connecticut State Agencies (RCSA).

BNE is committed to conducting noise monitoring during the operations of the Colebrook South project to demonstrate that sound levels for the project will meet DEEP noise impact criteria. It is important to understand that numerous noise sources can contribute to the sound levels in the Colebrook South area. The noise monitoring program being proposed will evaluate sound levels produced by the wind turbines at residences in the vicinity of Colebrook South. The noise monitoring program is outlined below:

**Monitoring Locations** - Noise monitoring is to be conducted at the residential areas with the highest predicted sound levels based upon the Noise Report dated October 2010. Two types of noise monitoring are being proposed to ensure that Colebrook South will result in sound levels that meet DEEP noise impact criteria, short term and long term. The noise monitoring locations proposed for short term and long term noise monitoring are:

#### Short Term Monitoring

- M1 - Located near the Residence on Flagg Hill Road. Identified as Receptor Location 5 (R5) in the Noise Report dated October 2010
- M2 - Located near the Residence on Greenwood Turnpike. Identified as Receptor Location 2 (R2) in the Noise Report,
- M3 - Located near the Residence on Beckley Road (south). Identified as Receptor Location 7 (R7) in the Noise Report, and

#### Long Term Monitoring

- M4 - Located on the Colebrook South property near the Residence on Flagg Hill Road. Identified as Receptor Location 4 (R4) in the Noise Report.

**Initiation** - Noise monitoring equipment will be installed prior to the start of commercial operations of the wind turbines to document background noise conditions. The short term and long term noise monitoring program will be initiated within one month from the start of commercial operations of the wind turbines.

**Duration** - Short term noise monitoring will be conducted at three monitoring locations (M1, M2, and M3) during the first three months of operations. Long term noise monitoring will be conducted at the monitoring location (M4) for a period of one year.

**Frequency** - Short term noise monitoring will be conducted during a continuous daily time period for a minimum of seven days per month. Long term noise monitoring will be conducted continuously for a period of one year.

**Monitoring Equipment** - Type 1 noise monitoring equipment will be utilized to collect short term and long term data, which will include hourly Leq, L90 and octave band. Portable battery operated noise monitoring equipment will be utilized for short term monitoring. The data is stored on the internal memory of the units and a field technician will manually transfer the data to a computer and replace the

batteries. A long term noise monitoring unit will be installed on the site to collect data continuously for a period of one year. The unit will be weather protected and powered for longer periods with options to remotely download data.

**Field Verification** - A technician will conduct field verification when deploying and retrieving the portable units and also during anticipated periods of high wind conditions to the extent practicable. The purpose of field verification will be to identify the noise sources being measured while physically present at the monitoring location including anticipated time periods of high wind conditions expected to result in higher or maximum sound levels produced by the wind turbines. The noise monitoring equipment will be calibrated and inspected to verify the accuracy of the data.

**Reporting** - The project proponent will submit the results of the noise monitoring to the Connecticut Siting Council within two weeks of the completion of the noise monitoring for each month for the first three months and quarterly thereafter. A final report will be filed with the Siting Council at the conclusion of post construction noise monitoring summarizing the data collection and compliance with the DEEP noise impact criteria.

**Process** - Short term noise monitoring will continue until three months of data is collected. Long term noise monitoring will continue until one year of data is collected. If the monitoring data demonstrates that the project is in compliance with DEEP noise impact criteria at nearby residential structures, then the short term monitoring will be stopped at the end of three months, and the long term noise monitoring will be stopped at the end of one year.

The noise monitoring data will be coordinated with on-site wind speed data. If the short term noise monitoring data is not representative of high wind conditions, then additional short term monitoring would be proposed to obtain data representative of high wind conditions. If the short term or long term monitoring data indicates that the project is not in compliance with DEEP noise impact criteria, then BNE will submit documentation discussing sound level exceedances, and propose mitigation measures and additional noise monitoring to ensure the project complies with DEEP noise regulations.

**Noise Impact Criteria** - The construction noise impact criteria is presented in Table 1. DEEP's noise control regulations identify the limits of sound that can be emitted from specific premises and what activities are exempt. The noise control regulations (Title 22a, §§ 22a-69-1 to 22a-69-7) are contained in the RCSA. In accordance with DEEP noise regulations, the Emitter Zone for Colebrook South is Class C (Industrial) which shall not emit noise exceeding the levels stated in Table 1 at the adjacent noise zones.

**Table 1  
Noise Zone Standards, L<sub>90</sub> (dBA)**

Emitter Zone	Receptor Noise Zone			
	Class A (Daytime)	Class A (Nighttime)	Class B	Class C
Class A (Residential)	55	45	55	62
Class B (Commercial)	55	45	62	62
Class C (Industrial)	61	51	66	70

Source: Control of Noise (Title 22a, Section 22a-69-1 to 22a-69-7.4), Regulations of Connecticut State Agencies, June 1978.

A Class C land use is defined as generally industrial where protection against damage to hearing is essential, and the necessity for conversation is limited. The land use for Class B is defined as generally commercial in nature, where human beings converse and such conversations are essential to the intended use of the land. The land use in Class A is defined as generally residential where human beings sleep or areas where serenity and tranquility are essential to the intended use of the land.