

**TETRA TECH EC, INC.**

To: Dawn Hallowell, Maine DEP
From: Tetra Tech
Date: June 8, 2010
Subject: Spruce Mountain Wind Project DEP #L-24838-24-A-N, Response to Comment on Section 5 (Noise)

Tetra Tech prepared the following data response to address a question put forth by "Friends of Spruce Mountain" pertaining to Section 5.0 (Noise) of the Spruce Mountain Wind Project Site Permit Application filed with Maine DEP.

Question:

Can you please provide a summary explanation concerning the "margin of error" associated with the noise impact model used for the Spruce Mountain Wind analysis?

Response:

When conducting the acoustic modeling analysis for the Spruce Mountain Wind Project, a consciously conservative modeling approach was adopted, including a number of assumptions listed below. When taken together, these conservative assumptions provide a design margin and avoid underestimating the potential impact of the Project.

- The noise model was run using a maximum sound level based on Gamesa's specified noise level for existing 2.0 MW turbines. An additional 2 dBA design safety factor was incorporated in the model. In addition, the newest model of Gamesa turbines (like those that will be used at Spruce) will have a slightly lower maximum sound level than the one modeled in the analysis;
- Received sound levels at receptors located further away (e.g. approximately 1000 meters from Project wind turbines) may be subject to a greater level of uncertainty under certain atmospheric conditions. To address this concern a C_{met} correction factor of 3 dB was incorporated into the acoustic model when Project wind turbines were modeled at maximum rotational wind speed during anomalous meteorological conditions.
- Project wind turbines were represented as distributed sound sources (instead of single point sources) in the acoustic analysis. Modeling the wind turbines in this way prevents overestimation of terrain shielding at nearby receptor locations that are only partially shielded from the wind turbine rotor swept area;
- The model assumes downwind sound propagation in all directions (i.e., omnidirectional), blowing from all the nearest turbines directly towards each noise receptor;
- The model (and the DEP noise policy) assumes all receptors are located outdoors; however, indoor sound levels should be 10 to 20 dBA lower;

- The model conservatively assumes a ground absorption rate accounting for semi-reflective ground surfaces across the entire Project area. Waterbodies were modeled as perfectly reflective;
- Sound attenuation through foliage and diffraction around and over existing man-made structures was ignored for all modeling scenarios. In other words, the surrounding area was considered to be defoliate (no leaves on trees) and without natural sound attenuation due to foliage;

The noise impact assessment modeled the full range of expected sound levels produced by the Project; often sound levels will be lower than what is discussed in the assessment. Compliance with the applicable regulations does not mean that the Project will be completely inaudible to all receptors all of the time.