Acentech Report No. 0393
AI Project Number 620120

Addendum Number 1 – Response to Request for Back-up Information

Fox Islands Wind Power Project
Vinalhaven Island, Maine
Construction, Operation, and Maintenance Noise Impact Assessment

James D. Barnes
Eric W. Wood

April 2009

Submitted by:

Acentech Incorporated
33 Moulton Street
Cambridge, MA 02138

Prepared for:

Fox Islands Wind, LLC
c/o Fox Islands Electric Cooperative
Main Street
Vinalhaven, ME 04863

Acentech Report No. 0393 provides the noise impact assessment for construction, operation, and maintenance of the Fox Islands Wind Power Project proposed for Vinalhaven Island, Maine. This addendum to Acentech Report No. 0393 responds to requests for back-up information received on 14 April 2009 from Kristen Chamberlain, Project Manager, Bureau of Land and Water Quality, State of Maine Department of Environmental Protection.

1. All off-site residential areas within approximately 2000 ft of the Project site are identified in Figure 2 of Report No. 0393. A copy of the figure is included with this addendum. No residential areas are closer to the Project site. Eight residential areas are shown adjacent to North Haven Road to the southeast of the site. No residences are located directly across North Haven Road from the Project site.

Presented in the following table for the three property line locations identified in the attached figure are the ranges of expected hourly equivalent operating sound levels from regulated equipment during future operation of the proposed project with low to high wind speeds.

Property Line Locations	Expected Operating Sound Levels, dBA Low/High Wind Speeds	Maine DEP Sound Level Standard, dBA Nighttime Periods
PL1	42/50	55
PL2	44/52	55
PL3	39/47	55

2a. The three proposed wind turbine generators to be manufactured by General Electric are each rated at 1.5 MW and a hub height of 80 meters (260 ft). The proposed wind turbine generators are General Electric model number GE 1.5sle.

2b. Distances between each identified receptor and the nearest wind turbine hub are provided in the table at the end of this addendum. Sound attenuation between the wind turbines and receptors was calculated based on the relationship 20 log distance ratio between the turbines and receptors and the natural attenuation of sound by the atmosphere (atmospheric attenuation) between the turbines and receptors. The attenuation of sound due to ground effects was not included. The design margin for the reported wind turbine sound levels is 3 to 4 dBA.

2c. The range of reported wind turbine sound levels is based on the maximum sound output values received from the manufacturer and includes all turbines operating at full power. The lower end of the reported range represents operation during lower wind speeds and less than full power. Sound contours have not been generated for the proposed project.

The wind turbine sound power levels reported by the manufacturer range from less than 96 dBA to 104 dBA during wind speeds ranging from 3 m/s to cutout. Additional technical information from the manufacturer about the wind turbine sound is provided at the following link.

http://www.co.kittitas.wa.us/cds/current/landuse%5CWind%20Farm%5CWSA-07-01%20Vantage%20Wind%20%20Power%20Project%20Application%5C07%202_Noise%20Emission%20Characteristics_NO.pdf

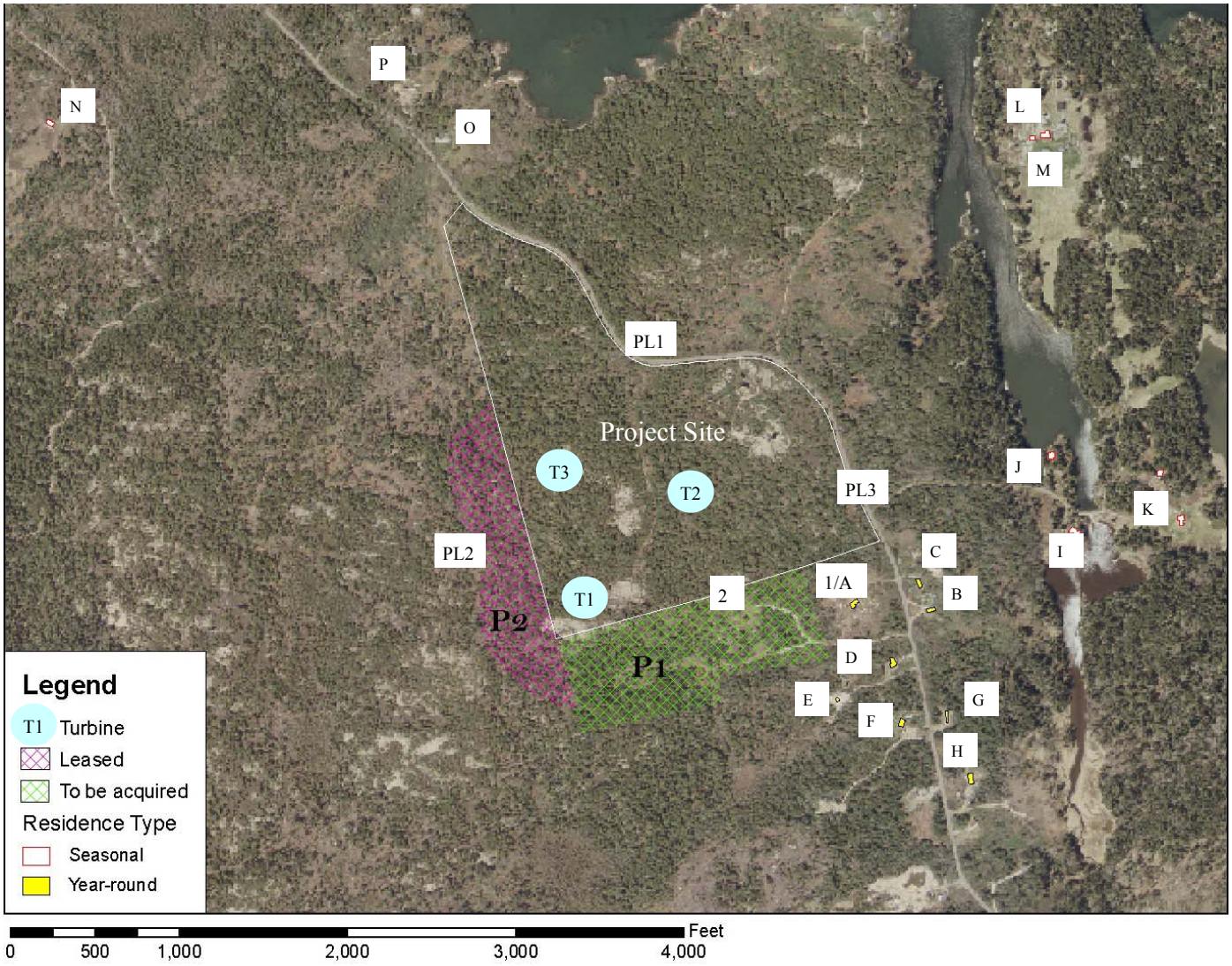
2d. The Project has been limited to three turbines each located on the site so as to comply with design standards and regulatory requirements including DEP sound level standards. Also, the design of the wind turbine generators includes a noise-insulated enclosure over the gearbox and generator, reduced-noise gearbox, vibration isolation mounts, and quieted-design rotor blades.

3. Chapter 375.10 of Maine's Site Location of Development Law Regulations at § C. (1) (e) (ii) addresses *short duration repetitive sounds* as "resulting from scrap metal, drop forge and metal fabrication operations or developments which the Board determines, due to their character and/or duration, are particularly annoying or pose a threat to the health and welfare of nearby neighbors". This portion of the Regulation was drafted with the specific intent to address loud banging-type sounds that can be startling to residential neighbors. The industrial operations of specific interest at the time the Regulation was being drafted were dropping scrap metal into ships and metal fabrication at marine facilities.

Wind turbines when operating produce a continuous slowly-modulating broadband sound. Wind turbines do not produce short duration repetitive sounds such as resulting from scrap metal, drop forge and metal fabrication operations. Some neighbors have expressed annoyance about the sound from new wind turbine farms. However there is no creditable evidence, and the Board has not determined, that wind turbine sound poses a threat to the health of nearby neighbors.

Distances between each Identified Receptor and the Nearest Wind Turbine Hub

Receptor Locations	Distance between Wind Turbine Hub and Receptors, ft
A	1270
B	1660
C	1530
D	1650
E	1570
F	1910
G	2090
H	2440
I	2390
J	2250
K	2910
L	2970
M	3050
N	3660
O	2090
P	2440
PL1	900
PL2	720
PL3	1110



Aerial View of Project Site, Three Turbine Locations, 16 Residences, Three Property Lines, and Two Measurement Locations