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Appendix H

Sound Modeling Overview



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Ardenville Wind Farm Summary of Sound Modeling

Summary

TransAlta Wind has performed an environmental noise study of the cumulative effect of the existing Soderghen and McBride Lake Wind Farm turbines and the proposed Ardenville Wind Farm. The full report will be filed with the Alberta Utilities Commission as part of our facility application. This brief summary has been provided as an overview of that report.

The Ardenville Wind Farm is proposed to include 23 Vestas model V90-3MW wind turbines, with 80 metre hub height. Permitting is being sought for 27 turbine locations, in order to give the project some flexibility if environmental or construction challenges appear. For the purpose of sound analysis, all 27 turbines have been modeled in order to demonstrate the worst-case impact on all receptors no matter which turbines are actually installed.

The receptors of concern are inhabited residences within 1.5 kilometers of a proposed wind turbine. Twenty-four such receptors have been identified.

The sound analysis was performed using WindPro 2.6 software, an industry standard package for wind energy modeling, and was based on ISO Standard 9613-2, "Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation". The model results shown in the table and figure represent worst case sound levels at the receptors. The wind speed chosen for modeling is 9 m/s at a height of 10 metres. At that wind speed, the apparent sound level (L_{wA}) peaks for the V90 turbine model, therefore these results can be considered worst case. A full noise impact assessment based on "EUB Bulletin 2007-04 Revised Directive 038: Noise Control" will be submitted to the Alberta Utilities Commission. In the worst case, all receptors are expected to receive sound exposures from the combined effects of the proposed and existing wind turbines in compliance with the noise criteria of Alberta EUB Directive 038. This table shows the predicted sound level and distance to the nearest turbine

Receptor	Land Owner	Easting	Northing	Wind Farm Sound Level L _{Aeq} (dBA)*	Nearest Turbine	Distance to Nearest Turbine (m)
A	P & H Frenette	323,389	5,488,519	37	H2	813
B	E Trowbridge	324,471	5,488,475	36	H2	1,246
C	E Trowbridge	324,729	5,488,604	36	J2	1,001
D	F Segboer	325,609	5,490,452	37	J1	1,032
E	B Ritson	325,099	5,492,482	39	D3	754
F	D & C Chester	322,827	5,492,095	39	E2	830
G	C & M Delver	325,665	5,492,190	36	F1	1,243
H	B & A Archibald	326,144	5,493,130	34	D3	1,227
I	D & T Van Driesten	326,355	5,493,371	33	D3	1,444
J	A & J Watmough	324,014	5,494,787	38	D1	1,082
K	R & B Watmough	324,308	5,496,560	38	B1	840
L	Vanee Farms Inc.	326,005	5,496,692	33	B2	1,326
M	E Evans	323,190	5,497,834	38	A1	741
N	B Cooke	322,417	5,497,492	39	A1	799
O	Shrarrat & Mushet	322,355	5,496,871	41	A1	790
P	T & S Donahue	322,376	5,496,495	42	A3	869
Q	J & W McKinnon	322,406	5,496,349	42	A3	865
R	D Chester	322,418	5,493,585	41	C1	683
S	M & G Van Herk	321,625	5,492,868	36	E2	1,468
U	W & J Chester	322,223	5,492,269	37	E2	1,064
V	Hass & Hart	322,437	5,491,554	37	I1	1,105
W	4-B Farms Ltd.	322,390	5,490,617	38	I1	1,129
X	A & A Vallieres	322,140	5,489,405	36	G3	1,361
Y	Dececco Group Ltd.	322,281	5,489,059	36	H2	1,296

* equivalent continuous A-weighted sound pressure level for worst case wind speed of 9 m/s



Ardenville Wind Farm Sound Contours

9m/s Wind Speed at 10m Height

