

Proposed Amendments to the Digby Municipal Airport Land Use By-law

The Digby Municipal Airport Land Use By-law is amended by:

1. Inserting the following definitions after the definition of “Development Officer” in **Section 2 Definitions:**

Domestic Scale Wind Turbine means a device for converting wind power to produce electricity which has a rated capacity of not more than 100kW and which is intended primarily to produce electricity for on-site consumption.

Domestic Wind Turbine Peak Acoustical Emission means the manufacturers rated noise output of a domestic wind turbine.

2. Inserting the following after subsection 14 of **Section 6 General Provision for All Zones:**

15. Domestic Scale Wind Turbines – Setback Requirements

Domestic turbines are permitted in all zones subject to the height restrictions of this By-law.

Domestic turbines shall be located so that the sound level generated by the turbine shall not exceed 45 dB(A) (decibels) heard at any adjacent property boundary. The setback necessary to meet this requirement shall be determined by using the manufactures Peak Acoustical Emission documentation and the “Sound Level by Distance from Source”, Table 1, below:

Table 1: Sound Level by Distance from Source

Sound Level Change dB(A)	Setback Distance m	Sound Level Change dB(A)	Setback Distance m	Sound Level Change dB(A)	Setback Distance m
-24 to -29	4.5	-52	100	-63	355
-30 to -34	9	-53	112	-64	398
-35 to -39	16	-54	126	-65	447
-40 to -42	28	-55	141	-66	502
-43 to -44	40	-56	159	-67	563
-45	50	-57	178	-68	632
-46	56	-58	200	-69	709
-47	63	-59	224	-70	795
-49	71	-60	251	-71	892
-50	80	-61	282		
-51	89	-62	317		

Source: Danish Wind Energy Association, 2003

Calculation Example:

A wind turbine with a manufactures maximum acoustical emission of 85dB(A) will require a 28 m setback to reduce the noise level to 45dB(A) at the property line.

$$\begin{array}{rcl}
 \text{Maximum Sound Level at Property Line} & - & \text{Wind Turbine Peak Emission} & = & \text{Change in Sound Level} \\
 45\text{dB(A)} & & -85\text{dB(A)} & = & -40\text{dB(A)}
 \end{array}$$

The “Sound Level Change” value (-40) can be entered into the “Sound Level by Distance from Source” table to determine the distance required (28 m) to reduce the sound level to 45dB(A) at the property line. The distance value read in the table is the setback value (28 m from adjacent property lines).

