

APPENDIX A
LAND USE BY-LAW

1.0 Background

The HRM has adopted a Regional Plan and Community Energy Functional Plan, recognizing the need for alternative sustainable energy and more specifically, the creation of new policies for the siting of wind energy facilities in HRM (HRM 2012). Three energy overlay zones have been created to reflect how wind energy facilities should be treated differently between the urban and rural areas of HRM. Based on the "Beaver Bank, Hammonds Plains, and Upper Sackville Land Use By-law" (2011) the proposed Project would be considered a "Large Wind Energy Facility".

2.0 Overview of Guidelines

Section 4.32 of the by-law indicates the Project site is situated within the Rural Wind Zone (RW-2) which permits all wind energy facilities, subject to a Development Permit, as well as several setbacks and guidelines as outlined in the by-law.

- i. All turbine towers shall have a minimum distance between turbines equal to the height of the tallest tower;
- ii. A minimum distance of 1000 m (3281 ft) from any habitable building on an adjacent property;
- iii. A minimum distance of 1.0 times the tower height from any adjacent property boundary;
- iv. The installation and design shall conform to applicable industry standards;
- v. All structural, electrical and mechanical components of the Wind Energy Facility shall conform to relevant and applicable local, provincial and national codes;
- vi. All electrical wires shall, to the maximum extent possible, be placed underground;
- vii. The visual appearance of the Wind Energy Facility shall at a minimum:
 - o Be a non-obtrusive colour such as white, off-white or gray;
 - o Not be artificially lit, except to the extent required by the Federal Aviation Act or other applicable authority that regulates air safety; and
 - o Not display advertising (including flags, streamers or decorative items), except for identification of the turbine manufacturer, facility owner and operator.
- viii. The siting of Wind Energy Facilities is subject to the requirements for Watercourse Setbacks and Buffers set out in the Land Use By-law;
- ix. The siting of all accessory buildings are subject to the general set back provision for building under the By-law.

All setback requirements from any Wind Energy Facility to a property boundary may be waived where the adjoining property is part of and forms the same Wind Energy Facility. All Wind Energy Facilities require a development permit. The permit application shall contain the following:

- a) A description of the proposed Wind Energy Facility, including an overview of the project, the proposed total rated capacity of the Wind Energy Facility.
- b) The proposed number, representative types, and height or range of heights of wind turbines towers to be constructed, including their generating capacity, dimensions, respective manufacturers, and a description of accessory facilities.
- c) Identification and location of the properties on which the proposed Wind Energy Facility will be located.

- d) At the discretion of the Development Officer, a survey prepared by a Nova Scotia Land Surveyor, a surveyor's certificate, or a site plan showing the planned location of all wind turbines towers, property lines, setback lines, access roads, turnout locations, substation(s), electrical cabling from the Wind Energy Facility to the substation(s), ancillary equipment, building(s), transmission and distribution lines. The site plan must also include the location of all structures and land parcels, demonstrating compliance with the setbacks and separation distance where applicable.
- e) At the discretion of the Development Officer, proof of notification to the Department of National Defense, NAV Canada, Natural Resources Canada and other applicable agencies regarding potential radio, telecommunications, radar and seismoacoustic interference, if applicable, to Transport Canada and the *Aviation Act*.
- f) Any other relevant information as may be requested by the Halifax Regional Municipality to ensure compliance with the requirements of this By-law.

Additional permit requirements may include the following:

- a) The Development Permit application shall be reviewed by a Municipal Building Official to determine if design submissions are required from a Professional Engineer to ensure that the wind turbine base, foundation, or guy wired anchors required to maintain the structural stability of the wind turbine tower(s) are sufficient where a wind turbine is:
 - i. not attached to a building and is not connected to the power grid;
 - ii. attached to an accessory building in excess of 215 ft² and is not connected to the power grid.
- b) A minimum of 60 day before the date a development permit application is submitted, an applicant shall send a notice to all assessed property owners of property that is within 2000 m (6560 ft) from the boundary of the property upon which any large wind energy facility is proposed.
- c) The notice pursuant to section b) shall include the following information:
 - i. A site plan that includes property boundaries and the location of the proposed wind energy facility;
 - ii. A description of the type of wind energy facility; and
 - iii. The applicant's contact information which shall include a mailing address.

3.0 References

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APPENDIX B
ENVIRONMENTAL PROTECTION PLAN SUGGESTED
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APPENDIX C
HUMAN HEALTH AND WIND FARMS – A LITERATURE
REVIEW

In support of the Environmental Assessment (EA) for the North Beaver Bank Community Wind Project, a review was completed of current available literature on the potential effects on human health related to wind energy. Several key health-related issues were identified, and Project-specific studies were completed to address sound. Details of this study are provided in Section 12.0 of the "Environmental Assessment Registration Document".

The following sections provide additional background information on the potential effects of electromagnetic fields (EMFs), air quality, ice throw/shedding and infrasound on human health.

Electromagnetic Fields

EMFs are a type of energy that occurs naturally and is also created through the use of electrical appliances and equipment (i.e. cell phone usage, radio towers, etc.) (City of Toronto 2011). A guidebook to Wind Energy Development was produced in 2011 and identified transmission lines, wind turbine generators, generator transformers and underground cables as the four potential sources of EMFs as a result of wind farm operations (Canadian Wind Energy Association [CanWEA] 2011). The guidebook goes on to suggest that EMF exposure is not significant due to low emission levels produced by wind farm operations and indicates that generator transformers likely generate the highest levels of EMFs. Similar conclusions have been made by Health Canada and the World Health Organization (Chief Medical Officer of Health of Ontario 2010).

In 2007, a study was completed to assess the possible effects of EMFs on human health. The study concluded that there is little evidence to support the theory that EMFs cause long term health issues (Scientific Committee on Emerging and Newly Identified Health Risks 2007). As well, a study led by the National Institute of Environmental Health Sciences assessed scientific evidence spanning over six years, to determine whether exposure to EMF could result in a potential risk to human health. Results indicated that there were no consistent patterns of biological effects with animals or with cells (Electric and Magnetic Fields Research and Public Information Dissemination Program 2002).

Health Canada states that "research has shown that EMFs from electrical devices and power lines can cause weak electric currents to flow through the human body. However, these currents are much smaller than those produced naturally by your brain, nerves and heart, and are not associated with any known health risks" (Health Canada 2010). Health Canada goes on to state that EMFs are strongest when close to the source so that at greater distances, the strength of the field fades rapidly and humans need not engage in specific actions to minimize risk including those who are located just outside the boundaries of power line corridors (Health Canada 2010).

Air Quality

The development and construction phases of a wind energy project may affect local air quality by increasing air borne dust associated with on-site equipment, and vehicles. Emissions from vehicles and equipment can also contribute to a reduction in local air quality.

The American Wind Energy Association (AWEA) states that the generation of electricity from the wind does not result in any air emissions (AWEA 2010). Similarly, the US Environmental Protection Agency (EPA) recognizes that the emissions associated with wind technology are negligible because no fuels are combusted. Therefore, wind energy production offsets more polluting forms of energy generation and can actually improve air quality and our health.

Ice Throw and Ice Shedding

Under appropriate temperature and humidity conditions, ice can build up on the rotor blades, nacelle and tower of a wind turbine, which can lead to two types of risk:

- ice fragments dislodge and are shed from the rotor of the operating turbine due to aerodynamic and centrifugal forces; and
- ice fragments dislodge from the structure and fall to the ground when it is shut down or idling without power production (CanWEA 2007).

As part of a project prepared by the Finnish Meteorological Institute entitled “Wind Energy in Cold Climates (WECO)”, a set of safety guidelines for wind developments in ice prone areas was developed. A risk assessment methodology demonstrated that the risk of being struck by ice thrown from a turbine is diminishingly small at distances greater than approximately 250 m from the turbine in a climate where moderate icing occurs (Morgan *et al.* 1998). With proper setbacks and on-site safety awareness, hazards are minimized (Colby 2008; Massachusetts Department of Environmental Protection & Massachusetts Department of Public Health 2012).

Turbines for the proposed Project have been located greater than 1,700 m from the nearest identified structure and 2,170 m from the nearest known permanent/seasonal residence. Access to the site will be provided from existing logging roads off of Beaver Bank Road. The nearest turbine to a public road is Turbine 4, located 2,290 km from Beaver Bank Road. Project access roads are expected to be used by on-site workers only. The closest existing logging road to a turbine is approximately 74 m (Turbine 2). In addition to turbine siting away from public roads, the following mitigative strategies will decrease and/or eliminate the risk of injury from ice to nearby workers and drivers on on-site access and logging roads. In addition, the following additional mitigation strategies will be implemented:

- physical and visual warnings (i.e. signs and fences); and
- restriction of access to trained site personnel (Wahl and Giguere 2006).

Infrasound

General Background - Sound

Humans detect sound from changes in pressure that travel through the air and cause the eardrum and small bones of the middle ear to vibrate. The vibrations are transmitted to the inner ear where sensory hair cells then change the vibrations into nerve impulses, which travel to the brain where they are perceived and interpreted.

The magnitude (loudness) of sound is described as “pressure level”, “sound level” or “noise level” and is measured as decibels (dB). Typical sound levels, measured in decibels, are shown in Table A.

Table A: Typical Sound Levels

Source	Distance from Source		Sound Pressure Levels (dBA)
	feet	meters	
Freight train	100	30	70
Vacuum Cleaner	10	3	70

Source	Distance from Source		Sound Pressure Levels (dBA)
	feet	meters	
Freeway	100	30	70
Wind in trees	40	12	55
Light traffic	100	30	70
Average home			50
Soft whisper	5	2	30
Quiet bedroom			20

Source: AWEA 2011

The tonal quality or pitch of the sound is related to its frequency and is measure in hertz (Hz). The normal frequency range of sounds that humans can hear (known as audible sound) extends from about 20-50 Hz (a rumbling sound) up to high frequency of about 10,000-15,000 Hz (hissing sound) or even higher for some people. Humans generally hear best in the mid-frequency range of 500-4,000 Hz.

General Background - Infrasound

Infrasound is very low-frequency sound, that is typically defined as being between 1-20 Hz, which is below what human ears can normally hear.

Infrasound is everywhere in the environment. It is emitted from natural sources (e.g. wind, rivers) and from artificial sources including road traffic, aircraft, and ventilation systems. The most common source of infrasound that humans encounter is vehicles (CMOH 2010).

When evaluating potential effects of infrasound, it is important that these frequencies be discussed in the context of the sound pressure levels, or in other words, the loudness of the sound. For instance, very loud sounds at very low frequencies (i.e. 165 dB at 2 Hz, reducing to 145 dB at 20 Hz) may result in pain (Leventhall 2006) and infrasound has been shown to cause annoyance, when the sound level exceeds the threshold of hearing (i.e. the lowest sound levels that a listener can detect) (HGC 2010). Further, research shows that to be physically felt, infrasound must exceed 100–110 dB (Ellenbogen *et al.* 2012).

While there is some variation in the literature and between individual sensitivities, there is fairly good agreement on the level of the threshold of hearing among the various studies that have been completed (Figure 1).

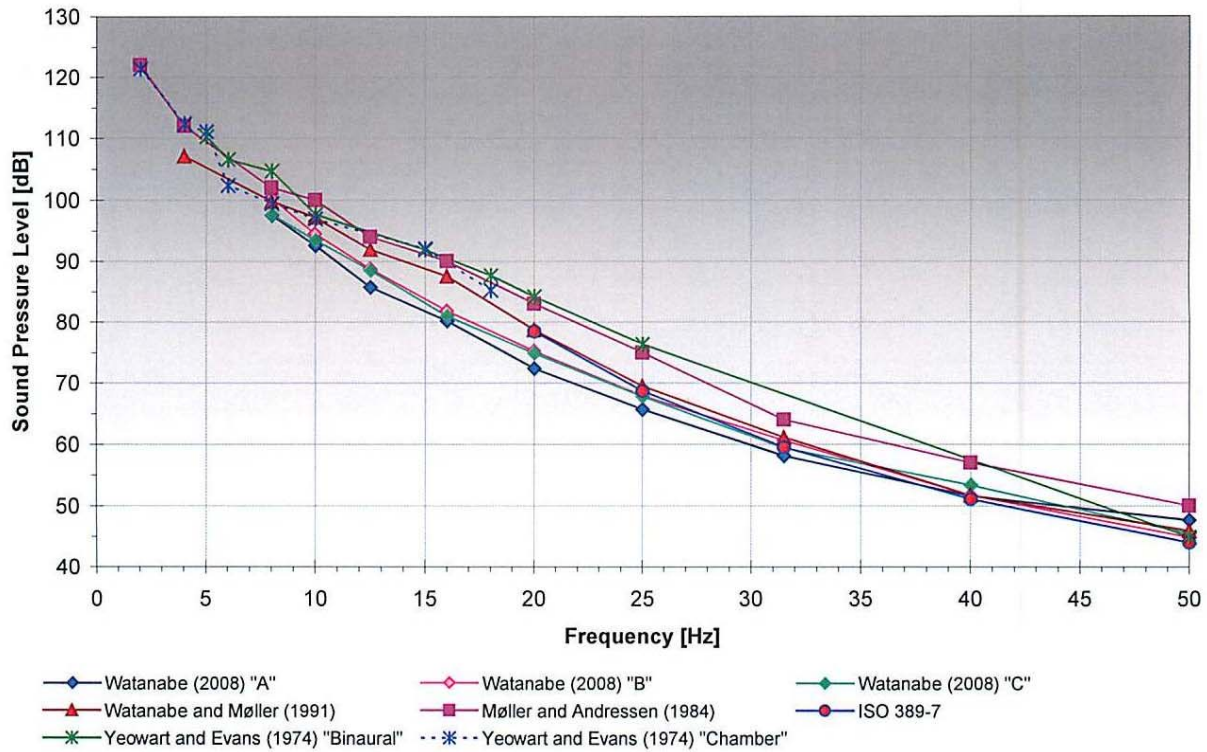


Figure 1: Threshold of Hearing Data from Various Papers (HGC 2010).

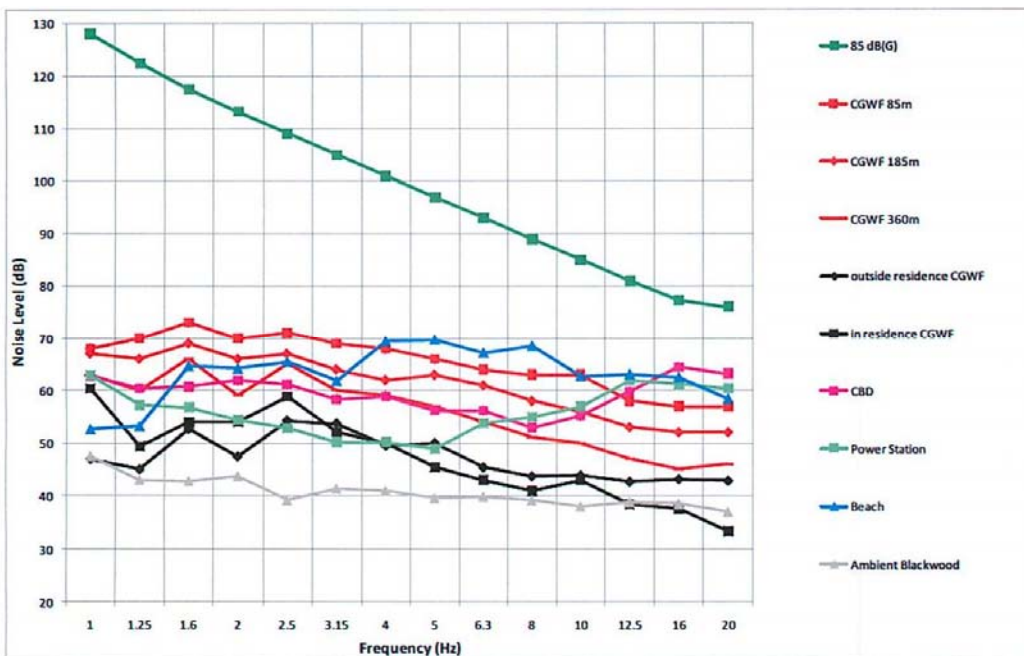
What these results show is that the lower the frequency of the sound, the louder the sound needs to be in order to be perceived.

Measured Infrasound Levels

In 2010, Sonus, an acoustic consulting firm based in South Australia, completed a study to measure infrasound produced by a range of natural and manmade sources using a methodology specifically designed to measure infrasound (Table B, Figure 2). The G-weighting network was applied to the measured infrasound pressure levels as it has been standardized to determine the human perception (i.e. threshold of hearing) and annoyance due to noise that lies within the infrasound frequency range. By comparison, when measuring audible sound levels, meters are usually equipped with weighting circuits to simulate the frequency response characteristics of the human ear. The A-weighting filter is normally used as it correlates well with the human perception of most sounds. Sound levels measured using the G and A-weighting filters are expressed as dBG and dBA, respectively.

Table B: Measured Levels of Infrasound from Natural and Manmade Sources

Source	Infrasound Level (dBG)
Threshold of hearing	85 dBG
Wind Farm (360 m downwind) (CGWF)	61 dBG
100 m downwind from wind farm (CBWF)	66 dBG
200 m downwind from wind farm (CBWF)	63 dBG
Ambient infrasound (100 m from nearest turbine with negligible wind and no turbine operation) (CBWF)	62 dBG
Inside a residence (fridge operating) (1200m from nearest turbine)	51 dBG
Outside a residence (1200m from nearest turbine)	58 dBG
Adjacent to the beach (25 m from high water mark)	75 dBG
Cliff face (250 m from the coastline)	69 dBG
Inland forest (8 km from the coastline)	57 dBG
Gas fired power station (350 m)	74 dBG
Business District (70 m from two major road corridors)	76 dBG



Source: Sonus Pty Ltd 2010

Figure 2: Summary of Measurement at the Clements Gap Wind Farm and Other Sources (Sonus Pty Ltd 2010)

The results of the study indicate that while turbines do produce infrasound, levels are well below established levels that can be perceived by humans and are comparable to natural and urban sources that are common in the environment.

Another recent Australian report also measured levels of infrasound within typical environments in South Australia, with a particular focus on comparing wind farm environments to urban and rural environments away from wind farms. The study concluded that measured infrasound levels at rural locations both near to and away from wind farms were no higher than infrasound levels measured at

the urban locations (Figure 3). Human activity and traffic were the main sources of infrasound at urban locations, while localized wind conditions were found to be the main source of infrasound in rural locations. All measurements were below the levels that can be perceived by humans, with most by a significant margin (Evans *et al.* 2013).

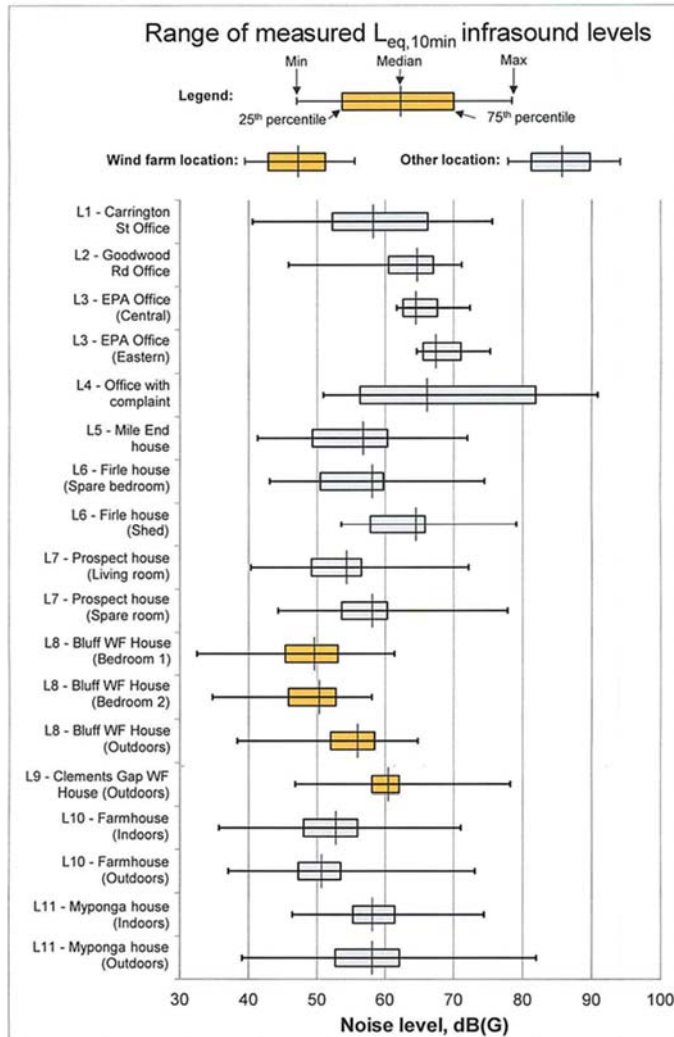


Figure 3: Range of Measured Infrasound Levels (Evans *et al.* 2013).

An investigation was also completed at a wind farm in Pubnico, Nova Scotia to, in part, evaluate infrasound levels at a residence within 330 m of the closest turbine (HGC 2006). Similar to other results from wind farms, infrasound levels were found to be well below the level of sound that can be perceived by humans, as shown in Figure 4.

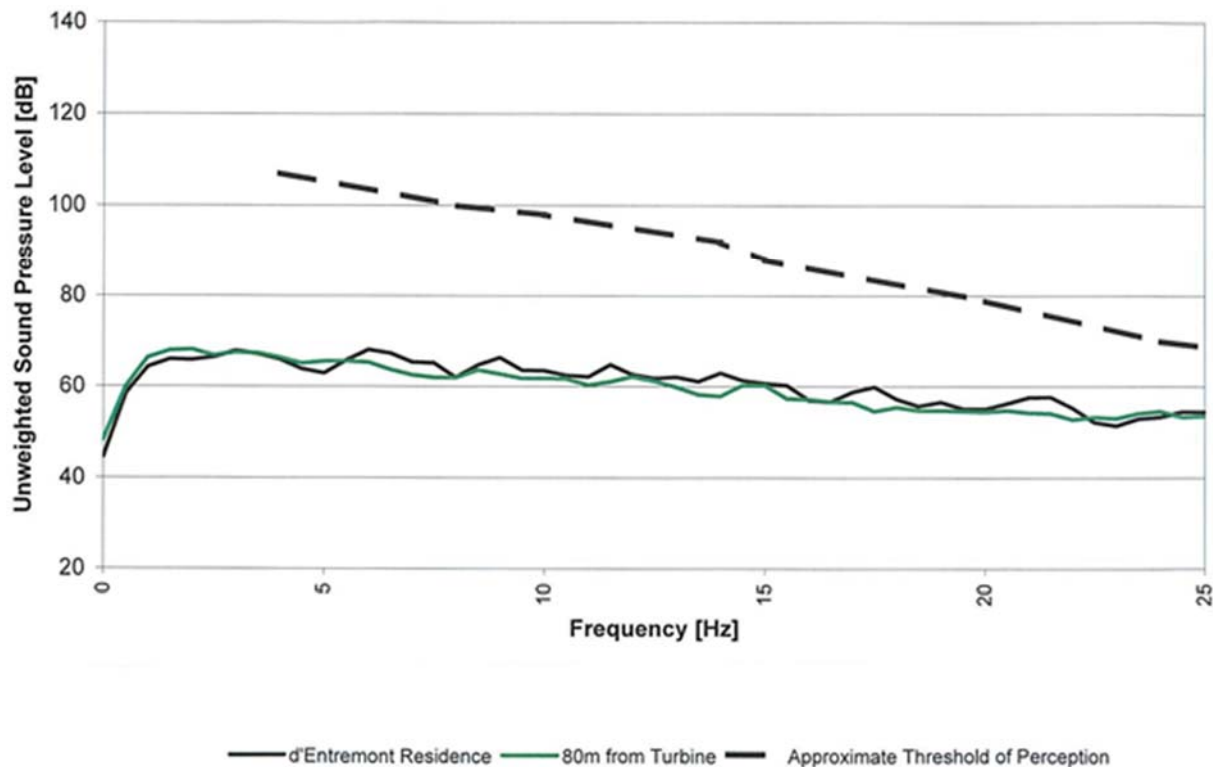


Figure 4: Infrasound Measurements at Pubnico Wind Farm (HGC 2006).

Infrasound and Health Concerns

Concern about infrasound from wind turbines may have originated from the experience of neighbours of early wind turbine designs with downwind rotors (rotors downwind of the tower). In contrast, all modern utility scale wind turbines have upwind rotors that produce significantly lower infrasound emissions (Bastasch *et al.* 2006).

Several studies and panels have been assembled to evaluate the perceived health effects associated with wind turbines.

A scientific advisory panel with expertise in audiology, acoustics, occupational/environmental medicine, and public health was assembled by the wind industry in early 2009 to conduct a review of current literature available on the issue of perceived health effects of wind turbines (Colby *et al.* 2009). Following their review and analysis of the information, the panel reached consensus on the following conclusions:

- There is no evidence that the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.
- The ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans.
- The sounds emitted by wind turbines are not unique. There is no reason to believe, based on the levels and frequencies of the sounds and the panel's experience with sound exposures in occupational settings, that the sounds from wind turbines could plausibly have direct adverse health consequences.

The Chief Medical Officer of Health in Ontario also conducted a review of papers and reports (from 1970 to date) on wind turbines and health from scientific bibliographic databases, grey literature, and from a structured Internet search. The report concluded that “low frequency sound and infrasound from current generation upwind model turbines are well below the pressure sound levels at which known health effects occur. Further, there is no scientific evidence to date that vibration from low frequency wind turbine noise causes adverse health effects” (CMOH 2010).

The Massachusetts Department of Environmental Protection in collaboration with the Massachusetts Department of Public Health recently convened a panel of independent experts to identify any documented or potential health impacts of risks that may be associated with exposure to wind turbines, and, specifically, to facilitate discussion of wind turbines and public health based on scientific findings. The panel concluded that “measured levels of infrasound produced by modern upwind wind turbines at distances as close as 68 m are well below that required for non-auditory perception”. Further, the panel concluded that “the weight of the evidence suggests no association between noise from wind turbines and measures of psychological distress or mental health problems” (Ellenbogen *et al.* 2012).

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APPENDIX D
WETLAND CHARACTERIZATIONS

Table D1: Wetland Characteristics: North Beaver Bank Community Wind Project, Beaver Bank, NS

WETLAND ID	WETLAND TYPE	LANDSCAPE POSITION	LANDFORM	WATER FLOW	SOIL TYPE	SURFACE/HYDROLOGIC CONDITIONS	WETLAND BOUNDARY	DOMINANT VEGETATION			WATERCOURSE/WATER BODY PRESENT
								Herbs	Shrubs	Trees	
1A	Shrub bog	Terrene	Basin	Outflow	Organic (A1-histosol)	1) Saturated at surface 2) Groundwater within 10 cm 3) Intermittent surface water	Gentle	three-seeded sedge (<i>Carex trisperma</i>); cinnamon fern (<i>Osmunda cinnamomea</i>); pitcher plant (<i>Sarracenia purpurea</i>); cotton grass (<i>Eriophorum spp.</i>)	black spruce (<i>Picea mariana</i>); larch (<i>Larix laricina</i>); mountain holly (<i>Nemopanthus mucronata</i>)	larch; black spruce (trees only around perimeter of bog)	This wetland sources Watercourse 1, which drains the wetland to the southeast.
1B	Treed swamp	Lotic stream (confined)	Flat / slope	Outflow	Organic over depleted mineral (A2 Histic epipedon)	1) Saturated at surface 2) Water-stained leaves 3) Drainage patterns	Gentle	cinnamon fern; three-seeded sedge; bunchberry (<i>Cornus canadensis</i>)	black spruce; mountain holly	black spruce; white birch (<i>Betula papyrifera</i>)	None.
2	Treed swamp	Lotic stream (confined)	Flat	Throughflow (entrenched)	Organic over depleted mineral (A2 Histic epipedon)	1) Saturated at surface 2) Water-stained leaves 3) Drainage patterns 4) Groundwater within 10 cm	Gentle	three-seeded sedge; foul managrass (<i>Glyceria striata</i>)	lambkill (<i>Kalmia angustifolia</i>); black spruce	black spruce	Watercourse 1 forms the south western boundary of this wetland.
3	Former treed swamp	Terrene	Basin	Outflow (via drainage)	Thin organic over depleted mineral (A2 - Histic epipedon)	1) Saturated within 5 cm 2) Drainage patterns 3) Water stained leaves	Gentle to moderate	woolgrass (<i>Scirpus cyperinus</i>); foul managrass	yellow birch (<i>Betula allegheniensis</i>); white birch; red maple (<i>Acer rubrum</i>)	none (cutover)	None. Drains into roadside ditch.
4	Treed swamp	Terrene	Basin	Outflow	Thin organic over depleted mineral (A2 - Histic epipedon)	1) Saturated at surface 2) Groundwater within 10 cm 3) Intermittent surface water	Gentle to moderate	woolgrass; foul managrass	balsam fir (<i>Abies balsamea</i>); red maple; white birch	black spruce	Drained by watercourse to the south.
5	Former treed swamp	Terrene	Basin	Outflow	Organic over depleted mineral (A2 - Histic epipedon)	1) Saturated at surface 2) Water-stained leaves 3) Drainage patterns	Gentle to moderate	soft rush (<i>Juncus effusus</i>);	blackberry (<i>Rubus allegheniensis</i>); red maple white birch	black spruce in areas that have not been cutover	Drained by Watercourse 3 to the south

APPENDIX E
ACCDC AND PROJECT SITE PLANT LISTS

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, North Beaver Bank Community Wind Project Project#12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Acadian Quillwort	<i>Isoetes acadensis</i>	Not Listed	Not Listed	Not Listed	Yellow
Alder-leaved Buckthorn	<i>Rhamnus alnifolia</i>	Not Listed	Not Listed	Not Listed	Yellow
Aloe-Like Rigid Screw Moss	<i>Aloina rigida</i>	Not Listed	Not Listed	Not Listed	Not Listed
Alpine Bilberry	<i>Vaccinium uliginosum</i>	Not Listed	Not Listed	Not Listed	Yellow
American Cancer-root	<i>Conopholis americana</i>	Not Listed	Not Listed	Not Listed	Red
American False Pennyroyal	<i>Hedeoma pulegioides</i>	Not Listed	Not Listed	Not Listed	Yellow
Appalachian Polypody	<i>Polypodium appalachianum</i>	Not Listed	Not Listed	Not Listed	Undetermined
Appressed Jellyskin Lichen	<i>Leptogium subtile</i>	Not Listed	Not Listed	Not Listed	Yellow
Arrow-Leaved Violet	<i>Viola sagittata</i>	Not Listed	Not Listed	Not Listed	Green
Atlantic Sedge	<i>Carex atlantica ssp. capillacea</i>	Not Listed	Not Listed	Not Listed	Green
Balsam Groundsel	<i>Packera paupercula</i>	Not Listed	Not Listed	Not Listed	Green
Beaded Jellyskin Lichen	<i>Leptogium teretiusculum</i>	Not Listed	Not Listed	Not Listed	Yellow
Bearded Sedge	<i>Carex comosa</i>	Not Listed	Not Listed	Not Listed	Yellow
Bebb's Sedge	<i>Carex bebbii</i>	Not Listed	Not Listed	Not Listed	Red
Bicknell's Crane's-bill	<i>Geranium bicknellii</i>	Not Listed	Not Listed	Not Listed	Green
Big-leaved Marsh-elder	<i>Iva frutescens</i>	Not Listed	Not Listed	Not Listed	Yellow
Black Ash	<i>Fraxinus nigra</i>	Not Listed	Threatened	Not Listed	Yellow
Black-foam Lichen	<i>Anzia colpodes</i>	Not Listed	Not Listed	Not Listed	Yellow
Blistered Jellyskin Lichen	<i>Leptogium corticola</i>	Not Listed	Not Listed	Not Listed	Yellow
Blistered Tarpaper Lichen	<i>Collema nigrescens</i>	Not Listed	Not Listed	Not Listed	Yellow
Blood Milkwort	<i>Polygala sanguinea</i>	Not Listed	Not Listed	Not Listed	Yellow
Bloodroot	<i>Sanguinaria canadensis</i>	Not Listed	Not Listed	Not Listed	Green
Blue Cohosh	<i>Caulophyllum thalictroides</i>	Not Listed	Not Listed	Not Listed	Red
Blue Felt Lichen	<i>Degelia plumbea</i>	No Status	Vulnerable	Special Concern	Green
Blue Vervain	<i>Verbena hastata</i>	Not Listed	Not Listed	Not Listed	Green
Blunt Broom Sedge	<i>Carex tribuloides</i>	Not Listed	Not Listed	Not Listed	Green
Blunt Sweet Cicely	<i>Osmorhiza depauperata</i>	Not Listed	Not Listed	Not Listed	Red
Blunt-leaved Pondweed	<i>Potamogeton obtusifolius</i>	Not Listed	Not Listed	Not Listed	Yellow
Bog Birch	<i>Betula pumila var. pumila</i>	Not Listed	Not Listed	Not Listed	Yellow
Bog Willow	<i>Salix pedicellaris</i>	Not Listed	Not Listed	Not Listed	Yellow
Boreal Aster	<i>Symphotrichum boreale</i>	Not Listed	Not Listed	Not Listed	Yellow
Boreal Felt Lichen - Atlantic pop.	<i>Erioderma pedicellatum (Atlantic pop.)</i>	Endangered	Endangered	Endangered	Red
Bottlebrush Frost Lichen	<i>Physconia detersa</i>	Not Listed	Not Listed	Not Listed	Yellow
Branched Bartonnia	<i>Bartonia paniculata ssp. paniculata</i>	Not Listed	Not Listed	Not Listed	Green
Bristle-leaved Sedge	<i>Carex eburnea</i>	Not Listed	Not Listed	Not Listed	Yellow
Broad-Glumed Brome	<i>Bromus latiglumis</i>	Not Listed	Not Listed	Not Listed	Red
Bulblet Bladder Fern	<i>Cystopteris bulbifera</i>	Not Listed	Not Listed	Not Listed	Green
Butternut	<i>Juglans cinerea</i>	Not Listed	Not Listed	Not Listed	Exotic
Buttonbush Dodder	<i>Cuscuta cephalanthi</i>	Not Listed	Not Listed	Not Listed	Red
Canada Anemone	<i>Anemone canadensis</i>	Not Listed	Not Listed	Not Listed	Red
Canada Germander	<i>Teucrium canadense</i>	Not Listed	Not Listed	Not Listed	Yellow
Canada Lily	<i>Lilium canadense</i>	Not Listed	Not Listed	Not Listed	Yellow
Canada Rice Grass	<i>Piptatherum canadense</i>	Not Listed	Not Listed	Not Listed	Yellow
Canada Tick-trefoil	<i>Desmodium canadense</i>	Not Listed	Not Listed	Not Listed	Red
Canada Violet	<i>Viola canadensis</i>	Not Listed	Not Listed	Not Listed	Extirpated
Canada Waterweed	<i>Elodea canadensis</i>	Not Listed	Not Listed	Not Listed	Green
Canada Wood Nettle	<i>Laportea canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow
Case's Ladies'-Tresses	<i>Spiranthes casei var. casei</i>	Not Listed	Not Listed	Not Listed	Yellow
Chestnut Sedge	<i>Carex castanea</i>	Not Listed	Not Listed	Not Listed	Red
Chinese Hemlock-parsley	<i>Conioselinum chinense</i>	Not Listed	Not Listed	Not Listed	Yellow
Clammy Hedge-Hyssop	<i>Gratiola neglecta</i>	Not Listed	Not Listed	Not Listed	Yellow
Climbing False Buckwheat	<i>Polygonum scandens</i>	Not Listed	Not Listed	Not Listed	Yellow
Clustered Sanicle	<i>Sanicula odorata</i>	Not Listed	Not Listed	Not Listed	Red
Coastal Plain Blue-eyed-grass	<i>Sisyrinchium fuscatum</i>	Not Listed	Not Listed	Not Listed	Red
Comb-leaved Mermaidweed	<i>Proserpinaca pectinata</i>	Not Listed	Not Listed	Not Listed	Yellow
Common Bedstraw	<i>Galium aparine</i>	Not Listed	Not Listed	Not Listed	Exotic
Common Buttonbush	<i>Cephalanthus occidentalis</i>	Not Listed	Not Listed	Not Listed	Yellow
Common Moonwort	<i>Botrychium lunaria</i>	Not Listed	Not Listed	Not Listed	Red
Common Scouring-rush	<i>Equisetum hyemale</i>	Not Listed	Not Listed	Not Listed	Green

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, North Beaver Bank Community Wind Project Project#12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Cuckoo Flower	<i>Cardamine pratensis</i>	Not Listed	Not Listed	Not Listed	Red
Cursed Buttercup	<i>Ranunculus sceleratus</i>	Not Listed	Not Listed	Not Listed	Red
Cut-Leaved Coneflower	<i>Rudbeckia laciniata</i>	Not Listed	Not Listed	Not Listed	Yellow
Cut-leaved Moonwort	<i>Botrychium dissectum</i>	Not Listed	Not Listed	Not Listed	Green
Deer-tongue Panic Grass	<i>Dichanthelium clandestinum</i>	Not Listed	Not Listed	Not Listed	Green
Dense Blazing Star	<i>Liatris spicata</i>	Not Listed	Not Listed	Not Listed	Not Listed
Disguised St John's-wort	<i>Hypericum dissimulatum</i>	Not Listed	Not Listed	Not Listed	Yellow
Downy Rattlesnake-Plantain	<i>Goodyera pubescens</i>	Not Listed	Not Listed	Not Listed	Red
Downy Willowherb	<i>Epilobium strictum</i>	Not Listed	Not Listed	Not Listed	Yellow
Drummond's Rockcress	<i>Arabis drummondii</i>	Not Listed	Not Listed	Not Listed	Yellow
Dudley's Rush	<i>Juncus dudleyi</i>	Not Listed	Not Listed	Not Listed	Yellow
Dwarf Bilberry	<i>Vaccinium caespitosum</i>	Not Listed	Not Listed	Not Listed	Yellow
Dwarf Clearweed	<i>Pilea pumila</i>	Not Listed	Not Listed	Not Listed	Red
Dwarf Scouring-Rush	<i>Equisetum scirpoides</i>	Not Listed	Not Listed	Not Listed	Green
Early Coralroot	<i>Corallorhiza trifida</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Blue-Eyed-Grass	<i>Sisyrinchium atlanticum</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Cudweed	<i>Pseudognaphalium obtusifolium</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Leatherwood	<i>Dirca palustris</i>	Not Listed	Not Listed	Not Listed	Red
Eastern Lilaeopsis	<i>Lilaeopsis chinensis</i>	Special Concern	Vulnerable	Special Concern	Yellow
Eastern White Cedar	<i>Thuja occidentalis</i>	Not Listed	Vulnerable	Not Listed	Red
Eaton's Witchgrass	<i>Dichanthelium spretum</i>	Not Listed	Not Listed	Not Listed	Green
Estuary Beggarticks	<i>Bidens hyperborea</i>	Not Listed	Not Listed	Not Listed	Red
False Mermaidweed	<i>Floerkea proserpinacoides</i>	Not Listed	Not Listed	Not at Risk	Yellow
Farwell's Water Milfoil	<i>Myriophyllum farwellii</i>	Not Listed	Not Listed	Not Listed	Yellow
Fernald's Hay Sedge	<i>Carex foenea</i>	Not Listed	Not Listed	Not Listed	Green
Fernald's Serviceberry	<i>Amelanchier fernaldii</i>	Not Listed	Not Listed	Not Listed	Undetermined
Field Locoweed	<i>Oxytropis campestris var. johannensis</i>	Not Listed	Not Listed	Not Listed	Red
Five-angled Dodder	<i>Cuscuta pentagona</i>	Not Listed	Not Listed	Not Listed	Undetermined
Flat-stemmed Pondweed	<i>Potamogeton zosteriformis</i>	Not Listed	Not Listed	Not Listed	Yellow
Fragrant Wood Fern	<i>Dryopteris fragrans var. remotiuscula</i>	Not Listed	Not Listed	Not Listed	Yellow
Fries' Pondweed	<i>Potamogeton friesii</i>	Not Listed	Not Listed	Not Listed	Red
Fringed Blue Aster	<i>Symphotrichum ciliolatum</i>	Not Listed	Not Listed	Not Listed	Yellow
Garber's Sedge	<i>Carex garberi</i>	Not Listed	Not Listed	Not Listed	Red
Ghost Antler Lichen	<i>Pseudevernia cladonia</i>	No Status	Not Listed	Not at Risk	Yellow
Glaucous Blue Grass	<i>Poa glauca</i>	Not Listed	Not Listed	Not Listed	Yellow
Gmelin's Water Buttercup	<i>Ranunculus gmelinii</i>	Not Listed	Not Listed	Not Listed	Green
Golden Alexanders	<i>Zizia aurea</i>	Not Listed	Not Listed	Not Listed	Red
Golden Crest	<i>Lophiola aurea</i>	Threatened	Vulnerable	Special Concern	Red
Graceful Felt Lichen	<i>Erioderma mollissimum</i>	No Status	Not Listed	Endangered	Red
Grass-leaved Rush	<i>Juncus marginatus</i>	Not Listed	Not Listed	Not Listed	Yellow
Green Spleenwort	<i>Asplenium trichomanes-ramosum</i>	Not Listed	Not Listed	Not Listed	Red
Greene's Rush	<i>Juncus greenei</i>	Not Listed	Not Listed	Not Listed	Red
Greenland Stitchwort	<i>Minuartia groenlandica</i>	Not Listed	Not Listed	Not Listed	Yellow
Ground-Fir	<i>Lycopodium sabinifolium</i>	Not Listed	Not Listed	Not Listed	Not Listed
Hairlike Sedge	<i>Carex capillaris</i>	Not Listed	Not Listed	Not Listed	Yellow
Hairy Goldenrod	<i>Solidago hispida</i>	Not Listed	Not Listed	Not Listed	Red
Hairy Lettuce	<i>Lactuca hirsuta var. sanguinea</i>	Not Listed	Not Listed	Not Listed	Yellow
Halberd-leaved Tearthumb	<i>Polygonum arifolium</i>	Not Listed	Not Listed	Not Listed	Yellow
Hayden's Sedge	<i>Carex haydenii</i>	Not Listed	Not Listed	Not Listed	Red
Heart-leaved Foamflower	<i>Tiarella cordifolia</i>	Not Listed	Not Listed	Not Listed	Yellow
Hidden-scaled Sedge	<i>Carex cryptolepis</i>	Not Listed	Not Listed	Not Listed	Green
Highbush Blueberry	<i>Vaccinium corymbosum</i>	Not Listed	Not Listed	Not Listed	Green
Hooked Agrimony	<i>Agrimonia gryposepala</i>	Not Listed	Not Listed	Not Listed	Green
Hooker's Orchid	<i>Platanthera hookeri</i>	Not Listed	Not Listed	Not Listed	Green
Hop Sedge	<i>Carex lupulina</i>	Not Listed	Not Listed	Not Listed	Green
Horned Sea-blite	<i>Suaeda calceoliformis</i>	Not Listed	Not Listed	Not Listed	Green
Horn-leaved Riverweed	<i>Podostemum ceratophyllum</i>	Not Listed	Not Listed	Not Listed	Red
Houghton's Sedge	<i>Carex houghtoniana</i>	Not Listed	Not Listed	Not Listed	Yellow
Humped Bladderwort	<i>Utricularia gibba</i>	Not Listed	Not Listed	Not Listed	Green

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, North Beaver Bank Community Wind Project Project#12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Hyssop-leaved Fleabane	<i>Erigeron hyssopifolius</i>	Not Listed	Not Listed	Not Listed	Yellow
Inverted Bladderwort	<i>Utricularia resupinata</i>	Not Listed	Not Listed	Not Listed	Red
Kalm's Hawkweed	<i>Hieracium kalmii</i>	Not Listed	Not Listed	Not Listed	Not Listed
Labrador Bedstraw	<i>Galium labradoricum</i>	Not Listed	Not Listed	Not Listed	Yellow
Lance-leaved Figwort	<i>Scrophularia lanceolata</i>	Not Listed	Not Listed	Not Listed	Undetermined
Large Purple Fringed Orchid	<i>Platanthera grandiflora</i>	Not Listed	Not Listed	Not Listed	Green
Large Round-Leaved Orchid	<i>Platanthera macrophylla</i>	Not Listed	Not Listed	Not Listed	Yellow
Large St John's-wort	<i>Hypericum majus</i>	Not Listed	Not Listed	Not Listed	Red
Large Tick-Trefoil	<i>Desmodium glutinosum</i>	Not Listed	Not Listed	Not Listed	Red
Large Toothwort	<i>Cardamine maxima</i>	Not Listed	Not Listed	Not Listed	Red
Laurentian Primrose	<i>Primula laurentiana</i>	Not Listed	Not Listed	Not Listed	Green
Least Moonwort	<i>Botrychium simplex</i>	Not Listed	Not Listed	Not Listed	Yellow
Lesser Brown Sedge	<i>Carex adusta</i>	Not Listed	Not Listed	Not Listed	Yellow
Lesser Pyrola	<i>Pyrola minor</i>	Not Listed	Not Listed	Not Listed	Yellow
Lesser Rattlesnake-plantain	<i>Goodyera repens</i>	Not Listed	Not Listed	Not Listed	Yellow
Lesser Spearwort	<i>Ranunculus flammula</i> var. <i>flammula</i>	Not Listed	Not Listed	Not Listed	Green
Little Curlygrass Fern	<i>Schizaea pusilla</i>	Not Listed	Not Listed	Not Listed	Green
Little Floating Bladderwort	<i>Utricularia radiata</i>	Not Listed	Not Listed	Not Listed	Green
Livid Sedge	<i>Carex livida</i> var. <i>radicaulis</i>	Not Listed	Not Listed	Not Listed	Red
Loesel's Twayblade	<i>Liparis loeselii</i>	Not Listed	Not Listed	Not Listed	Green
Long-bracted Frog Orchid	<i>Coeloglossum viride</i> var. <i>virescens</i>	Not Listed	Not Listed	Not Listed	Red
Long-branched Frostweed	<i>Helianthemum canadense</i>	Not Listed	Not Listed	Not Listed	Red
Long-leaved Starwort	<i>Stellaria longifolia</i>	Not Listed	Not Listed	Not Listed	Yellow
Loose-Flowered Sedge	<i>Carex laxiflora</i> var. <i>laxiflora</i>	Not Listed	Not Listed	Not Listed	Red
Maidenhair Spleenwort	<i>Asplenium trichomanes</i>	Not Listed	Not Listed	Not Listed	Yellow
Maritime Saltbush	<i>Atriplex acadiensis</i>	Not Listed	Not Listed	Not Listed	Not Listed
Marsh Bellflower	<i>Campanula aparinoides</i>	Not Listed	Not Listed	Not Listed	Yellow
Marsh Horsetail	<i>Equisetum palustre</i>	Not Listed	Not Listed	Not Listed	Red
Marsh Mermaidweed	<i>Proserpinaca palustris</i>	Not Listed	Not Listed	Not Listed	Green
Meadow Horsetail	<i>Equisetum pratense</i>	Not Listed	Not Listed	Not Listed	Yellow
Meadow Willow	<i>Salix petiolaris</i>	Not Listed	Not Listed	Not Listed	Green
Metropolitan Timmia Moss	<i>Timmia megapolitana</i>	Not Listed	Not Listed	Not Listed	Yellow
Mistassini Primrose	<i>Primula mistassinica</i>	Not Listed	Not Listed	Not Listed	Yellow
Naked Kidney Lichen	<i>Nephroma bellum</i>	Not Listed	Not Listed	Not Listed	Yellow
Nantucket Serviceberry	<i>Amelanchier nantucketensis</i>	Not Listed	Not Listed	Not Listed	Red
Narrow False Oats	<i>Trisetum spicatum</i>	Not Listed	Not Listed	Not Listed	Green
Narrow-leaved Blue-eyed-grass	<i>Sisyrinchium angustifolium</i>	Not Listed	Not Listed	Not Listed	Green
Narrow-leaved Evening Primrose	<i>Oenothera fruticosa</i> ssp. <i>glauca</i>	Not Listed	Not Listed	Not Listed	Undetermined
Narrow-leaved Panic Grass	<i>Dichanthelium linearifolium</i>	Not Listed	Not Listed	Not Listed	Yellow
Newfoundland Dwarf Birch	<i>Betula michauxii</i>	Not Listed	Not Listed	Not Listed	Yellow
Nodding Fescue	<i>Festuca subverticillata</i>	Not Listed	Not Listed	Not Listed	Red
Northern Adder's-tongue	<i>Ophioglossum pusillum</i>	Not Listed	Not Listed	Not Listed	Yellow
Northern Bedstraw	<i>Galium boreale</i>	Not Listed	Not Listed	Not Listed	Red
Northern Blueberry	<i>Vaccinium boreale</i>	Not Listed	Not Listed	Not Listed	Red
Northern Bog Violet	<i>Viola nephrophylla</i>	Not Listed	Not Listed	Not Listed	Yellow
Northern Clubmoss	<i>Lycopodium complanatum</i>	Not Listed	Not Listed	Not Listed	Green
Northern Comandra	<i>Geocaulon lividum</i>	Not Listed	Not Listed	Not Listed	Yellow
Northern Firmoss	<i>Huperzia selago</i>	Not Listed	Not Listed	Not Listed	Undetermined
Northern Maidenhair Fern	<i>Adiantum pedatum</i>	Not Listed	Not Listed	Not Listed	Red
Nova Scotia Agalinis	<i>Agalinis neoscotica</i>	Not Listed	Not Listed	Not Listed	Green
One-sided Rush	<i>Juncus secundus</i>	Not Listed	Not Listed	Not Listed	Red
Orange-fruited Tinker's Weed	<i>Triosteum aurantiacum</i>	Not Listed	Not Listed	Not Listed	Yellow
Ovate Spikerush	<i>Eleocharis ovata</i>	Not Listed	Not Listed	Not Listed	Yellow
Pale False Manna Grass	<i>Torreyochloa pallida</i> var. <i>pallida</i>	Not Listed	Not Listed	Not Listed	Green
Pale Jewelweed	<i>Impatiens pallida</i>	Not Listed	Not Listed	Not Listed	Yellow
Pale-Spiked Lobelia	<i>Lobelia spicata</i>	Not Listed	Not Listed	Not Listed	Red
Panicked Hawkweed	<i>Hieracium paniculatum</i>	Not Listed	Not Listed	Not Listed	Green
Parlin's Pussytoes	<i>Antennaria parlinii</i>	Not Listed	Not Listed	Not Listed	Red
Peck's Sedge	<i>Carex peckii</i>	Not Listed	Not Listed	Not Listed	Red

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Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Pennsylvania Buttercup	<i>Ranunculus pennsylvanicus</i>	Not Listed	Not Listed	Not Listed	Red
Pennsylvania Sedge	<i>Carex pennsylvanica</i>	Not Listed	Not Listed	Not Listed	Undetermined
Pennsylvania Smartweed	<i>Polygonum pennsylvanicum</i>	Not Listed	Not Listed	Not Listed	Green
Peppered Moon Lichen	<i>Sticta fuliginosa</i>	Not Listed	Not Listed	Not Listed	Yellow
Philadelphia Fleabane	<i>Erigeron philadelphicus</i>	Not Listed	Not Listed	Not Listed	Yellow
Pinebarren Golden Heather	<i>Hudsonia ericoides</i>	Not Listed	Not Listed	Not Listed	Yellow
Pink Crowberry	<i>Empetrum eamesii</i>	Not Listed	Not Listed	Not Listed	Yellow
Pink Pyrola	<i>Pyrola asarifolia</i>	Not Listed	Not Listed	Not Listed	Green
Plantain-Leaved Sedge	<i>Carex plantaginea</i>	Not Listed	Not Listed	Not Listed	Red
Poor-man's Shingles Lichen	<i>Parmeliella parvula</i>	Not Listed	Not Listed	Not Listed	Red
Porcupine Sedge	<i>Carex hystericina</i>	Not Listed	Not Listed	Not Listed	Red
Powdered Moon Lichen	<i>Sticta limbata</i>	Not Listed	Not Listed	Not Listed	Red
Powder-tipped Antler Lichen	<i>Everniastrum catawbiense</i>	Not Listed	Not Listed	Not Listed	Red
Prairie Sedge	<i>Carex prairea</i>	Not Listed	Not Listed	Not Listed	Red
Prickly Hornwort	<i>Ceratophyllum echinatum</i>	Not Listed	Not Listed	Not Listed	Red
Prototype Quillwort	<i>Isoetes prototypus</i>	Special Concern	Vulnerable	Special Concern	Yellow
Pubescent Sedge	<i>Carex hirtifolia</i>	Not Listed	Not Listed	Not Listed	Yellow
Purple-stemmed Angelica	<i>Angelica atropurpurea</i>	Not Listed	Not Listed	Not Listed	Green
Purple-veined Willowherb	<i>Epilobium coloratum</i>	Not Listed	Not Listed	Not Listed	Yellow
Quebec Hawthorn	<i>Crataegus submollis</i>	Not Listed	Not Listed	Not Listed	Undetermined
Quill Spikerush	<i>Eleocharis nitida</i>	Not Listed	Not Listed	Not Listed	Green
Racemed Milkwort	<i>Polygala polygama</i>	Not Listed	Not Listed	Not Listed	Undetermined
Ram's-Head Lady's-Slipper	<i>Cypripedium arietinum</i>	Not Listed	Endangered	Not Listed	Red
Red Ash	<i>Fraxinus pennsylvanica</i>	Not Listed	Not Listed	Not Listed	Red
Red-stemmed Spikerush	<i>Eleocharis erythropoda</i>	Not Listed	Not Listed	Not Listed	Extirpated
Richardson's Pondweed	<i>Potamogeton richardsonii</i>	Not Listed	Not Listed	Not Listed	Red
Rimmed Shingles Lichen	<i>Fuscopannaria leucosticta</i>	Not Listed	Not Listed	Not Listed	Red
Robbins' Milkvetch	<i>Astragalus robbinsii</i> var. <i>minor</i>	Not Listed	Not Listed	Not Listed	Red
Robinson's Hawkweed	<i>Hieracium robinsonii</i>	Not Listed	Not Listed	Not Listed	Yellow
Robinson's Hawthorn	<i>Crataegus robinsonii</i>	Not Listed	Not Listed	Not Listed	Undetermined
Rock Spikemoss	<i>Selaginella rupestris</i>	Not Listed	Not Listed	Not Listed	Red
Rock Whitlow-Grass	<i>Draba arabisans</i>	Not Listed	Not Listed	Not Listed	Yellow
Roland's Sea-Blite	<i>Suaeda rolandii</i>	Not Listed	Not Listed	Not Listed	Red
Rosy Pussytoes	<i>Antennaria rosea</i> ssp. <i>arida</i>	Not Listed	Not Listed	Not Listed	Red
Rosy Sedge	<i>Carex rosea</i>	Not Listed	Not Listed	Not Listed	Green
Round-lobed Hepatica	<i>Hepatica nobilis</i>	Not Listed	Not Listed	Not Listed	Red
Rugel's Plantain	<i>Plantago rugelii</i>	Not Listed	Not Listed	Not Listed	Undetermined
Saltmarsh Alkali Grass	<i>Puccinellia fasciculata</i>	Not Listed	Not Listed	Not Listed	Undetermined
Saltmarsh Starwort	<i>Stellaria humifusa</i>	Not Listed	Not Listed	Not Listed	Yellow
Scabrous Black Sedge	<i>Carex atratiformis</i>	Not Listed	Not Listed	Not Listed	Yellow
Scaly Pelt Lichen	<i>Peltigera lepidophora</i>	Not Listed	Not Listed	Not Listed	Red
Seabeach Ragwort	<i>Senecio pseudoarnica</i>	Not Listed	Not Listed	Not Listed	Yellow
Seaside Brookweed	<i>Samolus valerandi</i> ssp. <i>parviflorus</i>	Not Listed	Not Listed	Not Listed	Yellow
Sharp-fruited Knotweed	<i>Polygonum raii</i>	Not Listed	Not Listed	Not Listed	Undetermined
Sharp-fruited Rush	<i>Juncus acuminatus</i>	Not Listed	Not Listed	Not Listed	Yellow
Shining Ladies'-Tresses	<i>Spiranthes lucida</i>	Not Listed	Not Listed	Not Listed	Red
Short-awned Foxtail	<i>Alopecurus aequalis</i>	Not Listed	Not Listed	Not Listed	Yellow
Showy Lady's-Slipper	<i>Cypripedium reginae</i>	Not Listed	Not Listed	Not Listed	Red
Siberian Water Milfoil	<i>Myriophyllum sibiricum</i>	Not Listed	Not Listed	Not Listed	Green
Silky Willow	<i>Salix sericea</i>	Not Listed	Not Listed	Not Listed	Red
Silvery-flowered Sedge	<i>Carex argyrantha</i>	Not Listed	Not Listed	Not Listed	Green
Sitka Clubmoss	<i>Lycopodium sitchense</i>	Not Listed	Not Listed	Not Listed	Green
Sleepy Catchfly	<i>Silene antirrhina</i>	Not Listed	Not Listed	Not Listed	Red
Slender Cottongrass	<i>Eriophorum gracile</i>	Not Listed	Not Listed	Not Listed	Yellow
Slender Panic Grass	<i>Dichantheium xanthophysum</i>	Not Listed	Not Listed	Not Listed	Red
Slim-stemmed Reed Grass	<i>Calamagrostis stricta</i> var. <i>stricta</i>	Not Listed	Not Listed	Not Listed	Yellow
Small Burreed	<i>Sparganium natans</i>	Not Listed	Not Listed	Not Listed	Green
Small Round-leaved Orchid	<i>Platanthera orbiculata</i>	Not Listed	Not Listed	Not Listed	Green
Small-flowered Bittercress	<i>Cardamine parviflora</i> var. <i>arenicola</i>	Not Listed	Not Listed	Not Listed	Yellow

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, North Beaver Bank Community Wind Project Project#12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Small-flowered Woodrush	<i>Luzula parviflora</i>	Not Listed	Not Listed	Not Listed	Green
Small's Knotweed	<i>Polygonum buxiforme</i>	Not Listed	Not Listed	Not Listed	Not Listed
Smooth Alder	<i>Alnus serrulata</i>	Not Listed	Not Listed	Not Listed	Yellow
Smooth Cliff Fern	<i>Woodsia glabella</i>	Not Listed	Not Listed	Not Listed	Yellow
Smooth Sweet Cicely	<i>Osmorhiza longistylis</i>	Not Listed	Not Listed	Not Listed	Red
Soapberry	<i>Shepherdia canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow
Southern Bog Clubmoss	<i>Lycopodiella appressa</i>	Not Listed	Not Listed	Not Listed	Green
Southern Mudwort	<i>Limosella australis</i>	Not Listed	Not Listed	Not Listed	Yellow
Southern Twayblade	<i>Listera australis</i>	Not Listed	Not Listed	Not Listed	Red
Spotted Pondweed	<i>Potamogeton pulcher</i>	Not Listed	Vulnerable	Not Listed	Red
Spreading Wild Rye	<i>Elymus hystrix</i>	Not Listed	Not Listed	Not Listed	Red
Squashberry	<i>Viburnum edule</i>	Not Listed	Not Listed	Not Listed	Yellow
Stalked Bulrush	<i>Scirpus pedicellatus</i>	Not Listed	Not Listed	Not Listed	Undetermined
Steller's Rockbrake	<i>Cryptogramma stelleri</i>	Not Listed	Not Listed	Not Listed	Red
Stout Smartweed	<i>Polygonum robustius</i>	Not Listed	Not Listed	Not Listed	Green
Swamp Milkweed	<i>Asclepias incarnata</i>	Not Listed	Not Listed	Not Listed	Green
Swamp Rose	<i>Rosa palustris</i>	Not Listed	Not Listed	Not Listed	Green
Sweet Pepperbush	<i>Clethra alnifolia</i>	Special Concern	Vulnerable	Special Concern	Yellow
Sweet Wood Reed Grass	<i>Cinna arundinacea</i>	Not Listed	Not Listed	Not Listed	Red
Tattered Jellyskin Lichen	<i>Leptogium lichenoides</i>	Not Listed	Not Listed	Not Listed	Red
Tender Sedge	<i>Carex tenera</i>	Not Listed	Not Listed	Not Listed	Yellow
Thread-Like Naiad	<i>Najas gracillima</i>	Not Listed	Not Listed	Not Listed	Red
Toothed Flatsedge	<i>Cyperus dentatus</i>	Not Listed	Not Listed	Not Listed	Green
Tower Mustard	<i>Arabis glabra</i>	Not Listed	Not Listed	Not Listed	Undetermined
Tree Pelt Lichen	<i>Peltigera collina</i>	Not Listed	Not Listed	Not Listed	Yellow
Triangle Moonwort	<i>Botrychium lanceolatum var. angustisegmentum</i>	Not Listed	Not Listed	Not Listed	Yellow
Triangular-valve Dock	<i>Rumex salicifolius var. mexicanus</i>	Not Listed	Not Listed	Not Listed	Yellow
Tuberclad Orchid	<i>Platanthera flava</i>	Not Listed	Not Listed	Not Listed	Yellow
Tuckerman's Panic Grass	<i>Panicum tuckermanii</i>	Not Listed	Not Listed	Not Listed	Yellow
Tuckerman's Sedge	<i>Carex tuckermanii</i>	Not Listed	Not Listed	Not Listed	Red
Tufted Fen Moss	<i>Paludella squarrosa</i>	Not Listed	Not Listed	Not Listed	Yellow
Variiegated Horsetail	<i>Equisetum variegatum</i>	Not Listed	Not Listed	Not Listed	Green
Vasey's Rush	<i>Juncus vaseyi</i>	Not Listed	Not Listed	Not Listed	Red
Virginia Anemone	<i>Anemone virginiana</i>	Not Listed	Not Listed	Not Listed	Yellow
Virginia Meadow Beauty	<i>Rhexia virginica</i>	Not Listed	Not Listed	Not Listed	Green
Water Beggarticks	<i>Megalodonta beckii</i>	Not Listed	Not Listed	Not Listed	Yellow
Water Blinks	<i>Montia fontana</i>	Not Listed	Not Listed	Not Listed	Red
Water Pygmyweed	<i>Crassula aquatica</i>	Not Listed	Not Listed	Not Listed	Yellow
Wavy-leaved Aster	<i>Symphyotrichum undulatum</i>	Not Listed	Not Listed	Not Listed	Yellow
Western Hairy Rockcross	<i>Arabis hirsuta var. pycnocarpa</i>	Not Listed	Not Listed	Not Listed	Red
White Adder's-Mouth	<i>Malaxis brachypoda</i>	Not Listed	Not Listed	Not Listed	Red
White Mountain Saxifrage	<i>Saxifraga paniculata ssp. neogaea</i>	Not Listed	Not Listed	Not Listed	Yellow
White Snakeroot	<i>Ageratina altissima</i>	Not Listed	Not Listed	Not Listed	Red
White Trillium	<i>Trillium grandiflorum</i>	Not Listed	Not Listed	Not Listed	Undetermined
White-stemmed Pondweed	<i>Potamogeton praelongus</i>	Not Listed	Not Listed	Not Listed	Yellow
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>	Not Listed	Not Listed	Not Listed	Yellow
Whorled Yellow Loosestrife	<i>Lysimachia quadrifolia</i>	Not Listed	Not Listed	Not Listed	Not Listed
Wiegand's Sedge	<i>Carex wiegandii</i>	Not Listed	Not Listed	Not Listed	Red
Wiegand's Wild Rye	<i>Elymus wiegandii</i>	Not Listed	Not Listed	Not Listed	Red
Wild Black Currant	<i>Ribes americanum</i>	Not Listed	Not Listed	Not Listed	Undetermined
Wild Celery	<i>Vallisneria americana</i>	Not Listed	Not Listed	Not Listed	Red
Wild Chives	<i>Allium schoenoprasum var. sibiricum</i>	Not Listed	Not Listed	Not Listed	Red
Wild Comfrey	<i>Cynoglossum virginianum var. boreale</i>	Not Listed	Not Listed	Not Listed	Red
Wild Leek	<i>Allium tricoccum</i>	Not Listed	Not Listed	Not Listed	Red
Wood Anemone	<i>Anemone quinquefolia</i>	Not Listed	Not Listed	Not Listed	Yellow
Woodland Owl Lichen	<i>Solorina saccata</i>	Not Listed	Not Listed	Not Listed	Red
Woodland Rush	<i>Juncus subcaudatus</i>	Not Listed	Not Listed	Not Listed	Yellow
Woolly Panic Grass	<i>Dichanthelium acuminatum var. lindheimeri</i>	Not Listed	Not Listed	Not Listed	Green
Woolly Sedge	<i>Carex pellita</i>	Not Listed	Not Listed	Not Listed	Red

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, North Beaver Bank Community Wind Project Project#12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Wulf's Peat Moss	<i>Sphagnum wulfianum</i>	Not Listed	Not Listed	Not Listed	Yellow
Yellow Bartonia	<i>Bartonia virginica</i>	Not Listed	Not Listed	Not Listed	Green
Yellow Ladies'-tresses	<i>Spiranthes ochroleuca</i>	Not Listed	Not Listed	Not Listed	Yellow
Yellow Lady's-slipper	<i>Cypripedium parviflorum</i>	Not Listed	Not Listed	Not Listed	Yellow
Yellow Spikerush	<i>Eleocharis olivacea</i>	Not Listed	Not Listed	Not Listed	Yellow
Yellow-seeded False Pimperel	<i>Lindernia dubia</i>	Not Listed	Not Listed	Not Listed	Green

Table E2: Plant Species Observed during 2013 Field Surveys, North Beaver Bank Community Wind Project

Project# 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Alleghaney Blackberry	<i>Rubus allegheniensis</i>	Not Listed	Not Listed	Not Listed	Green
American Mountain Ash	<i>Sorbus americana</i>	Not Listed	Not Listed	Not Listed	Green
Balsam Fir	<i>Abies balsamea</i>	Not Listed	Not Listed	Not Listed	Green
Bebb's Willow	<i>Salix bebbiana</i>	Not Listed	Not Listed	Not Listed	Green
Black Huckleberry	<i>Gaylussacia baccata</i>	Not Listed	Not Listed	Not Listed	Green
Black Knapweed	<i>Centaurea nigra</i>	Not Listed	Not Listed	Not Listed	Exotic
Black Spruce	<i>Picea mariana</i>	Not Listed	Not Listed	Not Listed	Green
Black-girdled Bulrush	<i>Scirpus atrocinctus</i>	Not Listed	Not Listed	Not Listed	Green
Bladder Sedge	<i>Carex intumescens</i>	Not Listed	Not Listed	Not Listed	Green
Bog Willowherb	<i>Epilobium leptophyllum</i>	Not Listed	Not Listed	Not Listed	Green
Boreal Bog Sedge	<i>Carex magellanica</i>	Not Listed	Not Listed	Not Listed	Green
Bracken Fern	<i>Pteridium aquilinum</i>	Not Listed	Not Listed	Not Listed	Green
Bristly Dewberry	<i>Rubus hispida</i>	Not Listed	Not Listed	Not Listed	Green
Bristly Sarsaparilla	<i>Aralia hispida</i>	Not Listed	Not Listed	Not Listed	Green
Broad-leaved Cattail	<i>Typha latifolia</i>	Not Listed	Not Listed	Not Listed	Green
Broom Sedge	<i>Carex scoparia</i>	Not Listed	Not Listed	Not Listed	Green
Bull Thistle	<i>Cirsium vulgare</i>	Not Listed	Not Listed	Not Listed	Exotic
Bunchberry	<i>Cornus canadensis</i>	Not Listed	Not Listed	Not Listed	Green
Calico Aster	<i>Symphotrichum lateriflorum</i>	Not Listed	Not Listed	Not Listed	Green
Canada Goldenrod	<i>Solidago canadensis</i>	Not Listed	Not Listed	Not Listed	Green
Canada Hawkweed	<i>Hieracium canadense</i>	Not Listed	Not Listed	Not Listed	Green
Canada St. John's-wort	<i>Hypericum canadense</i>	Not Listed	Not Listed	Not Listed	Green
Cinnamon Fern	<i>Osmunda cinnamomea</i>	Not Listed	Not Listed	Not Listed	Green
Coltsfoot	<i>Tussilago farfara</i>	Not Listed	Not Listed	Not Listed	Exotic
Common Boneset	<i>Eupatorium perfoliatum</i>	Not Listed	Not Listed	Not Listed	Green
Common Labrador Tea	<i>Ledum groenlandicum</i>	Not Listed	Not Listed	Not Listed	Green
Common Ragwort	<i>Senecio vulgaris</i>	Not Listed	Not Listed	Not Listed	Exotic
Common Wood Sorrel	<i>Oxalis montana</i>	Not Listed	Not Listed	Not Listed	Green
Common Woolly Bulrush	<i>Scirpus cyperinus</i>	Not Listed	Not Listed	Not Listed	Green
Creeping Snowberry	<i>Gaultheria hispidula</i>	Not Listed	Not Listed	Not Listed	Green
Downy Goldenrod	<i>Solidago puberula</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Hay-Scented Fern	<i>Dennstaedtia punctilobula</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Hemlock	<i>Tsuga canadensis</i>	Not Listed	Not Listed	Not Listed	Green
Eastern Teaberry	<i>Gaultheria procumbens</i>	Not Listed	Not Listed	Not Listed	Green
Eastern White Pine	<i>Pinus strobus</i>	Not Listed	Not Listed	Not Listed	Green
Eurasian Black Bindweed	<i>Polygonum convolvulus</i>	Not Listed	Not Listed	Not Listed	Exotic
Field Horsetail	<i>Equisetum arvense</i>	Not Listed	Not Listed	Not Listed	Green
Fireweed	<i>Chamerion angustifolium</i>	Not Listed	Not Listed	Not Listed	Green
Flat-branched Tree-clubmoss	<i>Lycopodium obscurum</i>	Not Listed	Not Listed	Not Listed	Green
Flattened Oat Grass	<i>Danthonia compressa</i>	Not Listed	Not Listed	Not Listed	Green
Fowl Manna Grass	<i>Glyceria striata</i>	Not Listed	Not Listed	Not Listed	Green
Fringed Sedge	<i>Carex crinita</i>	Not Listed	Not Listed	Not Listed	Green
Goldthread	<i>Coptis trifolia</i>	Not Listed	Not Listed	Not Listed	Green
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	Not Listed	Not Listed	Not Listed	Green
Green Alder	<i>Alnus viridis</i>	Not Listed	Not Listed	Not Listed	Green
Hairy Flat-top White Aster	<i>Doellingeria umbellata</i>	Not Listed	Not Listed	Not Listed	Green
Hobblebush	<i>Viburnum lantanooides</i>	Not Listed	Not Listed	Not Listed	Green
Indian Cucumber Root	<i>Medeola virginiana</i>	Not Listed	Not Listed	Not Listed	Green
Indian Pipe	<i>Monotropa uniflora</i>	Not Listed	Not Listed	Not Listed	Green
Interrupted Fern	<i>Osmunda claytoniana</i>	Not Listed	Not Listed	Not Listed	Green
Large-toothed Aspen	<i>Populus grandidentata</i>	Not Listed	Not Listed	Not Listed	Green
Late Lowbush Blueberry	<i>Vaccinium angustifolium</i>	Not Listed	Not Listed	Not Listed	Green
Mosquito Bulrush	<i>Scirpus hattorianus</i>	Not Listed	Not Listed	Not Listed	Green
Mountain Fly Honeysuckle	<i>Lonicera villosa</i>	Not Listed	Not Listed	Not Listed	Green
Mountain Holly	<i>Nemopanthus mucronatus</i>	Not Listed	Not Listed	Not Listed	Green
New York Fern	<i>Thelypteris noveboracensis</i>	Not Listed	Not Listed	Not Listed	Green

Table E2: Plant Species Observed during 2013 Field Surveys, North Beaver Bank Community Wind Project

Project# 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status
Northern Bush Honeysuckle	<i>Diervilla lonicera</i>	Not Listed	Not Listed	Not Listed	Green
Northern Pitcher Plant	<i>Sarracenia purpurea</i>	Not Listed	Not Listed	Not Listed	Green
Northern Red Oak	<i>Quercus rubra</i>	Not Listed	Not Listed	Not Listed	Green
Northern Shorthusk	<i>Brachyelytrum septentrionale</i>	Not Listed	Not Listed	Not Listed	Green
Northern Starflower	<i>Trientalis borealis</i>	Not Listed	Not Listed	Not Listed	Green
Northern Sweet Coltsfoot	<i>Petasites frigidus</i>	Not Listed	Not Listed	Not Listed	Green
Northern Wild Raisin	<i>Viburnum nudum var. cassinoides</i>	Not Listed	Not Listed	Not Listed	Green
Old Field Cinquefoil	<i>Potentilla simplex</i>	Not Listed	Not Listed	Not Listed	Green
Painted Trillium	<i>Trillium undulatum</i>	Not Listed	Not Listed	Not Listed	Green
Paper Birch	<i>Betula papyrifera</i>	Not Listed	Not Listed	Not Listed	Green
Partridgeberry	<i>Mitchella repens</i>	Not Listed	Not Listed	Not Listed	Green
Path Rush	<i>Juncus tenuis</i>	Not Listed	Not Listed	Not Listed	Green
Pearly Everlasting	<i>Anaphalis margaritacea</i>	Not Listed	Not Listed	Not Listed	Green
Pin Cherry	<i>Prunus pensylvanica</i>	Not Listed	Not Listed	Not Listed	Green
Pink Lady's-Slipper	<i>Cypripedium acaule</i>	Not Listed	Not Listed	Not Listed	Green
Poverty Oat Grass	<i>Danthonia spicata</i>	Not Listed	Not Listed	Not Listed	Green
Red Maple	<i>Acer rubrum</i>	Not Listed	Not Listed	Not Listed	Green
Red Raspberry	<i>Rubus idaeus</i>	Not Listed	Not Listed	Not Listed	Green
Red Spruce	<i>Picea rubens</i>	Not Listed	Not Listed	Not Listed	Green
Rhodora	<i>Rhododendron canadense</i>	Not Listed	Not Listed	Not Listed	Green
Rose Twisted-stalk	<i>Streptopus lanceolatus</i>	Not Listed	Not Listed	Not Listed	Green
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>	Not Listed	Not Listed	Not Listed	Green
Running Clubmoss	<i>Lycopodium clavatum</i>	Not Listed	Not Listed	Not Listed	Green
Sallow Sedge	<i>Carex lurida</i>	Not Listed	Not Listed	Not Listed	Green
Sensitive Fern	<i>Onoclea sensibilis</i>	Not Listed	Not Listed	Not Listed	Green
Sheep Laurel	<i>Kalmia angustifolia</i>	Not Listed	Not Listed	Not Listed	Green
Soft Rush	<i>Juncus effusus</i>	Not Listed	Not Listed	Not Listed	Green
Speckled Alder	<i>Alnus incana</i>	Not Listed	Not Listed	Not Listed	Green
Steeplebush	<i>Spiraea tomentosa</i>	Not Listed	Not Listed	Not Listed	Green
Stiff Clubmoss	<i>Lycopodium annotinum</i>	Not Listed	Not Listed	Not Listed	Green
Striped Maple	<i>Acer pensylvanicum</i>	Not Listed	Not Listed	Not Listed	Green
Swamp Yellow Loosestrife	<i>Lysimachia terrestris</i>	Not Listed	Not Listed	Not Listed	Green
Sweet-fern	<i>Comptonia peregrina</i>	Not Listed	Not Listed	Not Listed	Green
Tamarack	<i>Larix laricina</i>	Not Listed	Not Listed	Not Listed	Green
Three-leaved False Solomon's Seal	<i>Maianthemum trifolium</i>	Not Listed	Not Listed	Not Listed	Green
Three-leaved Rattlesnakeroot	<i>Prenanthes trifoliolata</i>	Not Listed	Not Listed	Not Listed	Green
Three-seeded Sedge	<i>Carex trisperma</i>	Not Listed	Not Listed	Not Listed	Green
Trailing Arbutus	<i>Epigaea repens</i>	Not Listed	Not Listed	Not Listed	Green
Trembling Aspen	<i>Populus tremuloides</i>	Not Listed	Not Listed	Not Listed	Green
Twinflower	<i>Linnaea borealis</i>	Not Listed	Not Listed	Not Listed	Green
Violet	<i>Viola sp.</i>	N/A	N/A	N/A	N/A
Virginia Rose	<i>Rosa virginiana</i>	Not Listed	Not Listed	Not Listed	Green
White Ash	<i>Fraxinus americana</i>	Not Listed	Not Listed	Not Listed	Green
White Beakrush	<i>Rhynchospora alba</i>	Not Listed	Not Listed	Not Listed	Green
White Meadowsweet	<i>Spiraea alba</i>	Not Listed	Not Listed	Not Listed	Green
White Spruce	<i>Picea glauca</i>	Not Listed	Not Listed	Not Listed	Green
Whorled Wood Aster	<i>Oclemena acuminata</i>	Not Listed	Not Listed	Not Listed	Green
Wild Lily-of-The-Valley	<i>Maianthemum canadense</i>	Not Listed	Not Listed	Not Listed	Green
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	Not Listed	Not Listed	Not Listed	Green
Woodland Horsetail	<i>Equisetum sylvaticum</i>	Not Listed	Not Listed	Not Listed	Green
Woolly Panic Grass	<i>Dichantherium acuminatum</i>	Not Listed	Not Listed	Not Listed	Green
Yellow Birch	<i>Betula alleghaniensis</i>	Not Listed	Not Listed	Not Listed	Green
Yellow Bluebead Lily	<i>Clintonia borealis</i>	Not Listed	Not Listed	Not Listed	Green

APPENDIX F
MOOSE SURVEY METHODOLOGY

MOOSE SURVEY METHODOLOGY

Snow-tracking and pellet group surveys are effective methods of documenting the mammalian fauna present in an area. These surveys consist of assessing transects through the survey areas within the Project site, and recording all indications of wildlife presence. Survey areas were developed with consideration for the following:

- Coverage of the Project site: Survey areas were designed to cover as much of the Project site as possible.
- Habitat: Multiple habitats were targeted including mature softwood forest, mixed wood forest, wetlands, and clear cuts.
- Development footprint: Survey areas focused on land incorporating the development footprint (access roads and turbines), to the extent possible.
- Access to the Project site: The Project site incorporates a large tract of land which is accessible via logging roads. On-foot transects were designed to start and finish at existing logging roads/access roads.

Snow Tracking Methodology

One pre-construction survey was completed on January 29, 2013 using the snow-tracking methodology. The survey was conducted by a team of biologists with a demonstrable knowledge of mammalian animal sign. The survey was completed 1 to 7 days after a ≥ 10 cm snowfall. Survey areas were located across the Project site, and included six triangular transects ranging from 0.5 km to 0.9 km in length, as well as 4.72 km of logging road (Drawing 8.7).

The logging roads were surveyed on snowmobiles and the remaining transects were completed on foot. All wildlife sign, primarily tracks but also including foraging sign, scat, and rubs, encountered during the surveys were identified to species, where possible. In addition, the locations of all noteworthy observations were recorded using GPS receivers capable of sub 5 m accuracy, with representative photos taken.

Pellet Group Survey Methodology

One pre-construction survey was completed on May 17, 2013 using the pellet group survey methodology. The survey was conducted by a team of biologists with a demonstrable knowledge of mammalian animal sign. Survey areas were located across the Project site and included six triangular transects ranging from 0.5 km to 0.9 km in length (Drawing 8.7).

Transects were followed according to tracks laid out on GPS units and qualified biologists searched for pellet groups within approximately 2-3 m on either side of the transect line. All wildlife sign, primarily tracks but also including foraging sign, scat, and rubs, encountered during the surveys were identified to species, where possible. In addition, the locations of all noteworthy observations were recorded using GPS receivers capable of sub 5 m accuracy, with representative photos taken.

APPENDIX G
BIRD SURVEY METHODOLOGY

Table G1: Detailed Winter Bird Survey Results, North Beaver Bank Community Wind Project

Project # 12-4563

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
27-Feb-13	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	10 km/h	0	Sunny	None		Common Raven	1	0-50
...	...	...	...	...	...	...	...	...	Red-tailed Hawk	2	0-50
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	10 km/h	0	Sunny	None	...	Black-capped Chickadee	1	0-50
...	...	...	...	...	...	...	...	...	Common Raven	1	100+
...	...	...	...	...	...	...	...	...	Downy Woodpecker	2	0-50
...	...	...	...	...	...	...	...	...	Pileated Woodpecker	2	0-50
...	Bea02	446045E 4973647N	Young mixed-wood forest/stream adjacent	10 km/h	1	Sunny	None	...	American Crow	3	50-100
...	...	...	...	...	...	...	...	...	Pine Grosbeak	4	0-50
...	Bea01	446176E 4973921N	Softwood/ cutblock	10 km/h	1	Sunny	None		American Crow	1	100+
...	...	...	...	...	...	...	...	...	Canada Goose	1	100+
...	...	...	...	...	...	...	...	...	Pileated Woodpecker	1	100+
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	10 km/h	2	Sunny	None		Downy Woodpecker	1	100+
...	Bea10	446812E 4974250N	Clearcut/ mid-age mixedwood	10 km/h	2	Sunny	None	...	Black-capped Chickadee	3	50-100
...	...	...	...	...	...	...	...	...	Downy Woodpecker	1	100+
...	...	...	...	...	...	...	...	...	Hairy Woodpecker	1	100+
...	...	...	...	...	...	...	...	...	Pileated Woodpecker	1	100+
...	Bea09	446500E 4974461N	Softwood stand near clearcut	10 km/h	3	Sunny	None		Common Raven	3	50-100
...	...	...	...	...	...	...	...	...	Pine Grosbeak	3	50-100
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	10 km/h	3	Sunny	None	...	Barred Owl	1	100+
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	10 km/h	4	Sunny	None	...	None Observed	N/A	N/A
...	Bea08	446134E 4974796N	Powerline/Shrub/Soft wood adjacent	10 km/h	4	Sunny	None	...	Gray Jay	2	0-50

Table G2: Summarized Winter Bird Survey Results, North Beaver Bank Community Wind Project

Project # 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status	Number of Observations	Total Individuals Observed
American Crow	<i>Corvus brachyrhynchos</i>	Not Listed	Not Listed	Not Listed	Green	2	4
Barred Owl	<i>Strix varia</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Black-capped Chickadee	<i>Poecile atricapillus</i>	Not Listed	Not Listed	Not Listed	Green	2	4
Canada Goose	<i>Branta canadensis</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Common Raven	<i>Corvus corax</i>	Not Listed	Not Listed	Not Listed	Green	3	5
Downy Woodpecker	<i>Picoides pubescens</i>	Not Listed	Not Listed	Not Listed	Green	3	4
Gray Jay	<i>Perisoreus canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow	1	2
Hairy Woodpecker	<i>Picoides villosus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Not Listed	Not Listed	Not Listed	Green	3	4
Pine Grosbeak	<i>Pinicola enucleator</i>	Not Listed	Not Listed	Not Listed	Red	2	7
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Not Listed	Not Listed	Not at Risk	Green	1	2

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
01-May-13	Bea01	446176E 4973921N	Softwood/ cutblock	Calm	9	Overcast	None	6:31 AM	American Robin	1	50-100
...	Black-capped Chickadee	2	50-100
...	Dark-eyed Junco	2	50-100
...	Golden-crowned Kinglet	2	50-100
...	Hairy Woodpecker	1	50-100
...	Hermit Thrush	2	50-100
...	Hermit Thrush	1	100+
...	Northern Flicker	1	50-100
...	Palm Warbler	1	100+
...	Purple Finch	1	100+
...	Ruby-crowned Kinglet	1	100+
...	Ruffed Grouse	1	0-50
...	Ruffed Grouse	1	50-100
...	White-throated Sparrow	2	100+
...	Winter Wren	1	100+
...	Woodpecker sp. (Hairy or Downy)	1	100+
...	Yellow-rumped Warbler	3	100+
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	Calm	9	Overcast	None	6:19 AM	American Goldfinch	1	50-100
...	American Robin	3	0-50
...	American Robin	2	100+
...	Black-capped Chickadee	2	0-50
...	Dark-eyed Junco	1	50-100
...	Golden-crowned Kinglet	2	0-50
...	Hermit Thrush	3	100+
...	Hermit Thrush	4	100+
...	Ruby-crowned Kinglet	1	100+
...	Ruffed Grouse	1	100+
...	White-throated Sparrow	2	0-50
...	White-throated Sparrow	5	100+
...	Woodpecker sp. (Hairy or Downy)	1	100+
...	Yellow-bellied Sapsucker	1	50-100
...	Yellow-rumped Warbler	1	50-100
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	Calm	9	Overcast	None	6:04 AM	American Goldfinch	1	100+
...	American Robin	1	100+
...	Blue Jay	1	100+
...	Dark-eyed Junco	2	0-50
...	Golden-crowned Kinglet	3	50-100
...	Hermit Thrush	1	0-50
...	Hermit Thrush	1	50-100
...	Hermit Thrush	3	100+
...	Ruffed Grouse	1	50-100
...	Swamp Sparrow	1	50-100
...	Swamp Sparrow	1	100+
...	White-throated Sparrow	4	100+
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	Calm	9	Overcast	None	5:49 AM	American Robin	1	0-50
...	American Robin	1	50-100
...	American Robin	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Hermit Thrush	4	100+
...	Ruffed Grouse	1	50-100

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Swamp Sparrow	2	50-100
...	Swamp Sparrow	2	100+
...	White-throated Sparrow	6	100+
...	Winter Wren	2	100+
...	Yellow-bellied Sapsucker	1	50-100
...	Yellow-bellied Sapsucker	1	100+
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	Calm	9	Overcast	None	6:48 AM	Brown Creeper	2	50-100
...	Common Raven	1	100+
...	Dark-eyed Junco	1	50-100
...	Golden-crowned Kinglet	3	0-50
...	Hairy Woodpecker	1	100+
...	Hermit Thrush	3	100+
...	Hermit Thrush	2	50-100
...	Northern Flicker	1	50-100
...	Northern Flicker	1	100+
...	Palm Warbler	2	100+
...	Purple Finch	1	100+
...	White-throated Sparrow	2	50-100
...	White-throated Sparrow	3	100+
...	Winter Wren	1	100+
...	Woodpecker sp. (Hairy or Downy)	1	100+
...	Yellow-rumped Warbler	2	0-50
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	2	100+
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	Calm	9	Overcast	None	7:49 AM	Dark-eyed Junco	1	0-50
...	Dark-eyed Junco	1	50-100
...	Golden-crowned Kinglet	2	0-50
...	Hairy Woodpecker	1	100+
...	Hermit Thrush	1	50-100
...	Palm Warbler	1	100+
...	Purple Finch	1	50-100
...	Ruby-crowned Kinglet	1	0-50
...	Ruby-crowned Kinglet	1	100+
...	Winter Wren	2	50-100
...	Yellow-rumped Warbler	2	0-50
...	Yellow-rumped Warbler	2	50-100
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	Calm	11	Cloudy	None	8:10 AM	American Goldfinch	1	0-50
...	American Robin	2	100+
...	Blue-headed Vireo	1	0-50
...	Dark-eyed Junco	1	50-100
...	Golden-crowned Kinglet	1	0-50
...	Golden-crowned Kinglet	1	100+
...	Hermit Thrush	1	50-100
...	Hermit Thrush	1	100+
...	Northern Flicker	2	100+
...	Spruce Grouse	1	50-100
...	White-throated Sparrow	3	100+
...	White-throated Sparrow	1	50-100
...	Yellow-rumped Warbler	2	0-50
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	100+

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	Calm	11	Cloudy	None	8:27 AM	American Black Duck	2	0-50
...	American Goldfinch	1	0-50
...	American Robin	2	100+
...	Golden-crowned Kinglet	4	0-50
...	Palm Warbler	1	0-50
...	Palm Warbler	1	100+
...	Palm Warbler	2	50-100
...	Ruby-crowned Kinglet	2	100+
...	Swamp Sparrow	1	100+
...	Swamp Sparrow	1	50-100
...	White-throated Sparrow	1	100+
...	Wilson's Snipe	2	50-100
...	Yellow-rumped Warbler	1	0-50
...	Yellow-rumped Warbler	2	100+
...	Bea09	446500E 4974461N	Softwood stand near clearcut	Calm	11	Cloudy	None	7:32 AM	Common Raven	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Hermit Thrush	1	50-100
...	Hermit Thrush	1	100+
...	Northern Flicker	1	50-100
...	Palm Warbler	1	100+
...	Purple Finch	1	50-100
...	White-throated Sparrow	1	50-100
...	White-throated Sparrow	1	100+
...	Winter Wren	2	100+
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	0-50
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	Calm	11	Cloudy	None	7:08 AM	American Goldfinch	1	50-100
...	Barred Owl	1	50-100
...	Dark-eyed Junco	1	0-50
...	Golden-crowned Kinglet	1	0-50
...	Hairy Woodpecker	1	100+
...	Hermit Thrush	1	0-50
...	Hermit Thrush	1	50-100
...	Hermit Thrush	3	100+
...	Northern Flicker	1	50-100
...	Palm Warbler	1	0-50
...	Palm Warbler	2	50-100
...	Purple Finch	1	100+
...	Red-tailed Hawk	1	100+
...	White-throated Sparrow	1	50-100
...	White-throated Sparrow	2	100+
...	Winter Wren	1	100+
...	Yellow-rumped Warbler	3	50-100
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	Calm	11	Cloudy	None	9:01 AM	American Black Duck	2	100+
...	Black-backed Woodpecker	1	0-50
...	Blue Jay	1	100+
...	Golden-crowned Kinglet	1	0-50
...	Gray Jay	2	100+
...	Hermit Thrush	1	50-100
...	Northern Flicker	1	100+
...	Palm Warbler	1	0-50

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Palm Warbler	1	100+
...	Purple Finch	1	50-100
...	Ruby-crowned Kinglet	1	0-50
...	Ruby-crowned Kinglet	1	100+
...	Spruce Grouse	1	50-100
...	Swamp Sparrow	1	50-100
...	White-throated Sparrow	1	100+
...	Yellow-rumped Warbler	2	0-50
...	Yellow-rumped Warbler	1	50-100
08-May-13	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	10 km/h W	13	Clear	None	5:30 AM	American Goldfinch	2	0-50
...	Blue Jay	1	100+
...	Blue-headed Vireo	1	100+
...	Common Raven	1	100+
...	Dark-eyed Junco	2	0-50
...	Hermit Thrush	2	100+
...	Palm Warbler	1	50-100
...	Red-tailed Hawk	1	100+
...	Ruffed Grouse	1	100+
...	White-throated Sparrow	2	50-100
...	White-throated Sparrow	3	100+
...	Winter Wren	1	50-100
...	Winter Wren	1	100+
...	Yellow-rumped Warbler	1	0-50
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	FO W
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	10 km/h W	13	Clear	None	6:00 AM	American Goldfinch	1	50-100
...	Black-throated Green Warbler	1	50-100
...	Black-throated Green Warbler	1	100+
...	Blue Jay	1	100+
...	Blue-headed Vireo	1	50-100
...	Blue-headed Vireo	1	100+
...	Common Grackle	1	100+
...	Common Raven	1	100+
...	Dark-eyed Junco	1	0-50
...	Dark-eyed Junco	2	50-100
...	Dark-eyed Junco	2	100+
...	Golden-crowned Kinglet	1	50-100
...	Golden-crowned Kinglet	1	0-50
...	Hermit Thrush	1	50-100
...	Palm Warbler	2	50-100
...	Palm Warbler	2	100+
...	Ruby-crowned Kinglet	1	100+
...	Ruffed Grouse	1	100+
...	White-throated Sparrow	2	0-50
...	White-throated Sparrow	1	50-100
...	White-throated Sparrow	3	100+
...	Yellow-bellied Sapsucker	1	100+
...	Yellow-rumped Warbler	1	100+
...	Yellow-rumped Warbler	2	50-100
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	10 km/h W	18	Clear	None	9:22 AM	American Crow	2	0-50
...	Blue-headed Vireo	2	100+

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Common Raven	1	0-50
...	Palm Warbler	2	0-50
...	Palm Warbler	1	100+
...	Song Sparrow	1	50-100
...	White-throated Sparrow	2	50-100
...	Winter Wren	1	100+
...	Woodpecker Sp.	1	100+
...	Yellow-rumped Warbler	2	100+
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	10 km/h W	14	Clear	None	6:24 AM	American Crow	2	100+
...	American Goldfinch	1	100+
...	American Robin	1	100+
...	Barred Owl	1	100+
...	Black-capped Chickadee	2	50-100
...	Black-capped Chickadee	1	100+
...	Blue Jay	1	50-100
...	Brown Creeper	1	50-100
...	Common Raven	2	100+
...	Golden-crowned Kinglet	2	50-100
...	Hairy Woodpecker	1	100+
...	Hermit Thrush	2	0-50
...	Palm Warbler	2	50-100
...	Pine Siskin	2	0-50
...	Red-breasted Nuthatch	1	50-100
...	Ruffed Grouse	1	100+
...	White-throated Sparrow	3	100+
...	Winter Wren	1	50-100
...	Winter Wren	1	100+
...	Yellow-bellied Sapsucker	1	100+
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	100+
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	10 km/h W	14	Clear	None	7:32 AM	American Goldfinch	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Mourning Dove	1	0-50
...	Purple Finch	1	0-50
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	100+
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	10 km/h W	14	Clear	None	7:50 AM	Golden-crowned Kinglet	1	0-50
...	Purple Finch	1	0-50
...	Purple Finch	1	0-50
...	Spruce Grouse	1	...
...	White-throated Sparrow	1	100+
...	Yellow-rumped Warbler	1	0-50
...	Yellow-rumped Warbler	1	100+
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwo od adjacent	10 km/h W	15	Clear	None	8:11 AM	Common Raven	1	100+
...	Golden-crowned Kinglet	1	0-50
...	Gray Jay	1	0-50
...	Northern Flicker	1	100+
...	Palm Warbler	1	50-100
...	Palm Warbler	3	100+
...	Purple Finch	1	0-50

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Purple Finch	1	100+
...	Ruby-crowned Kinglet	1	100+
...	Swamp Sparrow	1	100+
...	White-throated Sparrow	2	100+
...	Wilson's Snipe	1	100+
...	Yellow-rumped Warbler	2	50-100
...	Bea09	446500E 4974461N	Softwood stand near clearcut	10 km/h W	14	Clear	None	7:10 AM	Golden-crowned Kinglet	2	0-50
...	Blue-headed Vireo	1	50-100
...	Blue-headed Vireo	1	100+
...	Hairy Woodpecker	1	100+
...	Hermit Thrush	2	100+
...	Ruby-crowned Kinglet	1	100+
...	Ruffed Grouse	1	100+
...	White-throated Sparrow	3	100+
...	Winter Wren	1	0-50
...	Yellow-rumped Warbler	1	50-100
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	10 km/h W	14	Clear	None	6:49 AM	American Crow	1	100+
...	American Robin	1	50-100
...	Blue Jay	1	100+
...	Blue-headed Vireo	2	100+
...	Common Raven	1	100+
...	Dark-eyed Junco	1	0-50
...	Evening Grosbeak	1	100+
...	Hermit Thrush	1	100+
...	Northern Flicker	1	100+
...	Palm Warbler	2	100+
...	Red-breasted Nuthatch	1	50-100
...	Ruby-crowned Kinglet	2	100+
...	White-throated Sparrow	2	0-50
...	White-throated Sparrow	2	50-100
...	White-throated Sparrow	4	100+
...	Winter Wren	1	100+
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	2	50-100
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	10 km/h W	15	Clear	None	8:38 AM	Winter Wren	1	100+
...	Blue-headed Vireo	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Palm Warbler	1	0-50
...	Pine Siskin	1	0-50
...	Purple Finch	1	50-100
...	White-throated Sparrow	1	50-100
...	White-throated Sparrow	1	100+
...	Wilson's Snipe	1	50-100
...	Wilson's Snipe	1	100+
...	Yellow-rumped Warbler	1	50-100
05-Jun-13	Bea01	446176E 4973921N	Softwood/ cutblock	6 km/h SW	6	clear	None	5:21 AM	Alder Flycatcher	1	100+
...	Blackburnian Warbler	2	50-100
...	Black-capped Chickadee	1	100+
...	Black-throated Green Warbler	1	0-50
...	Blue Jay	1	0-50
...	Blue-headed Vireo	1	100+

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Golden-crowned Kinglet	1	0-50
...	Hermit Thrush	1	50-100
...	Magnolia Warbler	1	50-100
...	Magnolia Warbler	3	100+
...	Red-breasted Nuthatch	1	100+
...	Swainson's Thrush	1	100+
...	White-throated Sparrow	1	50-100
...	White-throated Sparrow	2	100+
...	Winter Wren	1	100+
...	Yellow-bellied Sapsucker	1	100+
...	Yellow-rumped Warbler	1	50-100
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	6 km/h SW	6	clear	None	5:06 AM	Alder Flycatcher	1	50-100
...	American Crow	1	50-100
...	American Robin	1	0-50
...	Black-and-white Warbler	1	50-100
...	Black-throated Green Warbler	1	50-100
...	Common Yellowthroat	1	0-50
...	Dark-eyed Junco	1	50-100
...	Hermit Thrush	1	0-50
...	Magnolia Warbler	1	0-50
...	Magnolia Warbler	2	50-100
...	Magnolia Warbler	1	100+
...	Mourning Dove	1	100+
...	Ovenbird	1	100+
...	Swainson's Thrush	1	100+
...	White-throated Sparrow	1	50-100
...	Winter Wren	1	100+
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	15 km/h gusts to 30 km/h SW	14	Clear	None	8:03 AM	Alder Flycatcher	1	100
...	American Goldfinch	1	0-50
...	Blackburnian Warbler	1	50-100
...	Common Yellowthroat	1	50-100
...	Eastern Wood-Pewee	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Magnolia Warbler	2	50-100
...	Palm Warbler	2	50-100
...	Red-eyed Vireo	2	50-100
...	White-throated Sparrow	1	50-100
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	15 km/h gusts to 30 km/h SW	14	Clear	None	8:20 AM	Alder Flycatcher	1	0-50
...	American Goldfinch	1	50-100
...	Blackburnian Warbler	1	50-100
...	Black-throated Green Warbler	1	100+
...	Blue Jay	1	50-100
...	Chestnut-sided Warbler	1	0-50
...	Common Yellowthroat	1	50-100
...	Magnolia Warbler	1	0-50
...	Winter Wren	1	100+
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	6 km/h SW	6	Clear	None	5:37 AM	Alder Flycatcher	2	100+
...	Blackburnian Warbler	1	0-50
...	Black-throated Green Warbler	1	50-100
...	Black-throated Green Warbler	1	50-100

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Blue Jay	1	50-100
...	Blue-headed Vireo	1	0-50
...	Common Yellowthroat	1	50-100
...	Downy Woodpecker	1	50-100
...	Golden-crowned Kinglet	1	0-50
...	Hairy Woodpecker	1	100+
...	Magnolia Warbler	1	50-100
...	Pileated Woodpecker	1	100+
...	Red-breasted Nuthatch	1	0-50
...	Swainson's Thrush	1	50-100
...	Swainson's Thrush	1	100+
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	11 km/h SW	10	Clear	None	6:35 AM	American Goldfinch	1	50-100
...	Blackburnian Warbler	1	50-100
...	Black-throated Green Warbler	1	50-100
...	Common Grackle	1	100+
...	Common Yellowthroat	1	100+
...	Golden-crowned Kinglet	1	50-100
...	Hermit Thrush	1	100+
...	Purple Finch	1	100+
...	Ruby-crowned Kinglet	1	100+
...	White-throated Sparrow	1	100+
...	Yellow-rumped Warbler	1	50-100
...	Yellow-rumped Warbler	1	100+
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	11 km/h SW	10	Clear	None	6:50 AM	Blue Jay	1	100+
...	Common Yellowthroat	1	50-100
...	Gray Jay	1	100+
...	Mourning Dove	1	100+
...	Palm Warbler	1	50-100
...	Red-eyed Vireo	1	100+
...	White-throated Sparrow	1	100+
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	11 km/h SW	10	Clear	None	7:04 AM	Common Yellowthroat	1	50-100
...	Golden-crowned Kinglet	1	50-100
...	Gray Jay	2	50-100
...	Hermit Thrush	1	100+
...	Lincoln's Sparrow	1	50-100
...	Nashville Warbler	1	0-50
...	Olive-sided Flycatcher	1	100+
...	Palm Warbler	3	0-50
...	Ruby-crowned Kinglet	1	100+
...	White-throated Sparrow	2	100+
...	Yellow-rumped Warbler	1	50-100
...	Bea09	446500E 4974461N	Softwood stand near clearcut	11 km/h SW	10	Clear	None	6:16 AM	Blackburnian Warbler	1	0-50
...	Alder Flycatcher	1	100+
...	American Goldfinch	1	50-100
...	Black-and-white Warbler	1	50-100
...	Black-throated Green Warbler	1	50-100
...	Common Yellowthroat	1	100+
...	Golden-crowned Kinglet	1	0-50
...	Magnolia Warbler	2	50-100
...	Red-eyed Vireo	1	100+

Table G3: Detailed Spring Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation				
...	Winter Wren	1	100+
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	11 km/h SW	10	Clear	None	5:53 AM	Alder Flycatcher	1	100+
...	American Robin	1	100+
...	Black-throated Green Warbler	1	50-100
...	Blue Jay	1	100+
...	Common Yellowthroat	1	0-50
...	Dark-eyed Junco	1	50-100
...	Golden-crowned Kinglet	1	50-100
...	Hairy Woodpecker	1	50-100
...	Magnolia Warbler	1	50-100
...	Northern Flicker	1	100+
...	Northern Parula	1	50-100
...	Ovenbird	1	0-50
...	White-throated Sparrow	1	0-50
...	White-throated Sparrow	1	100+
...	Winter Wren	1	100+
...	Yellow-bellied Sapsucker	1	100+
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	11 km/h SW	10	Clear	None	7:26 AM	Ruby-crowned Kinglet	1	0-50
...	Black-throated Green Warbler	1	50-100
...	Blue-headed Vireo	1	100+
...	Canada Warbler	1	0-50
...	Dark-eyed Junco	1	0-50
...	Golden-crowned Kinglet	2	0-50
...	Hairy Woodpecker	1	50-100
...	Magnolia Warbler	1	50-100
...	Palm Warbler	1	0-50
...	Red-breasted Nuthatch	1	50-100
...	Swamp Sparrow	1	0-50
...	Yellow-bellied Flycatcher	1	100+
...	Yellow-rumped Warbler	1	0-50

Table G4: Summarized Spring Bird Survey Results, North Beaver Bank Community Wind Project

Project # 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status	Number of Times Observed	Number of Individuals Observed
Alder Flycatcher	<i>Empidonax alnorum</i>	Not Listed	Not Listed	Not Listed	Green	7	8
American Black Duck	<i>Anas rubripes</i>	Not Listed	Not Listed	Not Listed	Green	2	4
American Crow	<i>Corvus brachyrhynchos</i>	Not Listed	Not Listed	Not Listed	Green	4	6
American Goldfinch	<i>Spinus tristis</i>	Not Listed	Not Listed	Not Listed	Green	13	14
American Robin	<i>Turdus migratorius</i>	Not Listed	Not Listed	Not Listed	Green	13	18
Barred Owl	<i>Strix varia</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Black-and-white Warbler	<i>Mniotilta varia</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Black-backed Woodpecker	<i>Picoides arcticus</i>	Not Listed	Not Listed	Not Listed	Yellow	1	1
Blackburnian Warbler	<i>Dendroica fusca</i>	Not Listed	Not Listed	Not Listed	Green	6	7
Black-capped Chickadee	<i>Poecile atricapillus</i>	Not Listed	Not Listed	Not Listed	Green	5	8
Black-throated Green Warbler	<i>Dendroica virens</i>	Not Listed	Not Listed	Not Listed	Green	11	11
Blue Jay	<i>Cyanocitta cristata</i>	Not Listed	Not Listed	Not Listed	Green	11	11
Blue-headed Vireo	<i>Vireo solitarius</i>	Not Listed	Not Listed	Not Listed	Green	12	14
Brown Creeper	<i>Certhia americana</i>	Not Listed	Not Listed	Not Listed	Green	2	3
Canada Warbler	<i>Wilsonia canadensis</i>	Threatened	Endangered	Threatened	Red	1	1
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Common Grackle	<i>Quiscalus quiscula</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Common Raven	<i>Corvus corax</i>	Not Listed	Not Listed	Not Listed	Green	8	9
Common Yellowthroat	<i>Geothlypis trichas</i>	Not Listed	Not Listed	Not Listed	Green	9	9
Dark-eyed Junco	<i>Junco hyemalis</i>	Not Listed	Not Listed	Not Listed	Green	16	21
Downy Woodpecker	<i>Picoides pubescens</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Eastern Wood-Pewee	<i>Contopus virens</i>	Not Listed	Vulnerable	Special Concern	Yellow	1	1
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Not Listed	Not Listed	Not Listed	Yellow	28	41
Gray Jay	<i>Perisoreus canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow	4	6
Hairy Woodpecker	<i>Picoides villosus</i>	Not Listed	Not Listed	Not Listed	Green	9	9
Hermit Thrush	<i>Catharus guttatus</i>	Not Listed	Not Listed	Not Listed	Green	28	47
Lincoln's Sparrow	<i>Melospiza lincolni</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Magnolia Warbler	<i>Dendroica magnolia</i>	Not Listed	Not Listed	Not Listed	Green	11	16
Mourning Dove	<i>Zenaidura macroura</i>	Not Listed	Not Listed	Not Listed	Green	3	3
Nashville Warbler	<i>Vermivora ruficapilla</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Northern Flicker	<i>Colaptes auratus</i>	Not Listed	Not Listed	Not Listed	Green	10	11
Northern Parula	<i>Parula americana</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Threatened	Threatened	Threatened	Red	1	1
Ovenbird	<i>Seiurus aurocapilla</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Palm Warbler	<i>Dendroica palmarum</i>	Not Listed	Not Listed	Not Listed	Green	25	38
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Pine Siskin	<i>Spinus pinus</i>	Not Listed	Not Listed	Not Listed	Yellow	2	3
Purple Finch	<i>Carpodacus purpureus</i>	Not Listed	Not Listed	Not Listed	Green	13	13
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Not Listed	Not Listed	Not Listed	Green	5	5
Red-eyed Vireo	<i>Vireo olivaceus</i>	Not Listed	Not Listed	Not Listed	Green	3	4
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Not Listed	Not Listed	Not at Risk	Green	2	2
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Not Listed	Not Listed	Not Listed	Yellow	14	16
Ruffed Grouse	<i>Bonasa umbellus</i>	Not Listed	Not Listed	Not Listed	Green	9	9
Wilson's Snipe	<i>Gallinago delicata</i>	Not Listed	Not Listed	Not Listed	Yellow	4	5
Song Sparrow	<i>Melospiza melodia</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Spruce Grouse	<i>Falcipecten canadensis</i>	Not Listed	Not Listed	Not Listed	Green	3	3
Swainson's Thrush	<i>Catharus ustulatus</i>	Not Listed	Not Listed	Not Listed	Green	4	4
Swamp Sparrow	<i>Melospiza georgiana</i>	Not Listed	Not Listed	Not Listed	Green	9	11
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Not Listed	Not Listed	Not Listed	Green	39	78
Winter Wren	<i>Troglodytes troglodytes</i>	Not Listed	Not Listed	Not Listed	Green	19	22
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Not Listed	Not Listed	Not Listed	Yellow	1	1
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Not Listed	Not Listed	Not Listed	Green	7	7
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Not Listed	Not Listed	Not Listed	Green	39	54

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
15-Jun-13	Bea01	446176E 4973921N	Softwood/ cutblock	10 km/h	11	Overcast	none	5:47 AM	American Robin	1	100+	
...	Blackburnian Warbler	1	0-50	
...	Blackburnian Warbler	2	50-100	
...	Black-throated Green Warbler	1	0-50	
...	Black-throated Green Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Chestnut-sided Warbler	1	100+	
...	Common Yellowthroat	1	0-50	
...	Common Yellowthroat	1	50-100	
...	Dark-eyed Junco	1	0-50	
...	Hairy Woodpecker	1	100+	
...	Hermit Thrush	1	50-100	
...	Magnolia Warbler	1	0-50	
...	White-throated Sparrow	1	0-50	
...	Winter Wren	1	100+	
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	10 km/h	11	Overcast	none	5:32 AM	American Robin	1	0-50	
...	Black-and-white Warbler	1	50-100	
...	Black-throated Blue Warbler	1	100+	
...	Black-throated Green Warbler	1	0-50	
...	Black-throated Green Warbler	1	50-100	
...	Cedar Waxwing	2	50-100	
...	Chestnut-sided Warbler	1	100+	
...	Dark-eyed Junco	1	100+	
...	Magnolia Warbler	1	0-50	
...	Ovenbird	1	100+	
...	Red-eyed Vireo	1	100+	
...	Red-tailed Hawk	1	50-100	
...	Swainson's Thrush	1	100+	
...	White-throated Sparrow	1	100+	
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	Calm	11	Overcast	none	5:17 AM	Blackburnian Warbler	1	0-50	
...	Blackburnian Warbler	2	50-100	
...	Black-throated Blue Warbler	1	50-100	
...	Black-throated Green Warbler	1	0-50	
...	Black-throated Green Warbler	4	50-100	
...	Common Yellowthroat	1	100+	
...	Dark-eyed Junco	1	50-100	
...	Dark-eyed Junco	1	100+	
...	Golden-crowned Kinglet	1	0-50	
...	Hermit Thrush	1	50-100	
...	Magnolia Warbler	1	50-100	
...	Magnolia Warbler	1	100+	
...	Ovenbird	1	50-100	
...	Purple Finch	1	50-100	
...	Ruby-throated Hummingbird	1	0-50	
...	White-throated Sparrow	1	100+	
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	Calm	11	Overcast	none	4:59 AM	Alder Flycatcher	1	0-50	
...	Alder Flycatcher	2	50-100	
...	Alder Flycatcher	2	100+	
...	American Robin	1	100+	
...	Black-and-white Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Chestnut-sided Warbler	1	50-100	
...	Common Yellowthroat	2	50-100	
...	Common Yellowthroat	2	100+	
...	Dark-eyed Junco	2	50-100	

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
...	Dark-eyed Junco	2	100+	
...	Hermit Thrush	2	100+	
...	Magnolia Warbler	1	0-50	
...	Magnolia Warbler	2	50-100	
...	Song Sparrow	1	50-100	
...	Swainson's Thrush	2	100+	
...	White-throated Sparrow	2	100+	
...	Winter Wren	1	100+	
...	Yellow Warbler	1	0-50	
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	10 km/h	11	Overcast	none	6:02 AM	Alder Flycatcher	1	50-100	
...	Alder Flycatcher	1	100+	
...	American Goldfinch	2	100+	
...	Blackburnian Warbler	1	0-50	
...	Blackburnian Warbler	1	50-100	
...	Black-throated Blue Warbler	1	50-100	
...	Black-throated Green Warbler	2	0-50	
...	Black-throated Green Warbler	1	50-100	
...	Common Yellowthroat	1	0-50	
...	Golden-crowned Kinglet	1	50-100	
...	Magnolia Warbler	1	50-100	
...	Purple Finch	1	100+	
...	Red-eyed Vireo	2	100+	
...	Swainson's Thrush	1	50-100	
...	Swainson's Thrush	1	100+	
...	White-throated Sparrow	1	50-100	
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	5-10 km/h Gusts 20km/h	11	Overcast	none	7:04 AM	Black-throated Green Warbler	1	50-100	
...	Blue-headed Vireo	1	50-100	
...	Dark-eyed Junco	1	50-100	
...	Golden-crowned Kinglet	1	0-50	
...	Hairy Woodpecker	1	50-100	
...	Hermit Thrush	1	100+	
...	Nashville Warbler	1	50-100	
...	Red-breasted Nuthatch	1	50-100	
...	Ruby-crowned Kinglet	1	50-100	
...	Yellow-bellied Flycatcher	1	0-50	
...	Yellow-bellied Flycatcher	1	50-100	
...	Yellow-rumped Warbler	1	50-100	
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	5 km/h	18	Clearing	none	7:24 AM	Barred Owl	1	100+	
...	Blackburnian Warbler	1	0-50	
...	Black-throated Green Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Golden-crowned Kinglet	1	0-50	
...	Hermit Thrush	1	100+	
...	Palm Warbler	1	50-100	
...	White-throated Sparrow	1	100+	
...	Yellow-rumped Warbler	1	50-100	
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	5 km/h	18	Clearing	none	7:43 AM	Black-throated Green Warbler	1	100+	
...	Blue Jay	2	100+	
...	Blue-headed Vireo	1	100+	
...	Dark-eyed Junco	2	0-50	
...	Dark-eyed Junco	1	50-100	
...	Golden-crowned Kinglet	2	0-50	
...	Hairy Woodpecker	1	100+	
...	Lincoln's Sparrow	1	50-100	
...	Lincoln's Sparrow	1	100+	

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
...	Magnolia Warbler	1	50-100	
...	Mourning Dove	1	50-100	
...	Mourning Dove	1	100+	
...	Nashville Warbler	1	100+	
...	Northern Flicker	1	100+	
...	Olive-sided Flycatcher	1	50-100	
...	Palm Warbler	2	0-50	
...	Palm Warbler	1	50-100	
...	Purple Finch	1	100+	
...	Ruby-crowned Kinglet	1	50-100	
...	White-throated Sparrow	2	100+	
...	Bea09	446500E 4974461N	Softwood stand near clearcut	5-10 km/h Gusts 20km/h	11	Overcast	none	6:46 AM	American Goldfinch	1	50-100	
...	Black-throated Green Warbler	1	0-50	
...	Black-throated Green Warbler	2	50-100	
...	Blue Jay	1	100+	
...	Dark-eyed Junco	1	50-100	
...	Golden-crowned Kinglet	2	50-100	
...	Hairy Woodpecker	1	50-100	
...	Magnolia Warbler	1	50-100	
...	Red-eyed Vireo	1	100+	
...	White-throated Sparrow	1	100+	
...	Winter Wren	1	100+	
...	Yellow-bellied Flycatcher	1	50-100	
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	10 km/h	11	Overcast	none	6:22 AM	Alder Flycatcher	1	0-50	
...	Alder Flycatcher	1	50-100	
...	American Goldfinch	1	50-100	
...	Blackburnian Warbler	1	50-100	
...	Black-throated Green Warbler	1	50-100	
...	Blue-headed Vireo	1	50-100	
...	Chestnut-sided Warbler	1	50-100	
...	Common Yellowthroat	1	0-50	
...	Magnolia Warbler	1	50-100	
...	Ovenbird	1	50-100	
...	Purple Finch	1	50-100	
...	Ruby-throated Hummingbird	1	0-50	
...	White-throated Sparrow	1	100+	
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	5 km/h	18	Clearing	none	8:03 AM	Blackburnian Warbler	1	50-100	
...	Blue-headed Vireo	1	50-100	
...	Canada Warbler	1	0-50	
...	Golden-crowned Kinglet	3	50-100	
...	Gray Jay	2	0-50	
...	Hermit Thrush	1	100+	
...	Magnolia Warbler	1	0-50	
...	Nashville Warbler	1	0-50	
...	Nashville Warbler	1	50-100	
...	Palm Warbler	1	50-100	
...	Purple Finch	1	50-100	
...	Ruby-crowned Kinglet	1	50-100	
...	Yellow-bellied Flycatcher	1	50-100	
...	Yellow-rumped Warbler	1	100+	
24-Jun-13	Bea01	446176E 4973921N	Softwood/ cutblock	Calm	16	Overcast	none	6:08 AM	American Goldfinch	1	50-100	
...	American Robin	1	100+	
...	Blackburnian Warbler	1	100+	
...	Black-throated Green Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Blue-headed Vireo	1	100+	

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
...	Common Yellowthroat	2	100+	
...	Dark-eyed Junco	1	50-100	
...	Dark-eyed Junco	1	100+	
...	Golden-crowned Kinglet	1	100+	
...	Hairy Woodpecker	1	100+	
...	Hermit Thrush	1	100+	
...	Magnolia Warbler	1	100+	
...	Red-eyed Vireo	1	100+	
...	Swainson's Thrush	1	100+	
...	White-throated Sparrow	2	100+	
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	Calm	16	Overcast	none	5:52 AM	Alder Flycatcher	1	50-100	
...	American Redstart	1	50-100	
...	American Robin	1	100+	
...	Black-and-white Warbler	1	50-100	
...	Black-and-white Warbler	1	100+	
...	Blackburnian Warbler	1	50-100	
...	Black-capped Chickadee	1	50-100	
...	Black-capped Chickadee	1	100+	
...	Black-throated Green Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Common Yellowthroat	1	0-50	
...	Common Yellowthroat	1	50-100	
...	Hermit Thrush	1	0-50	
...	Hermit Thrush	1	100+	
...	Magnolia Warbler	1	50-100	
...	Ovenbird	1	100+	
...	Red-eyed Vireo	1	50-100	
...	Red-eyed Vireo	2	100+	
...	Ruby-throated Hummingbird	1	0-50	
...	White-throated Sparrow	2	100+	
...	Winter Wren	2	100+	
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	Calm	16	Overcast	none	5:38 AM	Blackburnian Warbler	1	0-50	
...	Blackburnian Warbler	1	50-100	
...	Black-throated Blue Warbler	1	0-50	
...	Black-throated Green Warbler	1	0-50	
...	Black-throated Green Warbler	1	50-100	
...	Black-throated Green Warbler	1	100+	
...	Blue-headed Vireo	1	100+	
...	Common Yellowthroat	1	100+	
...	Dark-eyed Junco	2		2 adults doing distraction display for young
...	Golden-crowned Kinglet	1	50-100	
...	Hairy Woodpecker	1	100+	
...	Hermit Thrush	2	0-50	
...	Hermit Thrush	1	100+	
...	Ovenbird	1	100+	
...	Ruby-throated Hummingbird	1	0-50	
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	Calm	16	Overcast	none	5:24 AM	Alder Flycatcher	1	50-100	
...	Alder Flycatcher	2	100+	
...	American Robin	1	50-100	
...	Black-throated Green Warbler	1	50-100	
...	Blue-headed Vireo	2	100+	
...	Chestnut-sided Warbler	1	0-50	
...	Chestnut-sided Warbler	1	50-100	
...	Common Yellowthroat	1	0-50	

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
...	Dark-eyed Junco	1	50-100	
...	Dark-eyed Junco	1	100+	
...	Hermit Thrush	3	100+	
...	Magnolia Warbler	2	0-50	
...	Magnolia Warbler	2	50-100	
...	Swainson's Thrush	1	100+	
...	White-throated Sparrow	2	50-100	
...	White-throated Sparrow	1	100+	
...	Yellow Warbler	1	0-50	
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	Calm	16	Overcast	none	6:23 AM	Alder Flycatcher	1	100+	
...	American Goldfinch	1	100+	
...	Blackburnian Warbler	1	50-100	
...	Black-throated Blue Warbler	1	0-50	
...	Black-throated Blue Warbler	1	50-100	
...	Blue Jay	1	100+	
...	Common Merganser	2		Flythrough above 50m
...	Golden-crowned Kinglet	2	100+	
...	Hermit Thrush	1	50-100	
...	Magnolia Warbler	1	100+	
...	Ovenbird	1	50-100	
...	Ovenbird	1	100+	
...	Pileated Woodpecker	1	50-100	
...	Red-eyed Vireo	1	100+	
...	Winter Wren	1	50-100	
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	Calm	16	Overcast	none	7:24 AM	Black-throated Green Warbler	1	100+	
...	Blue-headed Vireo	1	50-100	
...	Dark-eyed Junco	2	0-50	
...	Golden-crowned Kinglet	2	50-100	
...	Hermit Thrush	2	100+	
...	Ruby-crowned Kinglet	1	50-100	
...	White-throated Sparrow	3	0-50	
...	Yellow-rumped Warbler	1	50-100	
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	Calm	20	Overcast	none	7:42 AM	Blackburnian Warbler	1	50-100	
...	Black-throated Green Warbler	1	50-100	
...	Common Yellowthroat	1	50-100	
...	Dark-eyed Junco	1	50-100	
...	Golden-crowned Kinglet	1	0-50	
...	Hermit Thrush	2	100+	
...	Magnolia Warbler	1	100+	
...	Palm Warbler	1	100+	
...	White-throated Sparrow	1	100+	
...	Yellow-rumped Warbler	1	0-50	
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	0-5 km/h	20	Overcast	none	8:00 AM	Blue-headed Vireo	1	100+	
...	Blue-headed Vireo	1	100+	
...	Common Yellowthroat	1	100+	
...	Dark-eyed Junco	1	0-50	
...	Golden-crowned Kinglet	1	50-100	
...	Hermit Thrush	2	100+	
...	Magnolia Warbler	1	50-100	
...	Palm Warbler	1	0-50	
...	Palm Warbler	1	50-100	
...	Palm Warbler	1	100+	
...	Ruby-crowned Kinglet	1	100+	
...	White-throated Sparrow	1	100+	

Table G5: Detailed Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Common Name	Number Observed	Distance to Observer (m)	Notes
				Wind Speed and Direction	Temperature °c	Sky	Precipitation					
...	Yellow-bellied Flycatcher	1	50-100	
...	Yellow-rumped Warbler	2	100+	
...	Bea09	446500E 4974461N	Softwood stand near clearcut	Calm	16	Overcast	none	7:06 AM	Alder Flycatcher	1	100+	
...	Blackburnian Warbler	1	50-100	
...	Black-throated Green Warbler	1	50-100	
...	Common Yellowthroat	1	50-100	
...	Common Yellowthroat	1	100+	
...	Dark-eyed Junco	1	50-100	
...	Magnolia Warbler	1	50-100	
...	Magnolia Warbler	1	100+	
...	Red-eyed Vireo	1	100+	
...	White-throated Sparrow	1	100+	
...	Winter Wren	1	50-100	
...	Winter Wren	1	100+	
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	Calm	16	Overcast	none	6:45 AM	Alder Flycatcher	1	0-50	
...	Alder Flycatcher	2	100+	
...	American Goldfinch	1	50-100	
...	Black-and-white Warbler	1	50-100	
...	Blackburnian Warbler	1	0-50	
...	Black-throated Blue Warbler	1	100+	
...	Blue-headed Vireo	1	50-100	
...	Chestnut-sided Warbler	1	100+	
...	Common Yellowthroat	1	0-50	
...	Common Yellowthroat	1	100+	
...	Dark-eyed Junco	1	100+	
...	Magnolia Warbler	1	100+	
...	Northern Flicker	1	50-100	
...	Northern Parula	1	50-100	
...	Ovenbird	2	100+	
...	Red-eyed Vireo	2	100+	
...	White-throated Sparrow	2	50-100	
...	White-throated Sparrow	2	100+	
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	0-50km/h	20	Overcast	none	8:25 AM	Alder Flycatcher	2	100+	
...	Blue-headed Vireo	1	100+	
...	Canada Warbler	1	50-100	
...	Common Yellowthroat	1	100+	carrying food for young
...	Golden-crowned Kinglet	1	50-100	
...	Hermit Thrush	1	50-100	
...	Hermit Thrush	1	100+	
...	Magnolia Warbler	1	100+	
...	Palm Warbler	1	50-100	
...	Ruby-crowned Kinglet	1	50-100	
...	Spruce Grouse	1	100+	with young
...	White-throated Sparrow	1	100+	
...	Yellow-rumped Warbler	1	50-100	
...	Yellow-rumped Warbler	1	100+	

Table G6: Summarized Breeding Bird Survey Results, North Beaver Bank Community Wind Project

Project # 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status	Number of Times Observed	Number of Individuals Observed
Alder Flycatcher	<i>Empidonax alnorum</i>	Not Listed	Not Listed	Not Listed	Green	15	20
American Goldfinch	<i>Spinus tristis</i>	Not Listed	Not Listed	Not Listed	Green	6	7
American Redstart	<i>Setophaga ruticilla</i>	Not Listed	Not Listed	Not Listed	Green	1	1
American Robin	<i>Turdus migratorius</i>	Not Listed	Not Listed	Not Listed	Green	6	6
Barred Owl	<i>Strix varia</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Black-and-white Warbler	<i>Mniotilta varia</i>	Not Listed	Not Listed	Not Listed	Green	5	5
Blackburnian Warbler	<i>Dendroica fusca</i>	Not Listed	Not Listed	Not Listed	Green	17	19
Black-capped Chickadee	<i>Poecile atricapillus</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Not Listed	Not Listed	Not Listed	Green	7	7
Black-throated Green Warbler	<i>Dendroica virens</i>	Not Listed	Not Listed	Not Listed	Green	28	33
Blue Jay	<i>Cyanocitta cristata</i>	Not Listed	Not Listed	Not Listed	Green	3	4
Blue-headed Vireo	<i>Vireo solitarius</i>	Not Listed	Not Listed	Not Listed	Green	12	13
Canada Warbler	<i>Wilsonia canadensis</i>	Threatened	Endangered	Threatened	Red	2	2
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Not Listed	Not Listed	Not Listed	Green	1	2
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Not Listed	Not Listed	Not Listed	Green	7	7
Common Merganser	<i>Mergus merganser</i>	Not Listed	Not Listed	Not Listed	Green	1	2
Common Yellowthroat	<i>Geothlypis trichas</i>	Not Listed	Not Listed	Not Listed	Green	19	22
Dark-eyed Junco	<i>Junco hyemalis</i>	Not Listed	Not Listed	Not Listed	Green	20	25
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Not Listed	Not Listed	Not Listed	Yellow	14	20
Gray Jay	<i>Perisoreus canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow	1	2
Hairy Woodpecker	<i>Picoides villosus</i>	Not Listed	Not Listed	Not Listed	Green	6	6
Hermit Thrush	<i>Catharus guttatus</i>	Not Listed	Not Listed	Not Listed	Green	18	25
Lincoln's Sparrow	<i>Melospiza lincolni</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Magnolia Warbler	<i>Dendroica magnolia</i>	Not Listed	Not Listed	Not Listed	Green	22	25
Mourning Dove	<i>Zenaidura macroura</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Nashville Warbler	<i>Vermivora ruficapilla</i>	Not Listed	Not Listed	Not Listed	Green	4	4
Northern Flicker	<i>Colaptes auratus</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Northern Parula	<i>Parula americana</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Threatened	Threatened	Threatened	Red	1	1
Ovenbird	<i>Seiurus aurocapilla</i>	Not Listed	Not Listed	Not Listed	Green	8	9
Palm Warbler	<i>Dendroica palmarum</i>	Not Listed	Not Listed	Not Listed	Green	9	10
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Purple Finch	<i>Carpodacus purpureus</i>	Not Listed	Not Listed	Not Listed	Green	5	5
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Red-eyed Vireo	<i>Vireo olivaceus</i>	Not Listed	Not Listed	Not Listed	Green	9	12
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Not Listed	Not Listed	Not at Risk	Green	1	1
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Not Listed	Not Listed	Not Listed	Yellow	6	6
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Not Listed	Not Listed	Not Listed	Green	4	4
Song Sparrow	<i>Melospiza melodia</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Spruce Grouse	<i>Falcipecten canadensis</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Swainson's Thrush	<i>Catharus ustulatus</i>	Not Listed	Not Listed	Not Listed	Green	6	7
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Not Listed	Not Listed	Not Listed	Green	20	29
Winter Wren	<i>Troglodytes troglodytes</i>	Not Listed	Not Listed	Not Listed	Green	7	8
Yellow Warbler	<i>Dendroica petechia</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Not Listed	Not Listed	Not Listed	Yellow	5	5
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Not Listed	Not Listed	Not Listed	Green	8	9

Probable Breeder

Confirmed Breeder

Table G7: Detailed Fall Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Species	Number Observed	Distance to Observer (m)	Flyover Height (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation					
27-Nov-12	Bea01	446176E 4973921N	Softwood/ cutblock	Calm	-4	Clear	None	7:39 AM	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	Evening Grosbeak	1	FO E	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	4	100+	
...	...	...	...	...	...	...	...	...	Hairy Woodpecker	1	100+	
...	...	...	...	...	...	...	...	...	Pine Siskin	1	FO NE	
...	...	...	...	...	...	...	...	...	Red-breasted Nuthatch	1	100+	<100 m
...	...	...	...	...	...	...	...	...	White-winged Crossbill	3	100+	
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	Calm	-4	Clear	None	7:53 AM	Black-capped Chickadee	2	100+	
...	...	...	...	...	...	...	...	...	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	Downy Woodpecker	1	100+	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	0-50	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	1	50-100	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	100+	
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	Calm	-4	Clear	None	8:12 AM	American Crow	2	100+	
...	...	...	...	...	...	...	...	...	American Crow	1	50-100	
...	...	...	...	...	...	...	...	...	Black-capped Chickadee	4	0-50	
...	...	...	...	...	...	...	...	...	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	Common Raven	2	0-50	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	0-50	
...	...	...	...	...	...	...	...	...	Hairy Woodpecker	1	100+	
...	...	...	...	...	...	...	...	...	Red-breasted Nuthatch	1	0-50	
...	...	...	...	...	...	...	...	...	White-winged Crossbill	3	0-50	
...	Bea04	446505E 4973237N	Cutblock/regenerating shrub	5 km/h N	-4	Clear	None	8:30 AM	Blue Jay	1	100+	
...	Bea05	446463E 4974021N	Mid-aged mixed-wood	12 km/h WNW	-2	Clear	None	9:09 AM	Black-capped Chickadee	2	0-50	
...	...	...	...	...	...	...	...	...	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	100+	
...	...	...	...	...	...	...	...	...	Red-breasted Nuthatch	1	0-50	
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	16 km/h WNW	-2	Mainly sunny	None	10:00 AM	Black-capped Chickadee	4	0-50	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	50-100	
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	16 km/h WNW	-2	Mainly sunny	None	10:21 AM	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	White-winged Crossbill	3	100+	
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	16 km/h WNW	-2	Sun and high cloud	None	10:38 AM	American Goldfinch	2	100+	
...	...	...	...	...	...	...	...	...	Common Raven	1	100+	
...	...	...	...	...	...	...	...	...	Golden-crowned Kinglet	2	100+	
...	Bea09	446500E 4974461N	Softwood stand near clearcut	16 km/h WNW	-2	Sun and high cloud	None	11:05 AM	Golden-crowned Kinglet	2	50-100	
...	...	...	...	...	...	...	...	...	Hairy Woodpecker	1	50-100	
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	16 km/h WNW	-2	Sun and high cloud	None	11:27 AM	No bird observed			
16-Sep-13	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	5 km/h S	8	slightly overcast	None	6:35 AM	Blue Jay	1	50-100	
...	...	...	...	...	...	...	...	...	Blue Jay	1	100+	
...	...	...	...	...	...	...	...	...	White-throated Sparrow	1	0-50	
...	...	...	...	...	...	...	...	...	Common Yellowthroat	1	0-50	
...	...	...	...	...	...	...	...	...	Black-throated Green Warbler	2	0-50	
...	...	...	...	...	...	...	...	...	Hairy Woodpecker	1	0-50	
...	Bea01	446176E 4973921N	Softwood/ cutblock	5 km/h S	8	slightly overcast	None	6:50 AM	Black-capped Chickadee	1	0-50	
...	...	...	...	...	...	...	...	...	Brown Creeper	1	0-50	

Table G7: Detailed Fall Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Species	Number Observed	Distance to Observer (m)	Flyover Height (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation					
...	Blue Jay	1	0-50	
...	American Goldfinch	3	0-50	
...	Red-breasted Nuthatch	1	50-100	
...	Hermit Thrush	1	0-50	
...	Hermit Thrush	2	50-100	
...	White-throated Sparrow	4	0-50	
...	Common Raven	1	100+	
...	Common Yellowthroat	1	0-50	
...	Black-capped Chickadee	3	0-50	
...	Black-and-white Warbler	2	0-50	
...	American Crow	1	0-50	
...	Magnolia Warbler	1	0-50	
...	Chestnut-sided Warbler	1	0-50	
...	Blue-headed Vireo	1	0-50	
...	American Redstart	1	0-50	
...	Black-throated Green Warbler	1	0-50	
...	Northern Parula	1	0-50	
...	Golden-crowned Kinglet	1	0-50	
...	Bea12	446472E 4974246N	Scrubby regenerating vegetation along road	5 km/h S	8	slightly overcast	None	7:09 AM	Common Yellowthroat	3	0-50	
...	Lincoln's Sparrow	1	50-100	
...	Golden-crowned Kinglet	2	0-50	
...	American Robin	3	100+	
...	Brown Creeper	1	0-50	
...	Black-throated Green Warbler	1	0-50	
...	Black-and-white Warbler	1	0-50	
...	Palm Warbler	1	0-50	
...	Hermit Thrush	1	0-50	
...	White-throated Sparrow	3	0-50	
...	Magnolia Warbler	1	0-50	
...	American Redstart	1	0-50	
...	Black-throated Green Warbler	1	0-50	
...	Dark-eyed Junco	2	0-50	
...	Northern Flicker	1	100+	
...	Gray Catbird	1	0-50	
...	Black-throated Green Warbler	1	0-50	
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	5 km/h S	8	slightly overcast	None	7:32 AM	Common Yellowthroat	12:00 AM	0-50	
...	White-throated Sparrow	1	0-50	
...	American Crow	1	100+	
...	Hairy Woodpecker	1	0-50	
...	Bea09	446500E 4974461N	Softwood stand near clearcut	5 km/h S	8	slightly overcast	None	7:47 AM	Golden-crowned Kinglet	2	0-50	
...	Winter Wren	1	50-100	
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	5 km/h S	8	slightly overcast	None	8:02 AM	Golden-crowned Kinglet	2	50-100	
...	Yellow-rumped Warbler	1	0-50	
...	Black-and-white Warbler	2	0-50	
...	Hermit Thrush	1	100+	
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	0-50	10	overcast	None	8:14 AM	Common Yellowthroat	1	0-50	
...	Swamp Sparrow	1	0-50	
...	Blue Jay	1	100+	
...	Mourning Warbler	1	50-100	
...	Northern Flicker	1	100+	
...	Blue Jay	9	50-100	
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	10 km/h W	10	overcast	None	8:25 AM	Black-capped Chickadee	3	0-50	
...	Common Yellowthroat	1	0-50	
...	Palm Warbler	1	0-50	

Table G7: Detailed Fall Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Species	Number Observed	Distance to Observer (m)	Flyover Height (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation					
...	Golden-crowned Kinglet	2	0-50	
...	Northern Flicker	1	100+	
...	Blackpoll Warbler	1	0-50	
...	Golden-crowned Kinglet	2	0-50	
...	Red-breasted Nuthatch	1	50-100	
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	10 km/h W	10	overcast	None	8:52 AM	Black-capped Chickadee	2	0-50	
...	Common Yellowthroat	1	0-50	
...	Ruffed Grouse	1	0-50	
...	Golden-crowned Kinglet	2	0-50	
...	Winter Wren	1	0-50	
...	Black-capped Chickadee	1	0-50	
...	Common Yellowthroat	1	0-50	
...	Winter Wren	1	0-50	
...	Bea13	445998E 4973537N	Shrubby vegetation near roadside	10 km/h W	10	overcast	None	9:35 AM	Common Yellowthroat	1	0-50	
...	White-throated Sparrow	1	0-50	
...	Golden-crowned Kinglet	1	0-50	
...	Dark-eyed Junco	1	0-50	
...	Blue Jay	1	50-100	
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	10 km/h SW	11	overcast	None	9:48 AM	Common Yellowthroat	1	0-50	
...	Northern Flicker	1	100+	
16-Oct-13	Bea14	445994E 4973531N	Shrubby vegetation near roadside	Calm	1	Clear	None	7:27 AM	Hairy Woodpecker	1	0	
...	American Robin	1	50-100	
...	Golden-crowned Kinglet	5	0	
...	American Goldfinch	1	FO E	
...	Purple Finch	2	0	
...	Purple Finch	1	100+	
...	Red-breasted Nuthatch	1	0	
...	American Goldfinch	2	FO NE	
...	Bea03	446307E 4973475N	Softwood mid-aged/ clearcut adjacent	Calm	1	Clear	None	7:46 AM	American Goldfinch	1	FO NE	
...	Blue Jay	1	100+	
...	Blue Jay	1	0	
...	Mourning Warbler	1	100+	
...	Hairy Woodpecker	1	50-100	
...	Black-capped Chickadee	2	0	
...	Black-capped Chickadee	1	50-100	
...	Common Raven	2	100+	
...	American Robin	4	FO SE	
...	Purple Finch	1	100+	
...	Dark-eyed Junco	4	0	
...	Palm Warbler	1	0	
...	Golden-crowned Kinglet	1	0	
...	American Goldfinch	3	0	
...	Red Crossbill	4	FO NE	
...	Bea02	446045E 4973647N	Young mixed-wood forest/ stream adjacent	Calm	2	Clear	None	8:07 AM	Golden-crowned Kinglet	2	0	
...	Common Raven	2	100+	
...	Black-capped Chickadee	1	50-100	
...	Black-capped Chickadee	2	0	
...	Golden-crowned Kinglet	1	0	
...	Song Sparrow	1	0	
...	Palm Warbler	1	0	
...	Dark-eyed Junco	2	0	
...	Bea01	446176E 4973921N	Softwood/ cutblock	Calm	3	Clear	None	8:17 AM	Golden-crowned Kinglet	1	0	
...	White-throated Sparrow	2	0	

Table G7: Detailed Fall Bird Survey Results, North Beaver Bank Community Wind Project

Date	Location	Coordinates (UTM NAD83)	Habitat	Conditions				Time	Species	Number Observed	Distance to Observer (m)	Flyover Height (m)
				Wind Speed and Direction	Temperature °C	Sky	Precipitation					
...	Dark-eyed Junco	1	0	
...	Black-capped Chickadee	2	0	
...	Red-tailed Hawk	1	50-100	
...	Golden-crowned Kinglet	3	0	
...	American Goldfinch	4	FO	
...	Bea12	446472E 4974246N	Scrubby regenerating vegetation along road	Calm	4	Clear	None	8:36 AM	Purple Finch	1	100+	
...	Purple Finch	1	50-100	
...	Dark-eyed Junco	2	0	
...	Yellow-rumped Warbler	1	0	
...	Golden-crowned Kinglet	3	0	
...	Red-breasted Nuthatch	1	0	
...	Common Raven	1	50-100	
...	Blue Jay	1	100+	
...	Black-capped Chickadee	4	0	
...	Ruby-crowned Kinglet	1	50-100	
...	Bea10	446812E 4974250N	Clear cut/ midage mixedwood	Calm	4	Clear	None	8:58 AM	American Crow	1	50-100	
...	Dark-eyed Junco	2	0	
...	Golden-crowned Kinglet	3	0	
...	Red-breasted Nuthatch	1	50-100	
...	Black-capped Chickadee	4	0	
...	Bea09	446500E 4974461N	Softwood stand near clearcut	Calm	5	Clear	None	9:14 AM	None			
...	Bea11	446179E 4974347N	Mature softwood stand adjacent to bog	Calm	5	Clear	None	9:27 AM	American Goldfinch	2	FO W	
...	Golden-crowned Kinglet	5	0	
...	Red-breasted Nuthatch	2	0	
...	Black-capped Chickadee	7	0	
...	Gray Jay	2	0	
...	Hermit Thrush	1	0	
...	Dark-eyed Junco	3	0	
...	American Robin	1	FO S	
...	Bea08	446134E 4974796N	Powerline/Shrub/Softwood adjacent	Calm	5	Clear	None	10:03 AM	Golden-crowned Kinglet	3	0	
...	Common Raven	1	100+	
...	Bea07	446370E 4974983N	Treed swamp transitioning into softwood	Calm	6	Clear	None	10:18 AM	Black-capped Chickadee	2	50-100	
...	American Crow	1	100+	
...	Dark-eyed Junco	1	0	
...	Red-breasted Nuthatch	1	50-100	
...	Bea06	446385E 4974742N	Treed swamp/bog adjacent	Calm	6	Clear	None	11:09 AM	Golden-crowned Kinglet	2	0	

Table G8: Summarized Fall Bird Survey Results, North Beaver Bank Community Wind Project

Project # 12-4563

Common Name	Scientific Name	SARA Status	NSESA Status	COSEWIC Status	NSDNR Status	Number of Times Observed	Number of Individuals Observed
American Crow	<i>Corvus brachyrhynchos</i>	Not Listed	Not Listed	Not Listed	Green	6	7
American Goldfinch	<i>Spinus tristis</i>	Not Listed	Not Listed	Not Listed	Green	8	18
American Redstart	<i>Setophaga ruticilla</i>	Not Listed	Not Listed	Not Listed	Green	2	2
American Robin	<i>Turdus migratorius</i>	Not Listed	Not Listed	Not Listed	Green	4	9
Black-and-white Warbler	<i>Mniotilta varia</i>	Not Listed	Not Listed	Not Listed	Green	3	5
Black-capped Chickadee	<i>Poecile atricapillus</i>	Not Listed	Not Listed	Not Listed	Green	18	47
Blackpoll Warbler	<i>Dendroica striata</i>	Not Listed	Not Listed	Not Listed	Yellow	1	1
Black-throated Green Warbler	<i>Dendroica virens</i>	Not Listed	Not Listed	Not Listed	Green	5	6
Blue Jay	<i>Cyanocitta cristata</i>	Not Listed	Not Listed	Not Listed	Green	10	18
Blue-headed Vireo	<i>Vireo solitarius</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Brown Creeper	<i>Certhia americana</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Common Raven	<i>Corvus corax</i>	Not Listed	Not Listed	Not Listed	Green	12	15
Common Yellowthroat	<i>Geothlypis trichas</i>	Not Listed	Not Listed	Not Listed	Green	10	12
Dark-eyed Junco	<i>Junco hyemalis</i>	Not Listed	Not Listed	Not Listed	Green	9	18
Downy Woodpecker	<i>Picoides pubescens</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Not Listed	Not Listed	Not Listed	Yellow	28	62
Gray Catbird	<i>Dumetella carolinensis</i>	Not Listed	Not Listed	Not Listed	Red	1	1
Gray Jay	<i>Perisoreus canadensis</i>	Not Listed	Not Listed	Not Listed	Yellow	1	2
Hairy Woodpecker	<i>Picoides villosus</i>	Not Listed	Not Listed	Not Listed	Green	7	7
Hermit Thrush	<i>Catharus guttatus</i>	Not Listed	Not Listed	Not Listed	Green	5	6
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Magnolia Warbler	<i>Dendroica magnolia</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Mourning Warbler	<i>Oporornis philadelphia</i>	Not Listed	Not Listed	Not Listed	Green	2	2
Northern Flicker	<i>Colaptes auratus</i>	Not Listed	Not Listed	Not Listed	Green	4	4
Northern Parula	<i>Parula americana</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Palm Warbler	<i>Dendroica palmarum</i>	Not Listed	Not Listed	Not Listed	Green	4	4
Pine Siskin	<i>Spinus pinus</i>	Not Listed	Not Listed	Not Listed	Yellow	1	1
Purple Finch	<i>Carpodacus purpureus</i>	Not Listed	Not Listed	Not Listed	Green	5	6
Red Crossbill	<i>Loxia curvirostra</i>	Not Listed	Not Listed	Not Listed	Green	1	4
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Not Listed	Not Listed	Not Listed	Green	10	11
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Not Listed	Not Listed	Not at Risk	Green	1	1
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Not Listed	Not Listed	Not Listed	Yellow	1	1
Ruffed Grouse	<i>Bonasa umbellus</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Song Sparrow	<i>Melospiza melodia</i>	Not Listed	Not Listed	Not Listed	Green	1	1
Swamp Sparrow	<i>Melospiza georgiana</i>	Not Listed	Not Listed	Not Listed	Green	1	1
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Not Listed	Not Listed	Not Listed	Green	6	12
White-winged Crossbill	<i>Loxia leucoptera</i>	Not Listed	Not Listed	Not Listed	Green	3	9
Winter Wren	<i>Troglodytes troglodytes</i>	Not Listed	Not Listed	Not Listed	Green	3	3
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Not Listed	Not Listed	Not Listed	Green	2	2

APPENDIX H
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT
RESPONSE LETTER



**Communities,
Culture & Heritage**

1747 Summer Street
Halifax, Nova Scotia
B3H 3A6

Tel: (902) 424-6475
Fax: (902) 424-0560

April 12, 2013

Dr. Stephen Davis
Davis, MacIntyre & Associates
109 John Stewart Drive
Cole Harbour, NS B2W 4J7

Dear Dr. Davis:

**RE: Heritage Research Permit Report
A2012NS166- North Beaverbank Wind Project**

We have received and reviewed your report on work conducted under the terms of Heritage Research Permit A2012NS166 for an archaeological resource impact assessment of the North Beaver Bank Wind Project, Halifax County.

The report details the archaeological resource impact assessment of the proposed North Beaver Bank Wind Project by Davis MacIntyre & Associated in December 2012. The assessment included background and historical research, an exercise in potential modelling for First Nations archaeological resources, and field reconnaissance of the proposed project area.

The entire study area was determined to be of low archaeological potential. No archaeological resources were identified during the field reconnaissance and background study. The only watercourses within the study area are intermittent streams which drain swamp lands. Both predictive modelling and past archaeological discoveries indicate the shores of Grand Lake, over 4 kilometres east of the study area, is much more suitable for First Nations occupation and land use.

The study area has been determined to be of low potential for archaeological resources and therefore no further mitigation is recommended. Should development plans change such that areas not evaluated during this assessment should be impacted, it is recommended that the areas be surveyed by a qualified archaeologist to ensure that no archaeological resources are impacted by development. In the unlikely event that archaeological resources are encountered during development, it is required that all activity stop and the Coordinator of Special Places be contacted.

We agree with the report recommendations and find the report acceptable as submitted. Please do not hesitate to contact me should you have any questions or concerns.

Sincerely,

Laura Bennett
Coordinator, Special Places

APPENDIX I
ELECTROMAGNETIC INTERFERENCE STUDY
CORRESPONDENCE



Neil Lovitt <lovitt.neil@gmail.com>

Proposed Windfarm, North Beaverbank NS

XNCR, Windfarm Coordinator <Windfarm.Coordinator@dfo-mpo.gc.ca>

Tue, Aug 7, 2012 at 1:11 PM

To: Neil Lovitt <nlovitt@scotianwindfields.ca>

Hello,

The proposed wind farm (North Beaverbank) is located 28 km away from the Shannon Hill radar site. Even though it is located within the 60 km consultation zone, it is located beyond the area covered by the radar. Therefore no interference issues are anticipated.

Regards,

Martin Grégoire, P. Eng
Canadian Coast Guard

From: lovitt.neil@gmail.com [mailto:lovitt.neil@gmail.com] **On Behalf Of** Neil Lovitt

Sent: July 31, 2012 10:04 AM

To: XNCR, Windfarm Coordinator

Subject: Proposed Windfarm, North Beaverbank NS

[Quoted text hidden]



Neil Lovitt <lovitt.neil@gmail.com>

Detailed Analysis - No Interference - SW-145-LM - North Beaverbank, NS - WTA-2091

ADIN.SWITZER@forces.gc.ca <ADIN.SWITZER@forces.gc.ca>

Fri, Aug 17, 2012 at 9:44 AM

To: nlovitt@scotianwindfields.ca, lovitt.neil@gmail.com

Cc: belandj@navcanada.ca, JOCELYN.BELAND@forces.gc.ca

Neil,

We have completed the detailed analysis of your proposed site, SW-145-LM, located near North Beaverbank, NS (WTA-2091). The results of our detailed analysis have shown that there is likely to be no interference with DND radar and flight operations.

Therefore, as a result of these findings we have no objections with your project as submitted (attached).

If however, the layout were to change/move, please re-submit that proposal for another assessment using the assigned WTA number listed above. The concurrence for this site is valid for 24 months from date of this email. If the project should be cancelled or delayed during this timeframe please advise this office accordingly.

It should be noted that our office looks at each submission on a case by case basis and as such, concurrence on this submission in no way constitutes a concurrence for similar projects in the same area, nor does it indicate that similar concurrence might be offered in another region.

Finally, the concurrence offered in this email extends only to the subject projects and current proponent. Should the project or any part of it be altered, or be sold to another developer, this office must be notified and we reserve the right to reassess the project.

Thank you for your patience on this matter and for considering DND radar and airport facilities in your project development process.

If you have any questions feel free to contact me.

Thank you.

<<ScotianWind145-BP8A04-01.xls>>

Adin Switzer

Capt

AEC Liaison Officer

CCISF/ESICC

ATESS/ESTTMA

Défense nationale | National Defence

8 Wing Trenton, Astra, ON K0K 3W0

TEL: 613 392-2811 Ext4834 (CSN: 827-4834)

FAX: 613 965-3200

Gouvernement du Canada | Government of Canada

ü Please consider the environment before printing this email | S'il vous plaît pensez à l'environnement a

**ScotianWind145-BP8A04-01.xls**

71K



Neil Lovitt <lovitt.neil@gmail.com>

North Beaverbank - Revised Wind Turbine Project Details

Weather Radars Contact, National Radar Program [Ontario]

Thu, Oct 25, 2012 at 2:24

<weatherradars@ec.gc.ca>

PM

To: Neil Lovitt <nlovitt@scotianwindfields.ca>, "Weather Radars Contact, National Radar Program [Ontario]"

<weatherradars@ec.gc.ca>

Dear Mr. Neil Lovitt,

Thank you for contacting the Meteorological Service of Canada, a branch of Environment Canada, regarding your wind energy intentions.

Our preliminary assessment based on the information provided to us via e-mail on October 15, 2012 indicates that any potential interference that may be created by the North Beaverbank Community Wind Farm near Halifax, Nova Scotia will not be severe. Although we would prefer our radar view to be interference free, this is not always reasonable. As a consequence, we do not have strong objections to the current proposal.

If your plans are modified in any manner (e.g. number of turbines, height, placement or materials) this analysis would no longer be valid and an updated analysis must be conducted.

Please contact us at: weatherradars@ec.gc.ca.

Thank you for your ongoing cooperation and we wish you success.

Best Regards,

Carolyn Rennie

National Radar Program

Meteorological Service of Canada

Environment Canada

4905 Dufferin Street

Toronto, Ontario M3H 5T4

Office : 3N-WS12

Carolyn.Rennie@ec.gc.ca

Phone : 416-739-4931

Carolyn Rennie

Le Programme Nationale de Radar
Service météorologique du Canada
Environnement Canada
4905, rue Dufferin
Toronto, Ontario M3H 5T4
Bureau : 3N-WS12
Carolyn.Rennie@ec.gc.ca
Téléphone : 416-739-4931

From: lovitt.neil@gmail.com [mailto:lovitt.neil@gmail.com] **On Behalf Of** Neil Lovitt
Sent: Monday, October 15, 2012 1:44 PM
To: Weather Radars Contact,National Radar Program [Ontario]
Subject: Revised Wind Turbine Project Details

Hello Carolyn,

Following up on our conference call in late September, I have some new information for Environment Canada regarding our three proposed wind energy projects at Nine Mile River, Renfrew and North Beaverbank.

Renfrew

As we discussed in the call, the Renfrew Wind Farm was not one of the projects selected in a recent provincial RFP. As a result, it is being held in reserve to be revisited at an undetermined time in the future. As the future of this project is largely in question, it should not form part of the cumulative impacts you consider in your evaluation of our Nine Mile River and North Beaverbank project. If and when we are able to continue the development of Renfrew, we will work with Environment Canada regarding impact mitigation in the context as it exists at that time.

North Beaverbank

Jim indicated that the impact of our North Beaverbank project was already fairly minimal, and independent of the Renfrew project, would likely have received approval. Given the status of Renfrew, we request that Environment Canada reevaluate our original submission of North Beaverbank and advise us of it's acceptability.

Nine Mile River

Since our conversation regarding Nine Mile River, we have created a new turbine layout; using only 2 turbines and aligned to minimize the azimuth of impact. I have attached a map of this proposed layout for your evaluation. Please let me know if configuring the project in this way proves to reduce it's impact to acceptable levels.

I look forward to receiving your feedback.

Best Regards,

Neil

—

-Neil Lovitt

Project Planner

Scotian WindFields Inc.

[1.877.798.5085](tel:18777985085)

<http://www.scotianwindfields.ca>



February 5, 2013

Your file
Project 145 - North Beaverbank Wind Farm
Our file
12-3169

Mr. Neil Lovitt
Scotian WindFields Inc.
108F Trider Cres.
Dartmouth, NS
B3B 1R6

**RE: Wind Farm: 4 Wind Turbines - North Beaverbank, NS
(See attached spreadsheet for all turbine information)**

Mr. Lovitt,

We have evaluated the captioned proposal. The 4 wind turbines located approximately 7.5 nautical miles (NM) west of the Halifax/Stanfield International Airport (CYHZ) will be visible to our RADAR, this could cause the following impacts:

- o a small number of nuisance (false) primary radar targets in the wind farm geographical limits and its immediate vicinity,
- o a reduction to our capability to identify and track primary surveillance targets in the above mentioned area,
- o a reduction in our ability to provide full traffic information to our aviation customers when a primary only surveillance target (s) is in the area, and
- o an increase in Minimum Vectoring Altitude (MVA) in the vicinity of wind farm.

These impacts are acceptable. We continue however to remain concerned regarding the development of wind turbines in proximity to the Halifax Stanfield International Airport. The turbines will be a significant obstacle for airspace users in this area, especially in adverse weather conditions. Additionally, the nature and magnitude of electronic interference to NAV CANADA ground-based navigation aids, including RADAR, due to wind turbines depends on the location, configuration, number, and size of turbines; all turbines must be considered together for analysis. While initial turbines may be approved, continued development in this area would have to be carefully considered and may not always be possible.

In the interest of aviation safety, it is incumbent on NAV CANADA to maintain up-to-date aeronautical publications and issue NOTAM as required. To assist us in that end, we ask that you notify us at least 10 business days prior to the start of construction. This notification requirement can be satisfactorily met by returning a completed, signed copy of the attached form by e-mail at landuse@navcanada.ca or fax at 613-248-4094. In the event that you should decide not to proceed with this project or if the structure is dismantled, please advise us accordingly so that we may formally close the file.

If you have any questions, contact the Land Use Department by telephone at 1-866-577-0247 or e-mail at landuse@navcanada.ca.

NAV CANADA's land use evaluation is valid for a period of 12 months. Our assessment is limited to the impact of the proposed physical structure on the air navigation system and installations; it neither constitutes nor replaces any approvals or permits required by Transport Canada, Industry Canada, other Federal Government departments, Provincial or Municipal land use authorities or any other agency from which approval is required.



Industry Canada addresses any spectrum management issues that may arise from your proposal and consults with NAV CANADA engineering as deemed necessary.

Yours truly,

A handwritten signature in blue ink, appearing to read "P. Pinard", written over a light blue horizontal line.

Paul Pinard
for
David Legault
Manager, Data Collection
Aeronautical Information Services

cc ATLR - Atlantic Region, Transport Canada (2012-412)
Michelle Bishop, NAV CANADA, Director, Government and Public Affairs
Marcel Pinon, NAV CANADA, Manager, Level of Service and Aeronautical Studies
Pierre Duchaine, NAV CANADA, AIS Designer
Bax Vokey, NAV CANADA, Shift Manager / MATCOR
Ted Davis, NAV CANADA, Shift Manager
Peter Thompson, NAV CANADA, Manager ACC Operations



Transport Canada / Transports Canada

APPENDIX C TO CAR 621.19 - ANNEXE C RAC 621.19

TC File No./Ref No. - TC n° du dossier/N° de réf

AERONAUTICAL OBSTRUCTION CLEARANCE FORM

FORMULAIRE D'AUTORISATION D'OBSTACLE AÉRIEN

RECEIVED / REÇU

TO BE COMPLETED BY APPLICANT - À REMPLIR PAR LE REQUÉRANT

Operator's Name - Nom de l'opérateur Scotian Wind Inc.		
Operator's Address - Adresse de l'opérateur 108F Trider Crescent, Dartmouth, NS, B3B 1R6		
Operator's Contact - Agent de liaison de l'opérateur Neil Lovitt		
Contact's Telephone No. - N° de téléphone de liaison 877-798-5085	Contact's FAX No. - N° de télécopieur de liaison 902-468-3002	Contact's Email Address - Adresse électronique de liaison nlovitt@scotianwindfields.ca
Applicant's Name - Nom du requérant this section - same as operator		Address - Adresse
City - Ville	Province/Territory - Province/Territoire	Postal - Code - postal
Applicant's Telephone No. - N° de téléphone du requérant	Applicant's FAX No. - N° de télécopieur du requérant	Applicant's Email Address - Adresse électronique du requérant

JUL 31 2012
TC 2012-412
MAM

Nearest city / town to proposed facility Ville la plus proche de la structure proposée North Beaverbank, NS	Geographic coordinates of structure - coordonnées géographiques de la structure		<input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> WGS84	
	N Latitude Latitude N	W Longitude Longitude O		

TOWERS / ANTENNAS TOURS / ANTENNES	BUILDING OR OTHER STRUCTURE BÂTIMENT OU AUTRE STRUCTURE		Feet - Pieds	Meters - Mètres
		A Height above ground Hauteur au-dessus du sol		150
		B Building height Hauteur du bâtiment		100
		C Ground elevation above sea level Hauteur du sol au-dessus du niveau de la mer		

List any tall adjacent buildings and structures which may shield the proposed structure (Attach sketch)
Faire une liste indiquant les structures et bâtiments avoisinants plus haut que le bâtiment projeté (Inclure un diagramme)

New struc. - Nouv. struc. <input checked="" type="checkbox"/> Yes / Oui <input type="checkbox"/> No / Non	Add. to exist. struc. incl. total hght. - Ajout à un bâti. exis. incl. hauteur total	Proposed Construction - Date - de construction proposée 09-01-2014
--	--	--

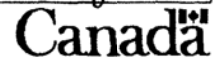
TYPE OF STRUCTURE (narrative description and function) - GENRE DE STRUCTURE (description narrative et fonction)
Wind Turbine Array (4 turbines) for electricity generation. See attached sheet for location and elevation information

Signature (of applicant) (du requérant)		Date (yyyy-mm-dd / aaaa-mm-jj) 2012-07-31
---	--	---

TRANSPORT CANADA USE ONLY - À L'USAGE DE TRANSPORTS CANADA

AERONAUTICAL ASSESSMENT - ÉVALUATION AÉRONAUTIQUE	
Site acceptable - Emplacement acceptable <input checked="" type="checkbox"/> Yes / Oui <input type="checkbox"/> No / Non (if no, reason) / (si non, pourquoi)	
Lighting as per (TP382) required - Balisage lumineux tel que demandé au (TP382) <input checked="" type="checkbox"/> Yes / Oui <input type="checkbox"/> No / Non ou Turbines #1, #2 + #4 to be lighted	
Painting as per (TP382) required - Balisage peint tel que demandé au (TP382) <input type="checkbox"/> Yes / Oui <input checked="" type="checkbox"/> No / Non or	
Temporary lighting required - Nécessité d'un balisage lumineux temporaire <input checked="" type="checkbox"/> Yes / Oui <input type="checkbox"/> No / Non (if yes, type) / (si oui, de quel genre)	
Advise Transport Canada in writing 90 days before construction / Avertir Transports Canada par écrit 90 jours avant la construction <input type="checkbox"/> when construction starts / au commencement de la construction <input type="checkbox"/> and on completion / et à la fin des travaux <input type="checkbox"/> Valid to / Valide jusqu'au	
Civil Aviation Inspector (as required) - Inspecteur Aviation Civile (si nécessaire) Comments - Commentaires	

Regional Manager Aerodrome Safety / Gestionnaire Régional Sécurité des aéroports	Signature 	Date (yyyy-mm-dd / aaaa-mm-jj) 2012-08-09
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APPENDIX J
SOUND MODELING RESULTS

Receptor ID	Easting (m)	Northing (m)	Predicted Sound Levels (dBA)
R1	444506	4973898	30

APPENDIX K
COMMUNITY ENGAGEMENT



108F Trider Cres
Dartmouth NS
B3B 1R6
Canada

March 8, 2013

NAME

ADDRESS

BEAVER BANK NS, CANADA

Dear North Beaver Bank resident or landowner,

Scotian Wind Inc. is holding an Open House at the Beaver Bank Community Centre on March 19 from 6:00pm to 7:30pm. Individuals in attendance will have the opportunity to view displays and meet with the professionals of Scotian Wind Inc to learn about a proposed wind turbine project located near North Beaver Bank. The goal of the open house is to provide an overview of project information and to answer questions that residents in the area might have about the proposed project.

Scotian Wind has applied for provincial approval of this 8 megawatt project under the Community Feed-In-Tariff program. Under this program community-owned projects are approved to sell energy to Nova Scotia Power and distribute that energy directly through the local grid.

Scotian Wind has been conducting wind data and an Environmental Assessment at the North Beaver Bank location to validate the potential for wind energy development at that site. The project is in the preliminary stages of assessment and study. Public consultation is a part of the long-term process of erecting the local turbines; construction would begin in 2014 at the earliest. The proposed facility will consist of 4 turbines, each with a hub height of 100m, and a blade length of 50m for a total turbine height of 150m (492ft). The proposed facility would be located approximately 2.5km from the nearest building of any kind, and approximately 3.3km from the nearest house located on Beaver Bank Road. A site plan of the proposed facility is enclosed with this letter.

We hope to meet you at the Open House on March 19th. Please do not hesitate to contact us regarding any questions or concerns you may have. We are here to help.

Sincerely,







Gay Harley:
Community Coordinator
gharley@scotianwindfields.ca
902-482-4308

PROJECT TIMELINE

Project Awards from Dept. of Energy – Winter 2012
Wind Testing – 2012-2013
Environmental Assessment – late 2012 to end of 2013
Public meetings and public consultation – Ongoing through 2013
Construction and installation – Summer



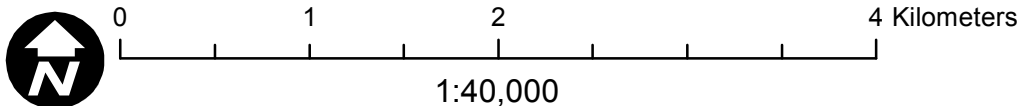
Proposed Wind Energy Project: North Beaver Bank Community Wind Farm

-  Proposed Turbine Location
-  Existing Building
-  Road
-  Municipal Boundary
-  Property Boundary
-  Water

Project Information:
 Vestas V100 Wind Turbine x 4
 2MW Capacity Each (8MW Total)
 Energy Distributed to Local Area
 Opportunity for Local Investment
 Anticipated Construction Start - Early 2014

Questions?
 Contact: Gay Harley
 902-482-4308
gharley@scotianwindfields.ca

108F Trider Cres
 Dartmouth, NS
 B3B 1R6



The Turbine

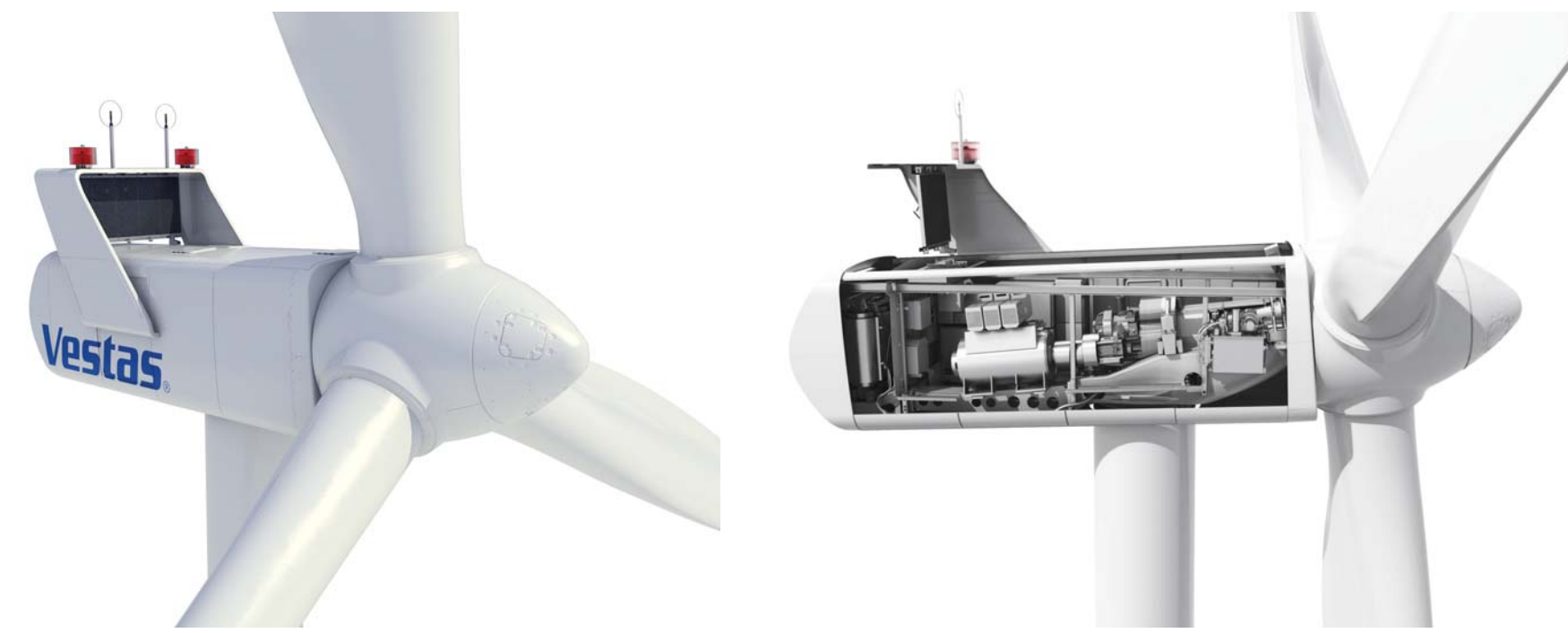


Vestas V100

This wind energy project uses the Vestas V100 wind turbine. Vestas, a Danish company, is a long time pioneer in wind energy. Its new V100 model represents cutting edge design and technology, built on extensive testing and experience gained from the 9700+ 2MW class turbines installed worldwide



The Nacelle



The housing that contains all of the generating components of the turbine. Inside you will find the generator, gearbox, drive train and brake assembly.

The Blades

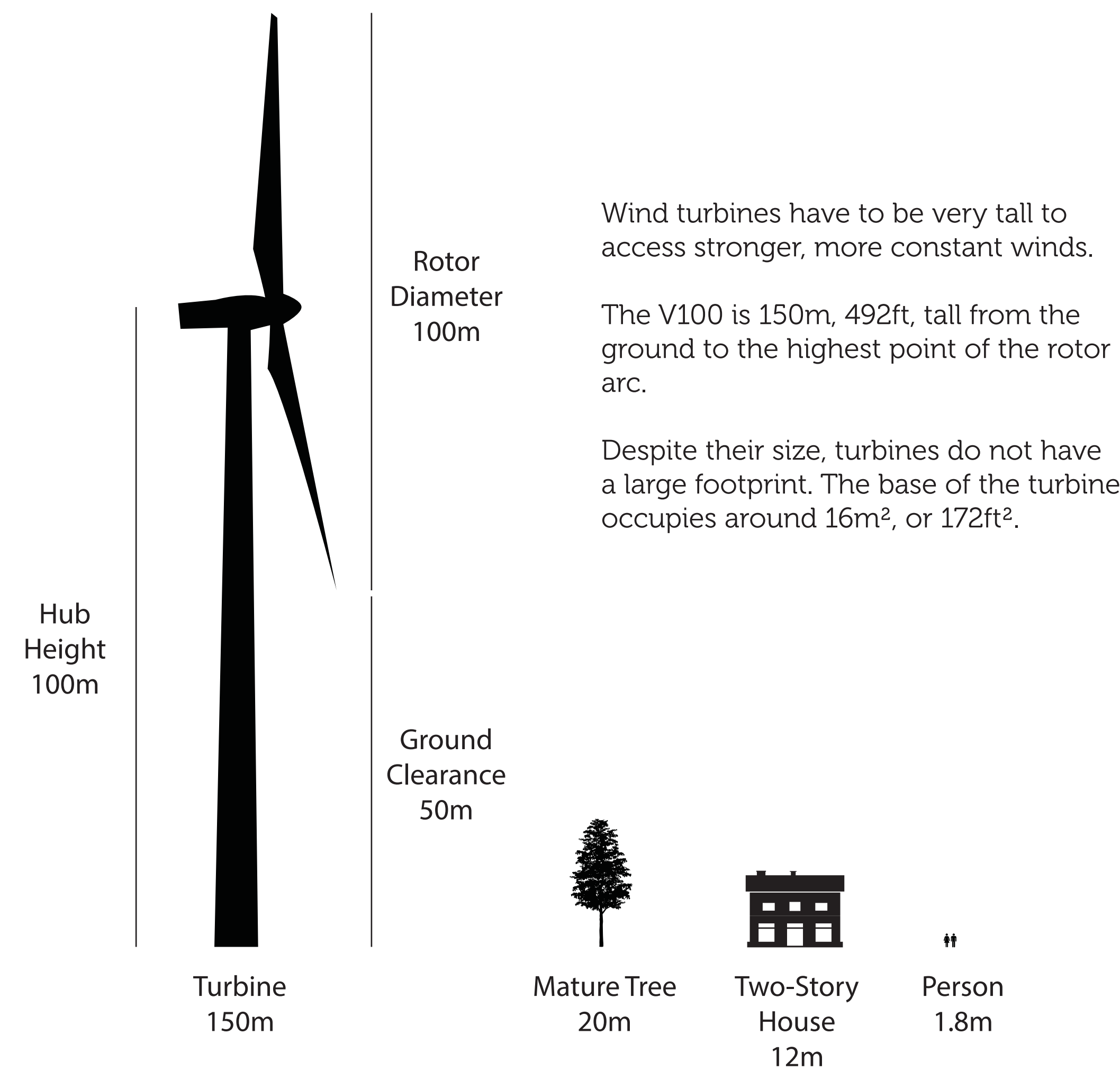


The V100 blades are about 50 metres, 164 feet, long. Each of the three are made using lightweight composite materials to improve energy efficiency.

The longer the blade, the more wind it is able to capture energy from. The total swept area of the rotor is almost 2 acres.

Because they are so long, the tips of the blades can travel at very high speeds. However, the entire rotor spins at a maximum of 15rpm, which appears quite relaxed to the observer.

The Height



Manufacturer Specs

Generator Max Capacity: 2MW
 Cut-in Wind Speed: 3m/s (11km/h, 6knots)
 Cut-out Wind Speed: 20m/s (72km/h, 39knots)
 Maximum Output at: 12.5m/s (45km/h, 24knots)
 Operating Temperature Range: -20C to 40C
 (-30C with cold weather package)

Sound Power
 max: 105 dB(A)

Rotor Diameter: 100m
 Swept Area: 7850m²
 Revolution Speed: 8.8-14.9rpm
 Brake System: Blade Pitch Control + Hydraulic Disk Brake

Tower Height: 100m, Tubular Steel

In addition to manufacturer standard systems, the turbine will be equipped with an advanced real-time monitoring system. Sensors throughout the nacelle feed operational data to a manned control centre. Any irregularities can be identified 24/7/365 to ensure early preventative action is taken.

Global

Wind turbine generators have been producing renewable electricity for decades. Countries such as the Netherlands, Denmark, Germany and Spain have shown that wind energy is a safe, effective means to produce electricity without the negative impacts on the climate, air and water quality associated with conventional fossil-fuel based generation.

As fuel costs and concerns over carbon emissions rise, many countries are now encouraging the deployment of wind power at a massive scale. With the UK, US, India, Australia, and China all investing heavily, wind power is the fastest growing method of electrical generation in the world.

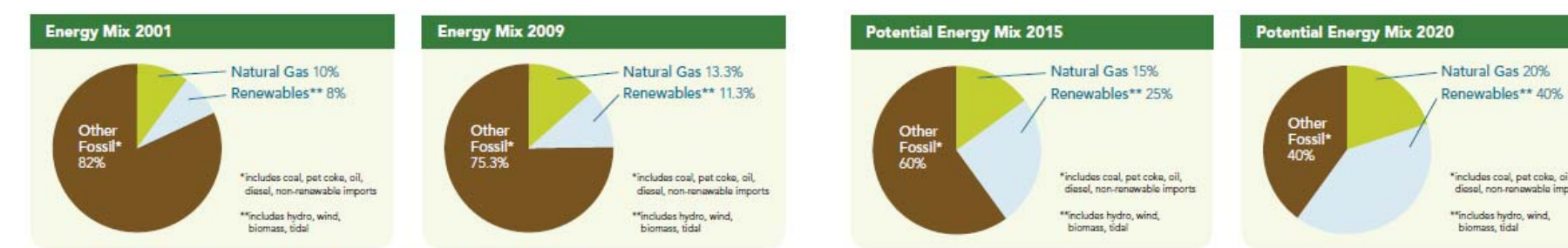


The Biglow Canyon Wind Farm under construction. Located in Oregon, at 450 MW of installed capacity it is over 280x larger than our proposed project. Source: Ted Timmons (2009)

Provincial

While there have been several wind power projects constructed in Nova Scotia in recent years, it is still relatively unfamiliar to many. That is quickly changing; wind energy is set to become a substantial component our province's electricity generation mix.

In recognition of the potential impacts of climate change in a province of coastal communities, and the susceptibility of power rates to forecasted fuel price escalation, the NS Government legislated goals for renewable energy generation.



Source: NS Dept. of Energy Renewable Electricity Plan (2010)

To help reach those goals, a Community Feed-In Tariff (COMFIT) program was established to encourage local production and distribution of renewable electricity by independent community-based project developers. The structure of COMFIT ensures that 100% of the power generated by these projects is used by the homes, businesses, and industries in the communities they are located.



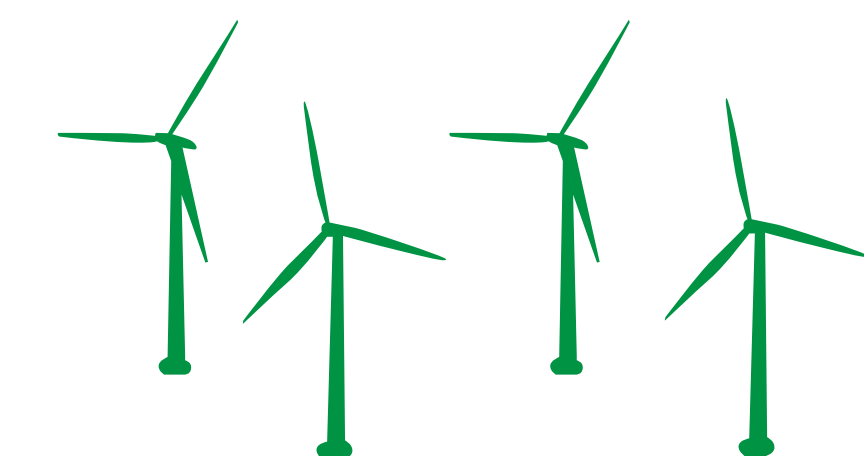
Though projects are paid a premium for the power they produce in today's terms, that rate is locked for 20 years. Over that period, prices for fossil fuel-based energy will continue to climb as they always have. Introducing more renewable power now will help stabilize long term rates.

Community

1% Scotian WindFields donates 1% of the projects annual revenue directly to the local community in which it's projects are located.

Community Ownership

The corporate structure of Scotian WindFields enables Nova Scotians to participate directly in renewable energy development by investing in their local WindField CEDIF.

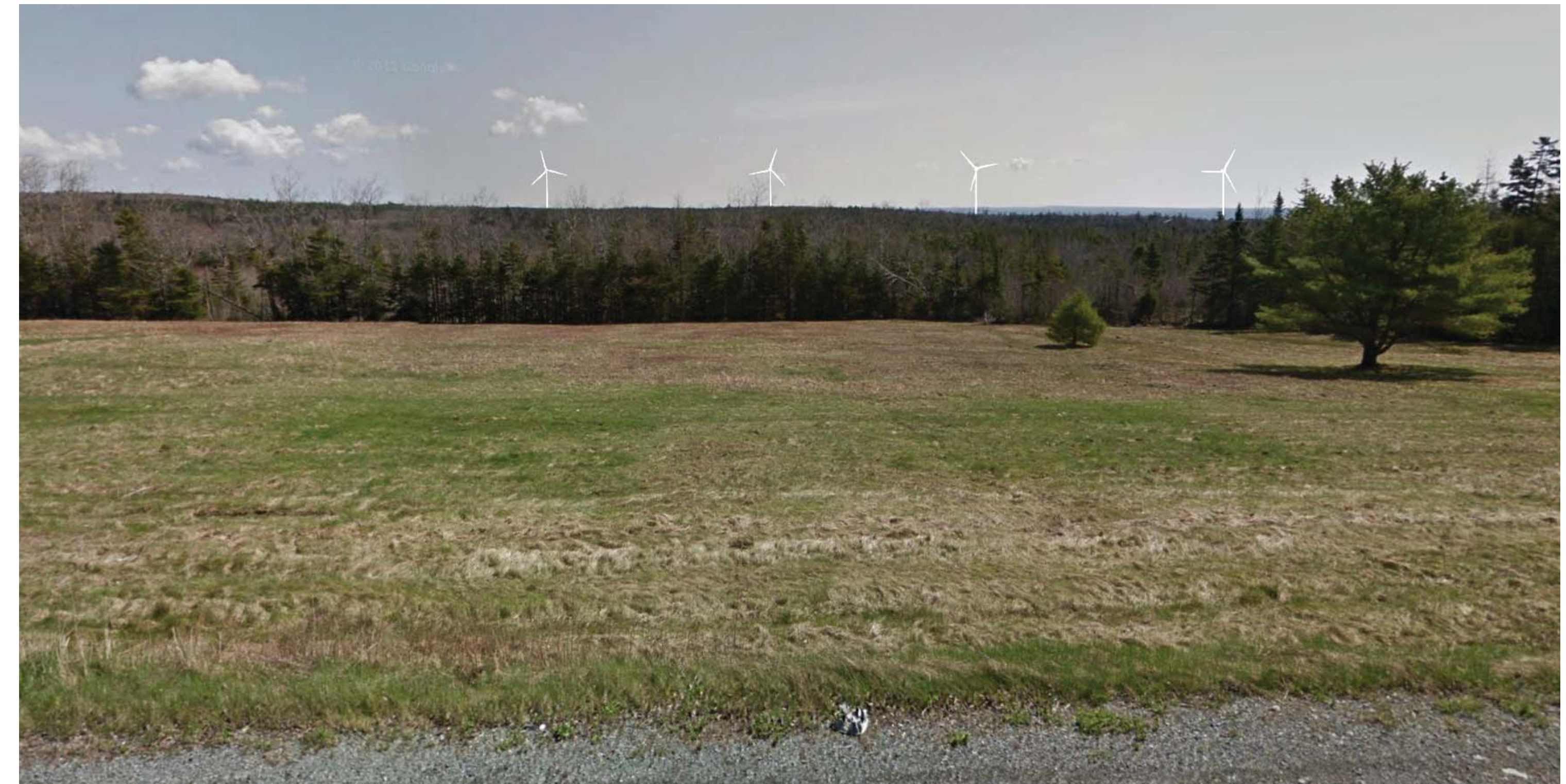
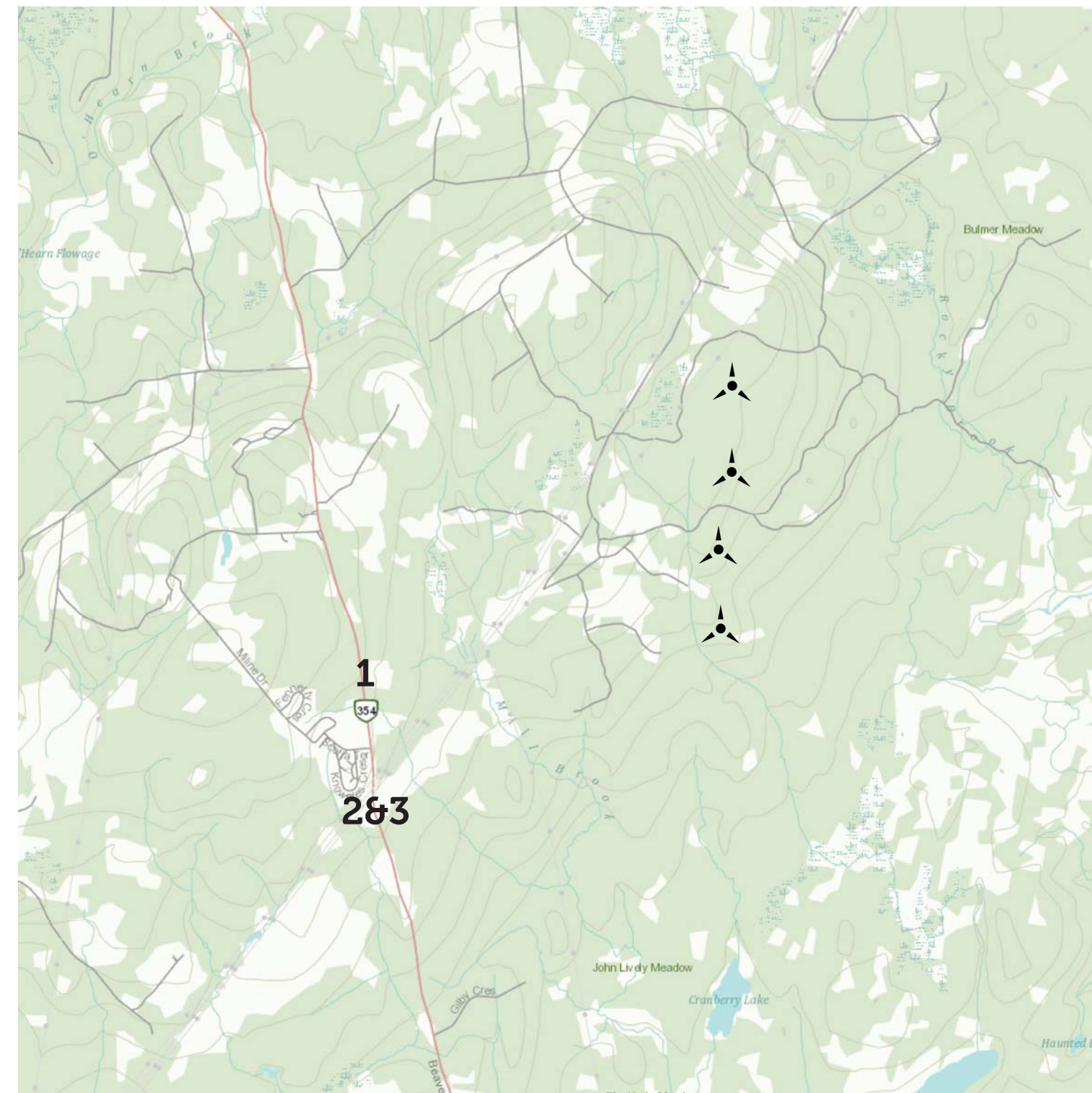


Visual Estimates

It can be difficult to guess what a wind power project is going to look like in your community. The following images can help you get an idea of how much of the turbine will be visible, and from where.

Since turbines are best sited on high elevations where wind speeds are faster, they can usually be seen from a great distance away. While these turbines will be visible in many areas of the surrounding community, the large separation distances will prevent them from dominating the view.

Local vegetation also plays a huge role in masking the sight of turbines. With moderate tree cover along Beaverbank Rd., there will be few locations from which the turbines will be clearly visible.



View 1

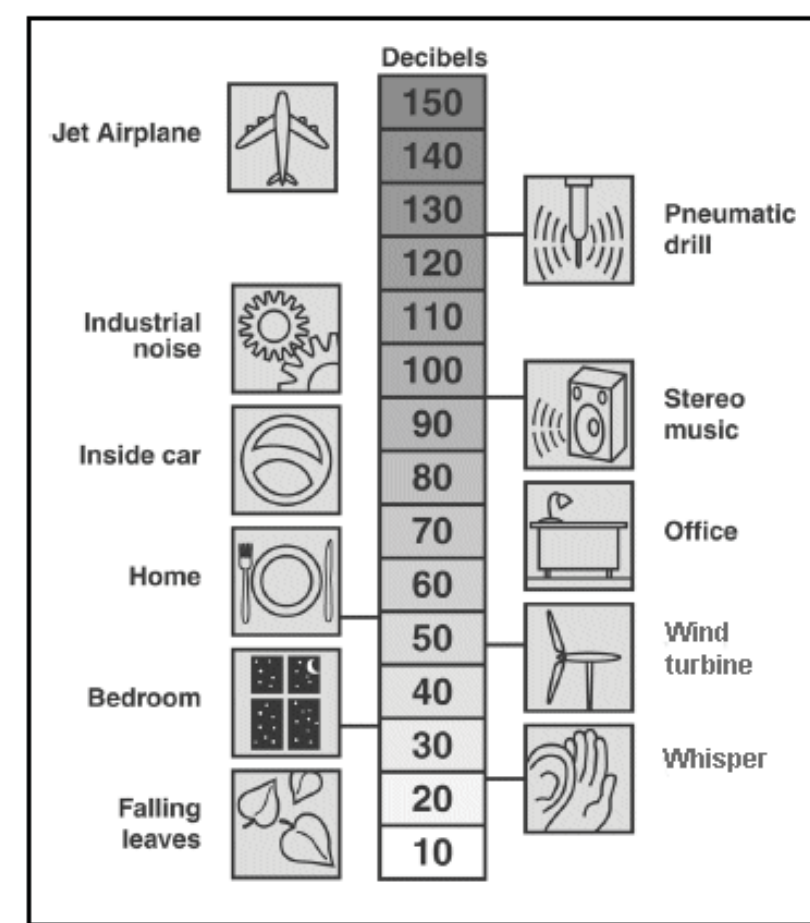


View 3

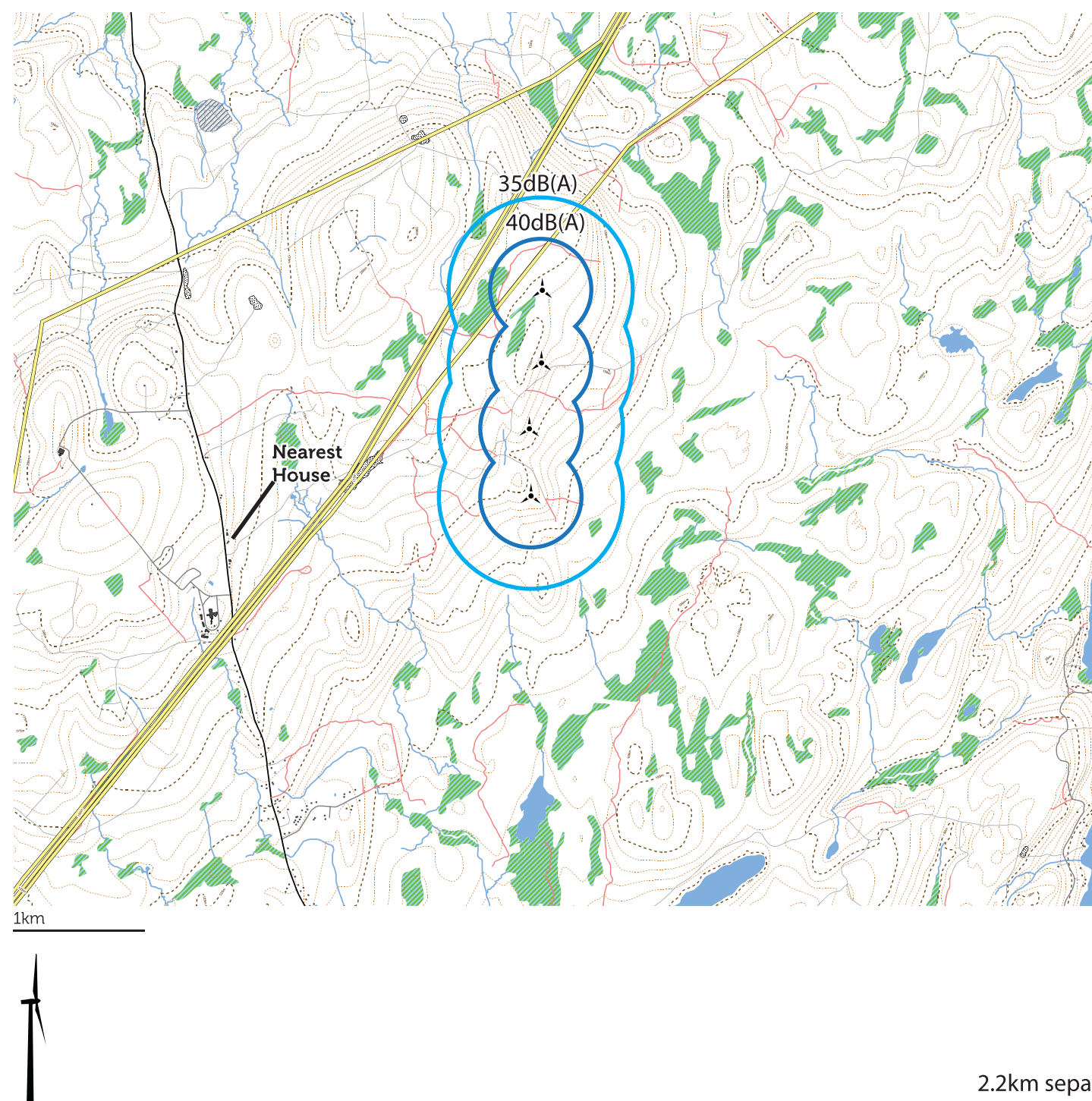


View 2

Right:
Typical sound levels; wind turbines are usually regulated to be between 40 and 45 decibels at the nearest dwelling.



Below:
Predicted sound levels. This is a rough preliminary estimate.



Sound

One of the most common concerns community members have when learning of a proposed wind energy project is the question of how the turbine will sound, and how noticeable it will be.

All turbines produce sound if they're producing electricity. Operating turbines are often described as producing an audible "woosh" sound as the blade passes in front of the tower. While the preference for the sound varies by personal taste, the power of the sound is measurable. Due to their size, a turbine's sound cannot be mitigated easily through engineered solutions, such as sound walls that are sometimes built along highways.

The most common method of ensuring wind turbine sound does not adversely affect quality of life is simply by locating them away from sensitive land uses, such as residences. Some debate exists over what distance is appropriate to achieve this, partially due to the fact that the distance sound travels can be affected by site specific factors, such as topography, amount of forest cover, and local weather conditions. Sound levels are investigated using detailed computer modeling software as part of the Environmental Assessment process and the predicted worst-case scenario must fall within acceptable standards.

In Nova Scotia, set-back distances from houses vary by municipality, from around 200m up to 1000m. Our proposed location exceeds even the strictest standards. The nearest house is around 2.2km away. At these distances we do not expect turbine noise to create any issues.

Environmental

In conformance with the Environment Act, a full Environmental Assessment is being undertaken as part of this project. Many of the field studies for this are already being conducted, and the public participation component has yet to come.

A preliminary investigation into potential environmental impacts was undertaken as part of early project development. Below are some of the findings of that report. These issues and many others will be investigated more thoroughly by the Environmental Assessment report.

There is potential for acid rock drainage. Geotechnical testing will confirm it's presence, and any found will be dealt with in accordance to regulations governing its disposal.

There are mapped wetlands and watercourses in the vicinity of the project. Detailed design of the layout will seek to avoid these features, and any required modifications will be approved by NS Environment in advance.

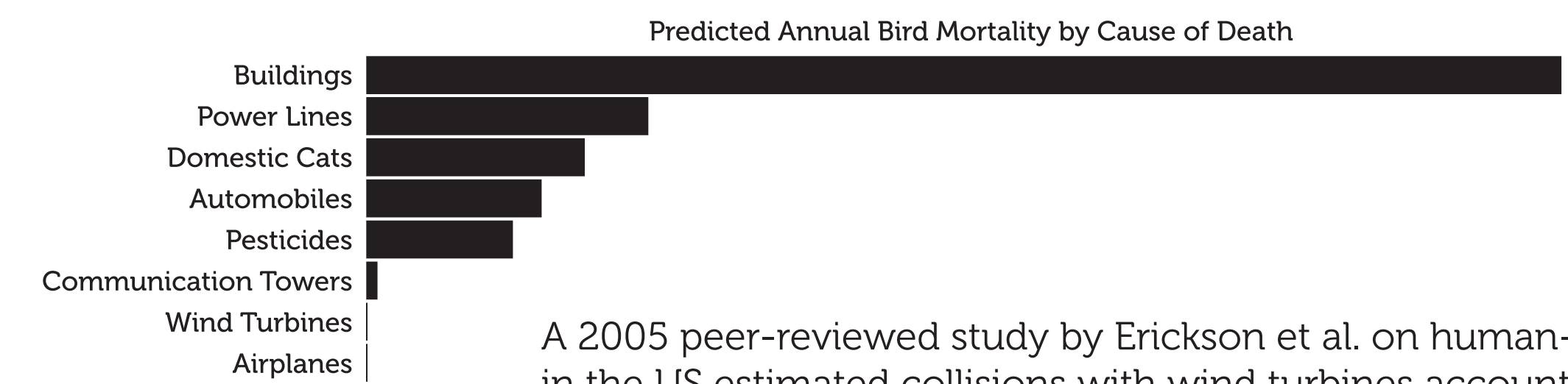
The closest Important Bird Area is the Southern Bight of the Minas Basin, 36km to the north.

Bat hibernacula have been identified less than 30km from the site. Monitoring will be done as part of the EA to determine the potential for impact.

Potential habitat for 14 species at risk has been identified at this site. Flora and fauna surveys will be conducted to confirm their presence. Mitigation measure will be identified.

Impacts in Context

No development is without its adverse impacts. While we are trying our best to ensure this project is carried out in an environmentally sensitive way, any time people alter the natural world, there are going to be negative impacts. It is important to consider the context of those impacts. For example, wind turbines are known to be a cause of bird and bat kills, but the degree to which they affect bird populations is comparatively small to many other human activities. All things considered, wind energy is still among the most environmentally friendly forms of power generation.



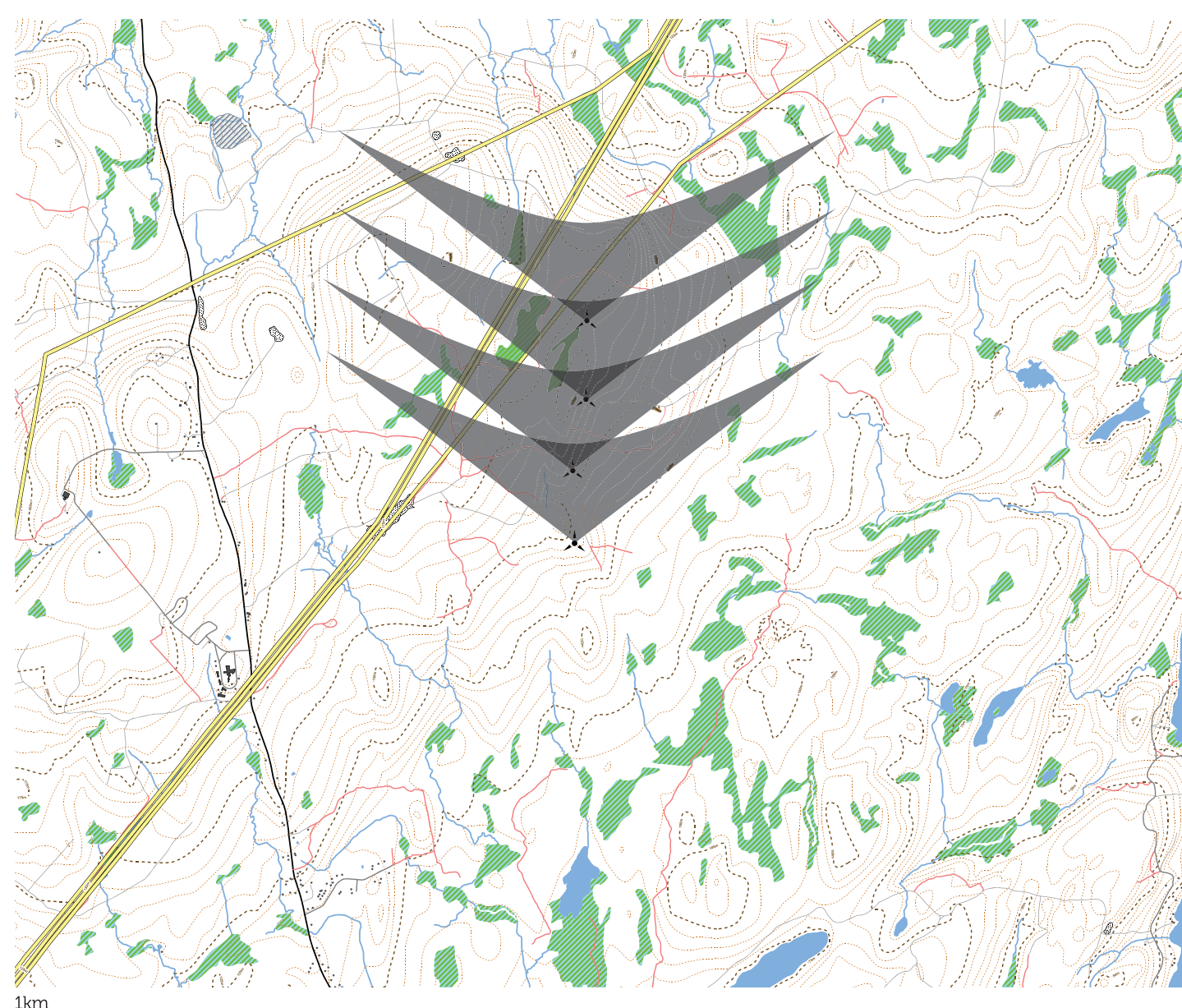
A 2005 peer-reviewed study by Erickson et al. on human-caused bird fatalities in the US estimated collisions with wind turbines accounted for approximately 28,500 deaths out of 500,000,000.

Shadow

Another common concern with large scale wind energy projects is the potential for flickering shadows to be cast on neighbouring houses if the sun is shining directly through the rotating blades.

This issue will also be investigated in detail as part of the EA process, however, given that the proposed turbine location is far from houses in the area, the potential for negative impact is low.

The graphic to the left shows a rough estimate of the maximum shadow zone; modeled for the winter solstice (approx Dec. 21) which is the day when the sun is lowest, and shadows are longest.



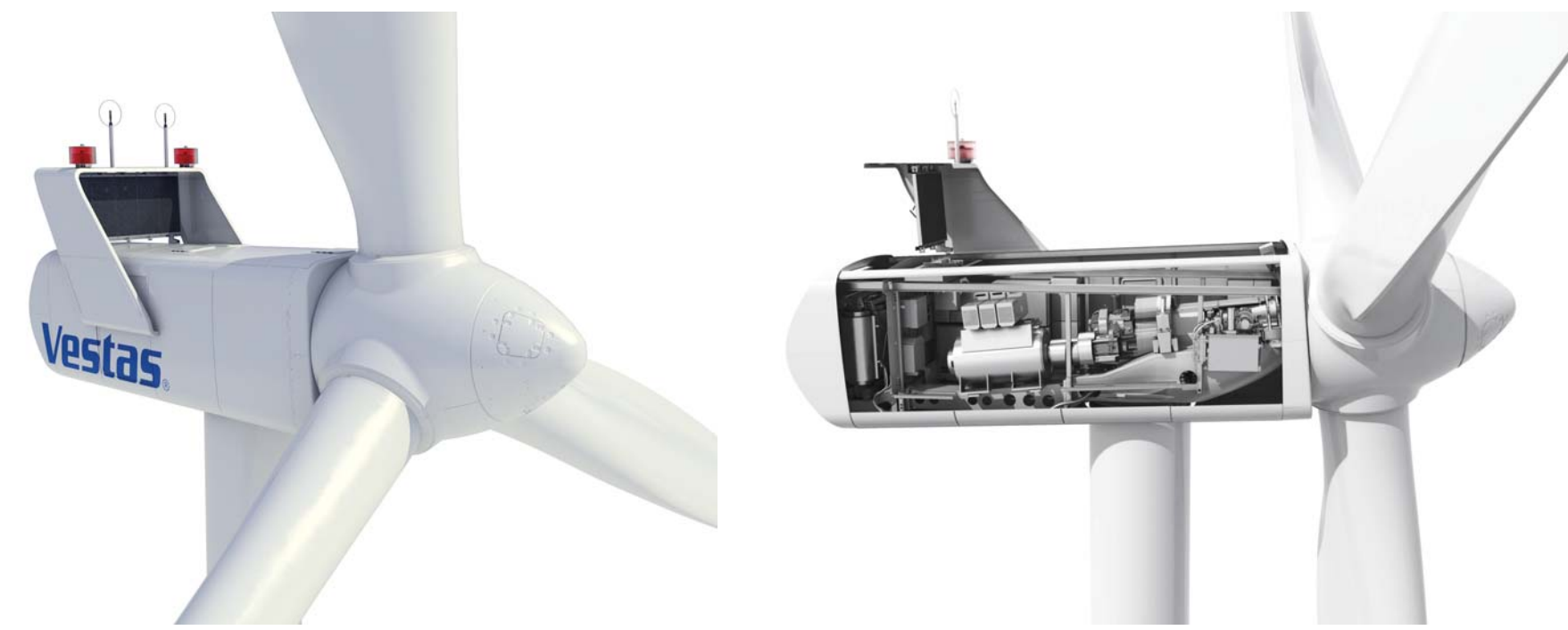
The Turbine



This wind energy project uses the Vestas V100 wind turbine. Vestas, a Danish company, is a long time pioneer in wind energy. Its new V100 model represents cutting edge design and technology, built on extensive testing and experience gained from the 9700+ 2MW class turbines installed worldwide



The Nacelle



The housing that contains all of the generating components of the turbine. Inside you will find the generator, gearbox, drive train and brake assembly.

The Blades

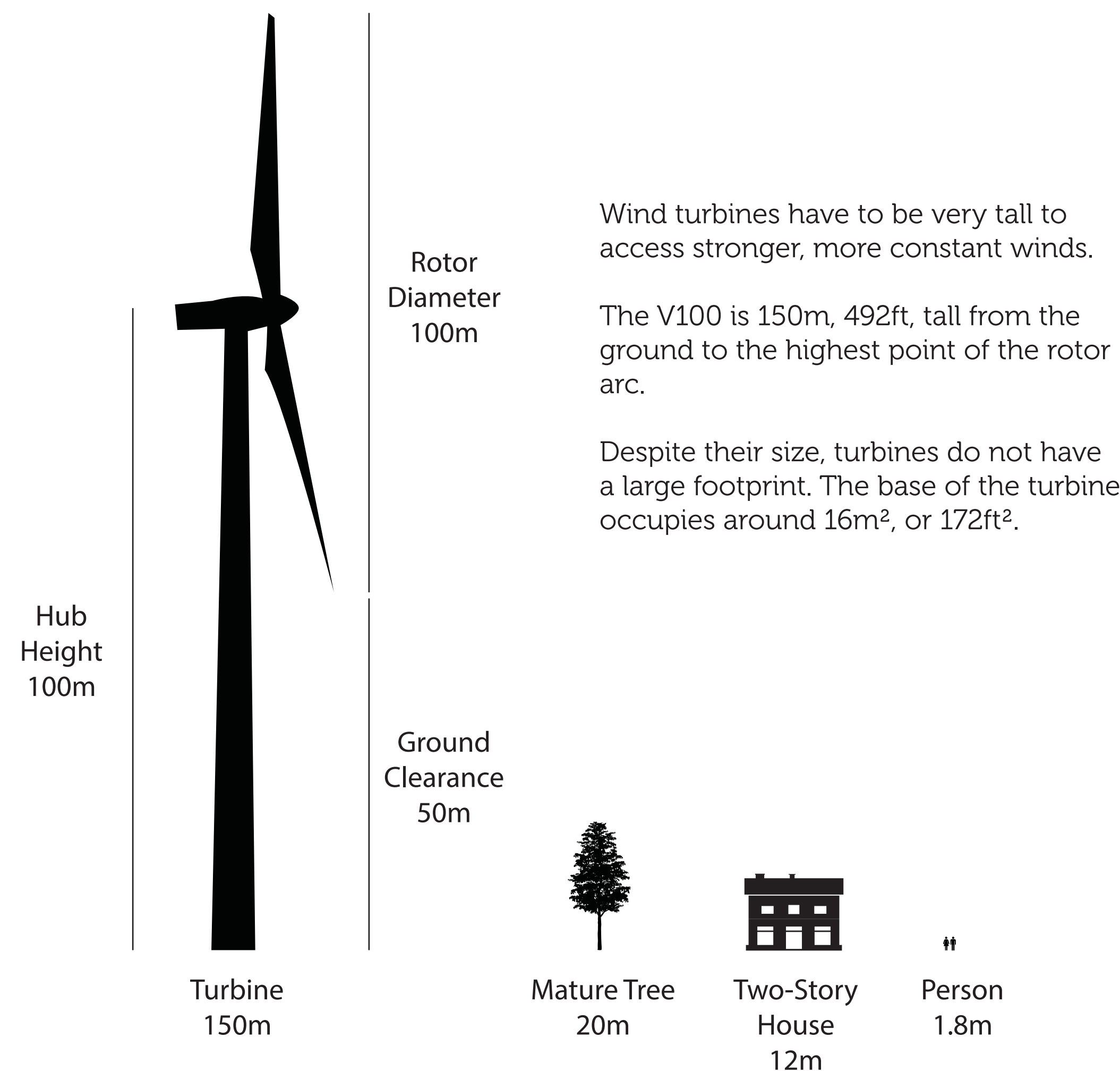


The V100 blades are about 50 metres, 164 feet, long. Each of the three are made using lightweight composite materials to improve energy efficiency.

The longer the blade, the more wind it is able to capture energy from. The total swept area of the rotor is almost 2 acres.

Because they are so long, the tips of the blades can travel at very high speeds. However, the entire rotor spins at a maximum of 15rpm, which appears quite relaxed to the observer.

The Height



Manufacturer Specs

Generator Max Capacity: 2MW
 Cut-in Wind Speed: 3m/s (11km/h, 6knots)
 Cut-out Wind Speed: 20m/s (72km/h, 39knots)
 Maximum Output at: 12.5m/s (45km/h, 24knots)
 Operating Temperature Range: -20C to 40C
 (-30C with cold weather package)

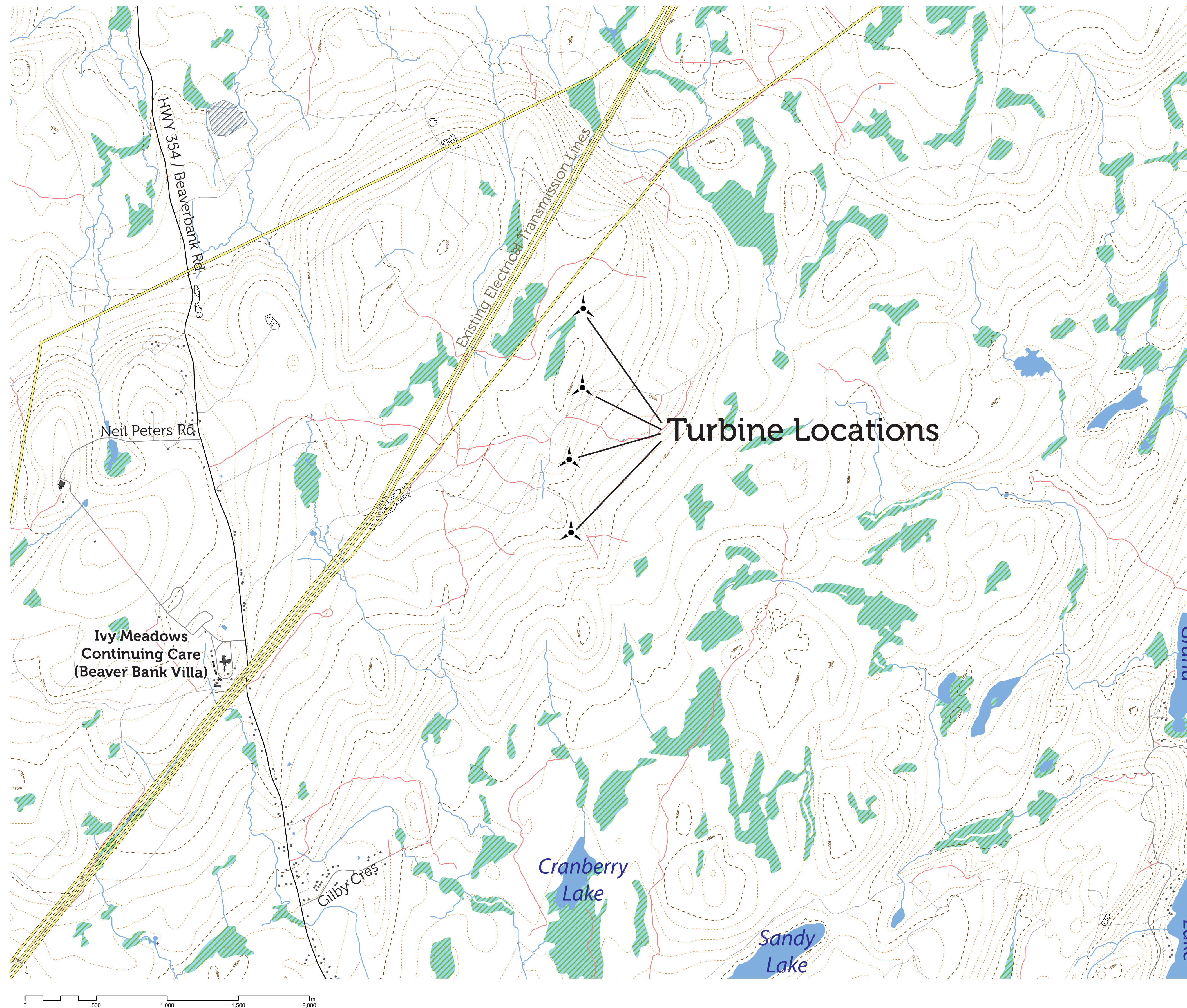
Sound Power
 max: 105 dB(A)

Rotor Diameter: 100m
 Swept Area: 7850m²
 Revolution Speed: 8.8-14.9rpm
 Brake System: Blade Pitch Control + Hydraulic Disk Brake

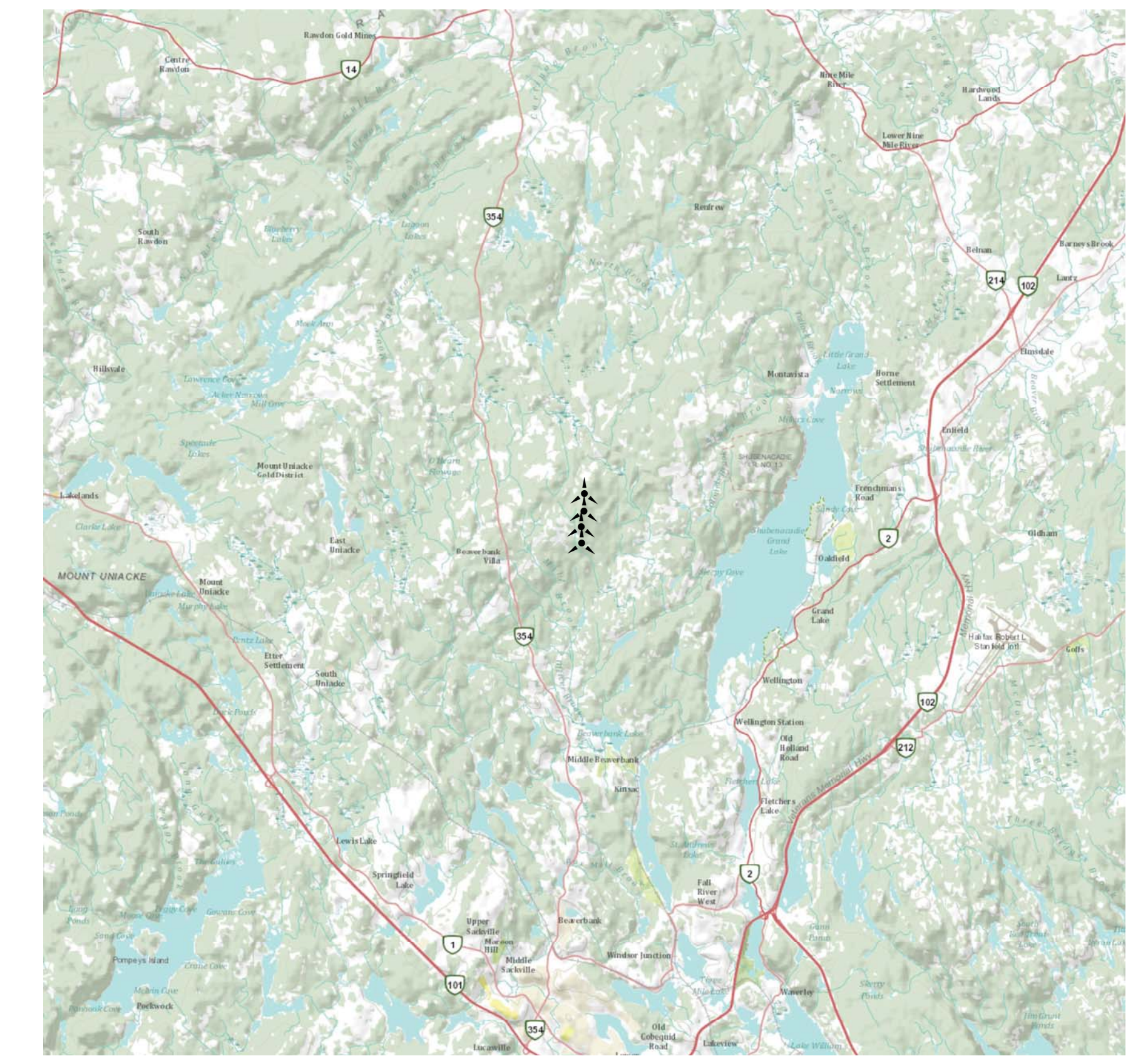
Tower Height: 100m, Tubular Steel

In addition to manufacturer standard systems, the turbine will be equipped with an advanced real-time monitoring system. Sensors throughout the nacelle feed operational data to a manned control centre. Any irregularities can be identified 24/7/365 to ensure early preventative action is taken.

Site Map



Regional Context Map



Project Summary - North Beaver Bank Community Wind Farm

8MW Installed Capacity: 4 Turbines

Production equivalent to consumption of over 2500 homes

100% of power generated is consumed in local area

Awarded conditional approval from NS Dept of Energy

Environmental Assessment is underway

Wind data collection is ongoing

Municipal development approval still required

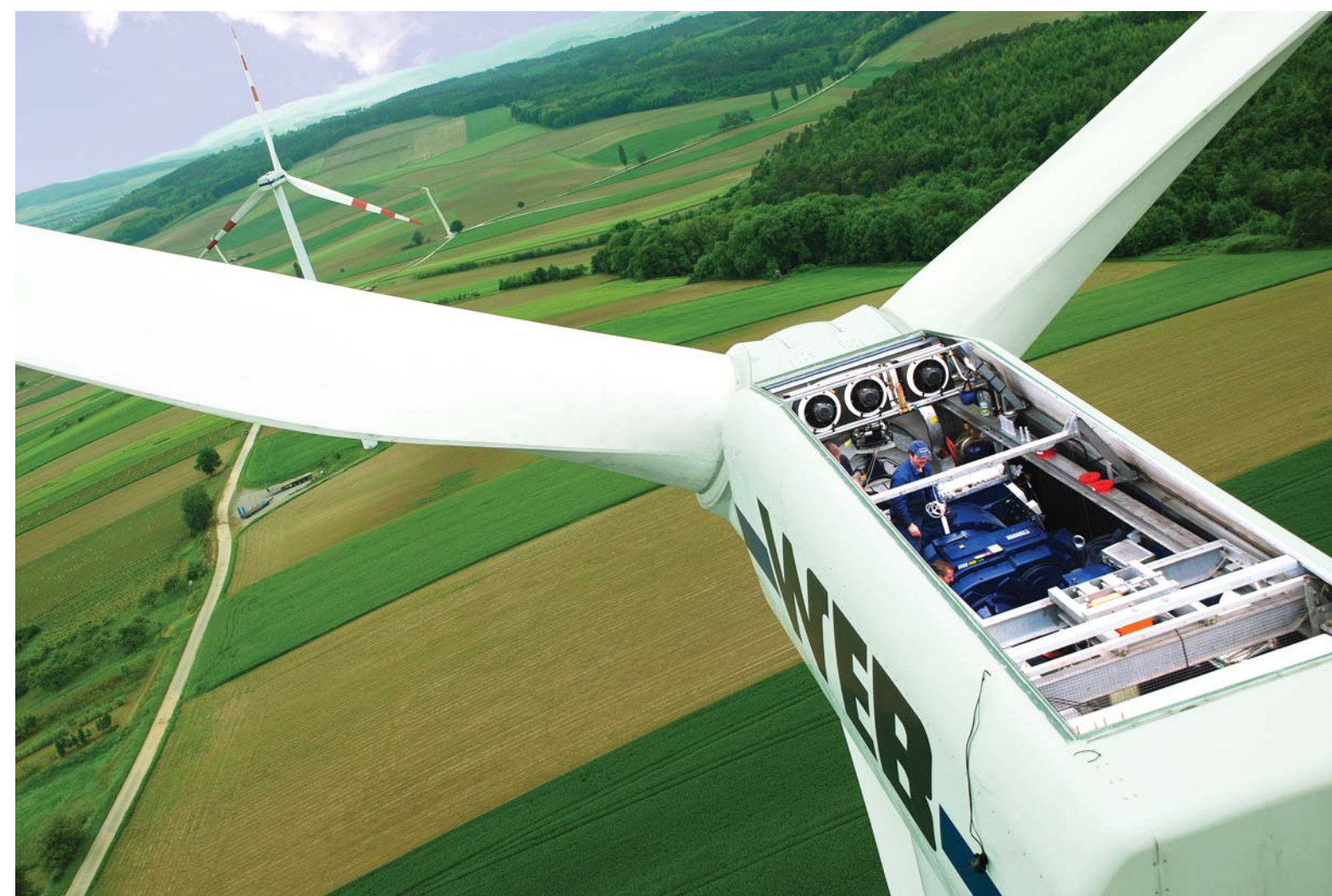
Target Installation - Late Summer 2014

Global

Wind turbine generators have been producing renewable electricity for decades. Countries such as the Netherlands, Denmark, Germany and Spain have shown that wind energy is a safe, effective means to produce electricity without the negative impacts on the climate, air and water quality associated with conventional fossil-fuel based generation.

As fuel costs and concerns over carbon emissions rise, many countries are now encouraging the deployment of wind power at a massive scale. With the UK, US, India, Australia, and China all investing heavily, wind power is the fastest growing method of electrical generation in the world.

Scotian WindFields has partnered with WEB Wind Energie, a pioneering Austrian wind energy company, to develop projects in Nova Scotia. With over 250MW of wind energy generators in operation, some for as long as 18 years, WEB gives our local development process access to the global wealth of experience.

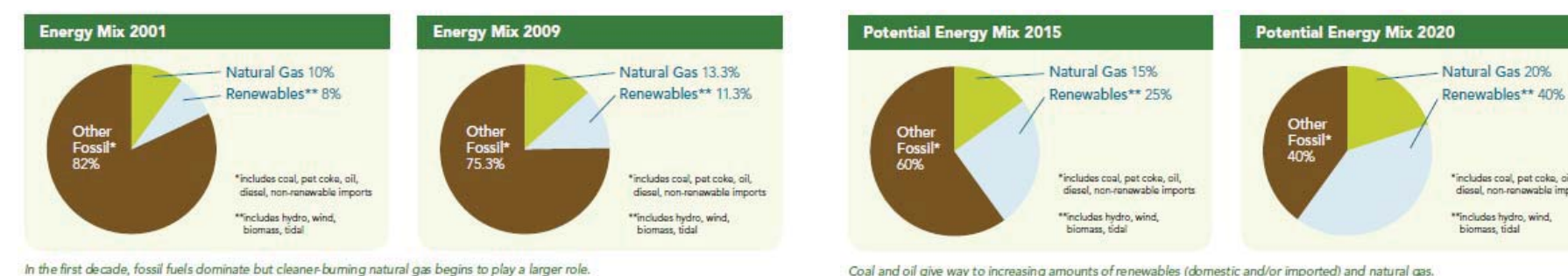


A WEB facility operating in Europe. (C) Alexander Zechmeister

Provincial

While there have been several wind power projects constructed in Nova Scotia in recent years, it is still relatively unfamiliar to many. That is quickly changing; wind energy is set to become a substantial component our province's electricity generation mix.

In recognition of the potential impacts of climate change in a province of coastal communities, and the susceptibility of power rates to forecasted fuel price escalation, the NS Government legislated goals for renewable energy generation.



Source: NS Dept. of Energy Renewable Electricity Plan (2010)

To help reach those goals, a Community Feed-In Tariff (COMFIT) program was established to encourage local production and distribution of renewable electricity by independent community-based project developers. The structure of COMFIT ensures that 100% of the power generated by these projects is used by the homes, businesses, and industries in the communities they are located.

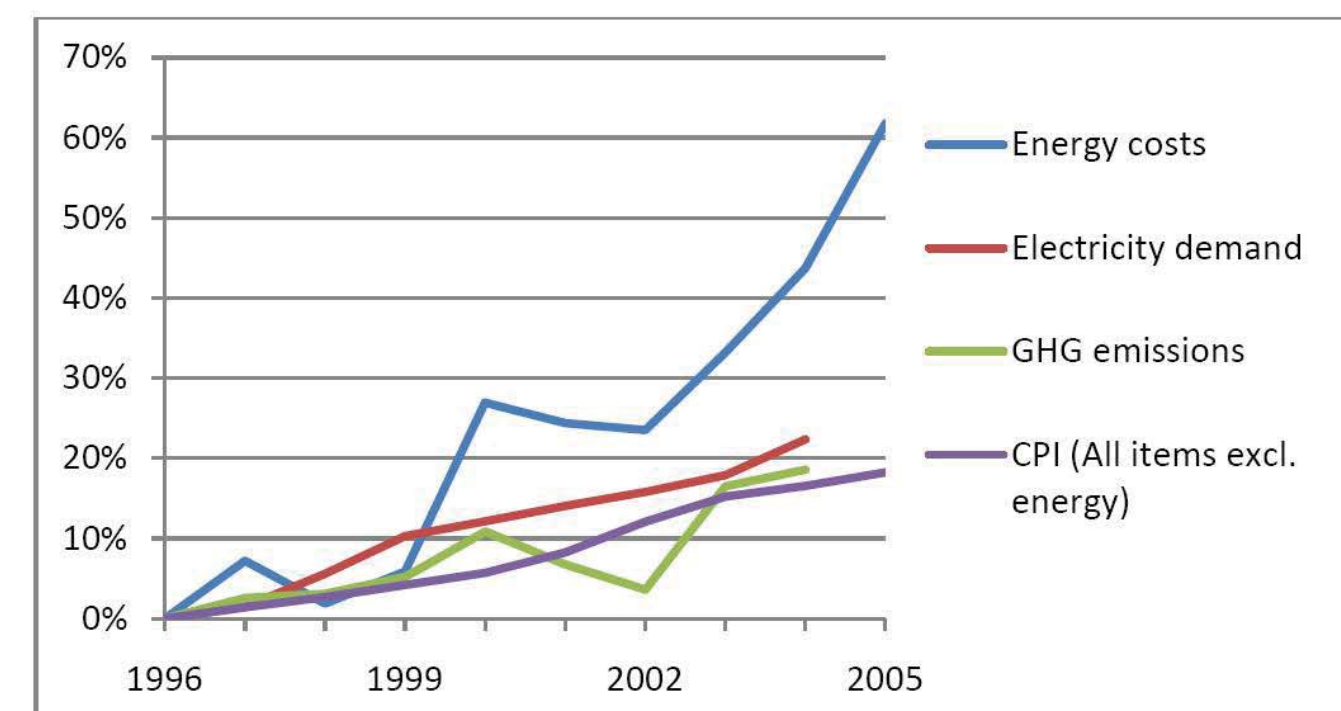


Figure 1: Growth in energy cost, electricity demand, greenhouse gases, and the CPI for Nova Scotia
 (Stats Can 2007a; Env Can 2006) Source: Hughes, Energy Security in Nova Scotia,

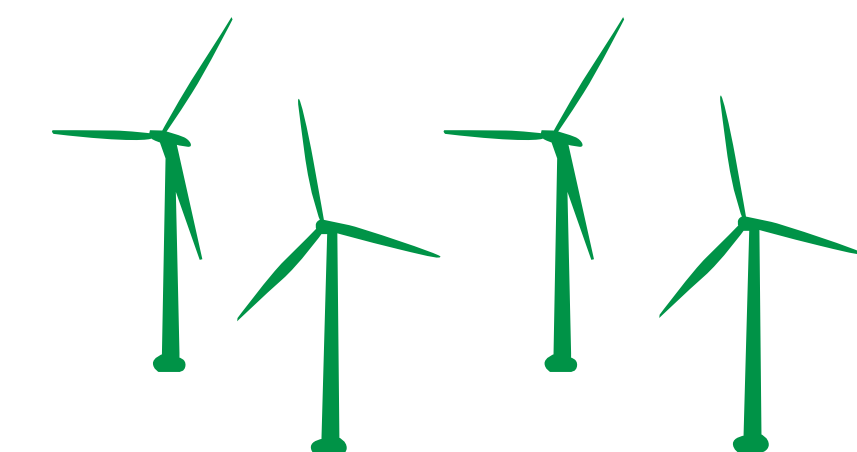
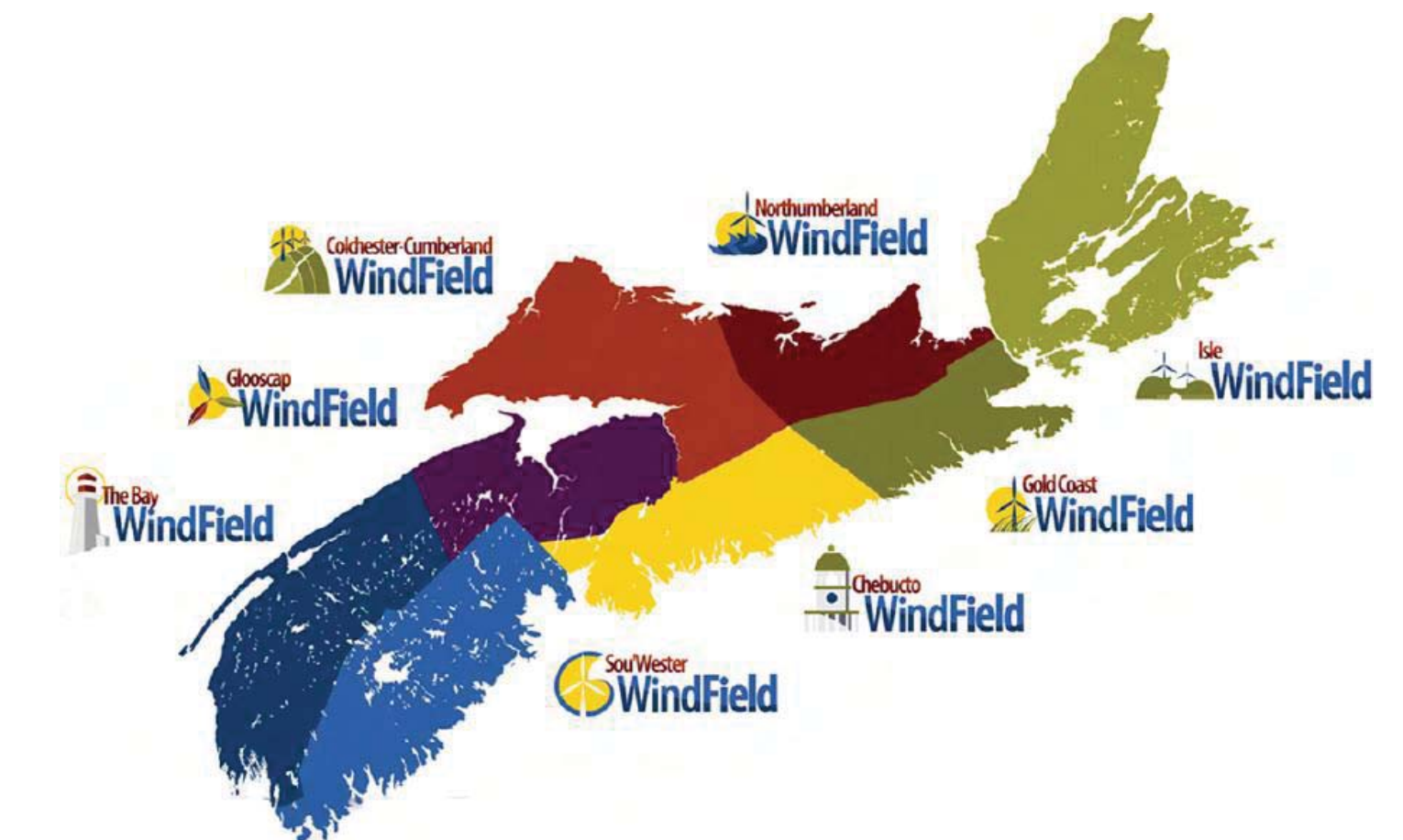
Though projects are paid a premium for the power they produce in today's terms, that rate is locked for 20 years. Over that period, prices for fossil fuel-based energy will continue to climb as they always have. Introducing more renewable power now will help stabilize long term rates.

Community

1% Scotian WindFields allocates 1% of gross project revenue for investment back into the local area. How this dividend is spent is decided by the community.

Community Ownership

The corporate structure of Scotian WindFields enables Nova Scotians to participate directly in renewable energy development by investing in their local WindField CEDIF.



North Beaver Bank Community Wind Project

Project Information - March 2013



About the Project

Scotian WindFields has proposed to install four wind turbines near North Beaver Bank. The proposed project would be located in Halifax Regional Municipality near the boundary with East Hants, about 3.5km east of Beaver Bank Rd. Scotian WindFields is in the early stages of this multi-year project and is currently collecting data about the nature of the wind regime and conducting an Environmental Assessment. These studies will help us learn about the characteristics of the wind and environment allowing us to properly site the turbines.

The combined capacity of the turbines we expect to put on site is 8 Megawatts, representing enough energy to power 2000 to 2400 households. The towers for these turbines are projected to be approximately 100 meters high, with each blade measuring about 50 meters in length.

Community Electricity

The provincial government has established clear targets for clean energy: 25% of our electricity is to be renewable by 2015, with a goal of 40% by 2020. The Community Feed-In Tariff (ComFIT) program is designed to help our province meet that goal. The program recognizes that small community-owned projects are an effective way to reach our goals in a way that maximizes



benefits for all Nova Scotians while strengthening the electricity grid. This vision will shift ownership from the virtual monopoly currently held by Nova Scotia Power to a decentralized structure that would see many small groups owning our electricity sources.

In order for a project to be eligible for the ComFIT program, at least 25 citizens from the municipality in which the project will be installed must have invested in it.

Another benefit of the ComFIT program is that all of the electricity produced by the turbine will be consumed at a truly local level; only the people who are connected to the same electrical substation as the turbine can use its power.



A Global Trend

Wind energy is cited by the International Energy Agency as the world's fastest growing energy resource. Worldwide, the combined capacity of all wind turbines is over 195 GW; the equivalent of 100,000 of the turbines Scotian WindFields proposes installing in your community.

In Nova Scotia, there are already over 100 of these turbines installed throughout the province. Communities across Nova Scotia are taking responsibility for the generation of their energy and enjoying the benefits that come with local electricity production.

Nearest Turbine

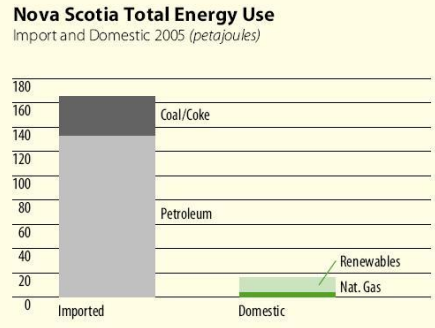
The nearest large wind turbines to North Beaver Bank are located at the Dalhousie Mountain Wind Farm, near Mount Thom. These turbines are about the same height and size as the turbines that Scotian WindFields intends to install in North Beaver Bank, and have been in operation since 2010.

Visiting a turbine is a great way to get a sense of the sound and scale of today's utility-scale wind turbines.

Energy Security

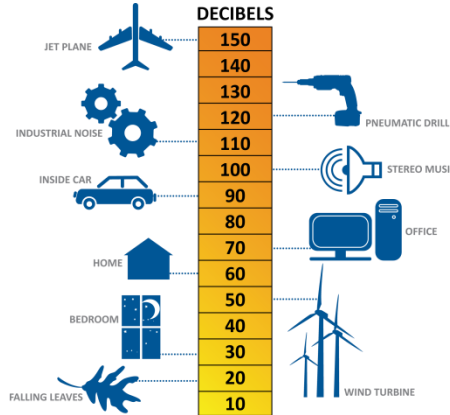
Wind energy is a safe, locally produced source of energy that will lessen our dependence on foreign sources of fuel. Once a wind turbine is installed, it produces electricity without the need for costly fuels. After a few short months, the turbine has generated as much electricity as it takes to build, install, and decommission it.

As the figure on the right shows, the amount of energy that our province imports vastly outweighs the amount of energy that we produce. Every shipment of coal or oil that is unloaded in Nova Scotia is effectively an exportation of money out of the province. With the price of oil and coal expected to keep rising with each passing year, electricity costs are expected to rise accordingly as shown in the figure on the right. By contrast, wind power offers Nova Scotians a way of ensuring that their electricity bills won't be tied to the price of oil, while promising to keep more of our energy dollars within the province.



Sound

Over the past 30 years, over 60,000 wind turbines have been installed around the world. During that time, new technologies have allowed the sound produced by industrial turbines to decrease year by year. Each turbine must meet strict environmental requirements, including minimum setbacks from nearby homes that limit the possibility of noise pollution. Thousands of people have been living near large wind turbines for decades, with a relatively small number of those people experiencing negative effects. As a result, a large amount of peer-reviewed studies have focused on the impacts of wind turbines on human health. In 2009, after reviewing all the available literature to date, Ontario's Chief Medical Examiner concluded that though some people find the sound of wind turbines "annoying", she could find "no conclusive evidence that turbines have an effect on health." Scotian WindFields is committed to ensuring that none of our projects have a negative impact on the health of those who live nearby. The figure above shows how the sound from a wind turbine compares to various other everyday noises.



Community Benefits

One of the questions we are most often asked is how does a turbine installation in my community benefit me. We all understand how replacing dirty fossil fuels with clean renewable energy benefits the world, but seeing the benefit of a turbine near our own home is a little complex.

First of all, 100 percent of the energy produced by our projects is consumed locally. More sources of power distributed throughout our province is better for the grid. Locally produced power means less reliance on foreign owned sources and stabilizes the price you pay for electricity. Children see their own community caring about *their* future. Energy responsibility is an important lesson for building a better future. ComFIT projects are owned by local investors and that means more money in the pockets of people in communities around Nova Scotia and a boost to local economies.

And finally, Scotian Wind is putting money into the communities that host our projects. 1% of revenue from each turbine will be reinvested into community projects as chosen by the community. We estimate that will mean approximately \$20,000 to \$25,000 toward community projects in the Beaver Bank area each year.

Climate Change

Climate change is happening at an ever increasing rate, and it will seriously affect the lives of people around the world. During the twentieth century the sea level in Nova Scotia rose approximately 30 centimeters. Researchers expect an additional increase from 70 to 140 cm over the next century. Nova Scotia is particularly sensitive to coastal impacts. Combining the relative rise in sea level with more intense storms means that storm surges will be larger. This means more damage to people, property, infrastructure, wildlife, and ecosystems along the province's 13,300 kilometers of coastline.

Wind Power for the People

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