

APPENDIX K  
SOUND MONITORING

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May 3, 2013

**Mr. Judd Rogers**  
**juwi Wind, LLC**  
4845 Pearl East Circle, Suite 200  
Boulder, CO 80301  
USA

Dear Mr. Rogers,

**Re: Existing Sound Levels, Chebucto Pockwock Community Wind Project, Pockwock, NS**

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## **INTRODUCTION**

Strum Consulting was retained by juwi Wind to complete pre-construction sound monitoring at the proposed Chebucto Pockwock Community Wind Project (the Project) near Hammonds Plains, NS.

Results indicate that the average sound levels over the sampling period were 38.7 and 43.3 dBA at the monitoring locations.

This report provides a brief understanding of the scope, methodology and findings of the assessment.

## **BACKGROUND**

The Project consists of a 10 MW wind power development in Pockwock, approximately 10.5 km northwest of Bedford, Nova Scotia. This sound assessment was completed to establish pre-construction sound levels at two locations near the Project site (the monitoring locations), in advance of post-construction monitoring.

## **MONITORING LOCATIONS**

Monitoring locations were selected near the Project site boundaries, in areas that were close to actual receptors (Drawing 1, attached). Efforts were also made to locate the monitoring equipment in open locations where sound attenuation from vegetation and topography would be minimal. Table 1 provides basic information for each monitoring location.

Engineering • Surveying • Environmental

Head Office  
Railside, 1355 Bedford Hwy.  
Bedford, NS B4A 1C5  
t. 902.835.5560 (24/7)  
f. 902.835.5574

Antigonish Office  
3-A Vincent's Way  
Antigonish, NS B2G 2X3  
t. 902.863.1465  
f. 902.863.1389

Deer Lake Office  
101 Nicholasville Road  
Deer Lake, NL A8A 1V5  
t. 855.770.5560  
f. 902.835.5574

**Table 1. Monitoring Locations**

| Monitoring Location ID | Location Relative to Project Site              | Location Relative to Nearest Receptor     | GPS Location |              |
|------------------------|--|---|--------------|--------------|
|                        |  |   | UTM Easting  | UTM Northing |
| Pockwock Northwest     | In the northwestern corner of the Project site | 0.42 km northeast of the nearest receptor | 432510 m     | 4958128 m    |
| Pockwock Southeast     | In the southeastern corner of the Project site | 0.45 km east of the nearest receptor      | 435550 m     | 4956309 m    |

## METHODOLOGY

The assessment was completed using Casella CEL-490 real time noise monitor with data logging capability. At each location, the monitor was kept in a locked weatherproof case, with the microphone supported by tripods at a height of 1.5 m above the ground. The microphone was mounted inside an acoustically transparent weather resistant cage, designed to minimize the effects of environmental noise interferences such as wind and rain.

Each noise monitor was deployed from November 1 to November 5, 2012. Care was taken to locate the equipment in areas where sources of noise contamination (i.e. a stream) would be minimized.

Each data logger was configured to collect:

- A Weighting Frequencies (frequency range);
- Slow (S) Time Weighting (response); and
- A sample frequency of 1 minute (sample frequency).

The frequency range for the data runs was 0-140 dB and the loggers were calibrated at 114.0 dB at 1 kHz. Each measurement represents the attenuated sound pressure levels collected over 1 minute. These readings were logged every minute over the sampling period at each monitoring location. The data was analyzed to determine a number of parameters, including daytime, evening, and night sound levels. Descriptions of all parameters are attached.

The data are representative of the acoustical environment at the receptor locations during the monitoring periods including all natural and anthropogenic sources of sound, such as wind, wildlife, and traffic.

## RESULTS AND DISCUSSION

Results of the assessment are summarized in Table 2.

**Table 2. Sound Level Assessment Results**

| Monitoring Location ID / Parameter<br>(Measured in dBA) | Pockwock Northwest | Pockwock Southeast |
|---|--------------------|--------------------|
| LAS <sub>eq</sub>                                       | 38.7               | 43.3               |
| LAS <sub>D</sub>  | 41.3               | 38.6               |
| LAS <sub>E</sub>  | 31.0               | 36.7               |
| LAS <sub>N</sub>  | 28.3               | 37.6               |
| LAS <sub>mx</sub>                                       | 78.7               | 80.3               |
| LAS <sub>mn</sub>                                       | 24.2               | 27.9               |
| LAS <sub>95</sub>                                       | 25.0               | 32.0               |

**Average Sound Levels (LASeq)**

In both locations, the average sound levels (LAS<sub>eq</sub>) observed were typical of rural / sub-urban environments. The higher level (43.3 dBA) observed at the Pockwock southeast location can likely be attributed to this location’s position relative to a number of noise sources, including residential dwellings and power lines.

**Daytime vs. Evening vs. Nighttime Sound Levels (LAS<sub>D</sub>, LAS<sub>E</sub>, LAS<sub>N</sub>)**

The average daytime sound levels (LAS<sub>D</sub>) were higher than the average sound levels during the evening (LAS<sub>E</sub>) and night (LAS<sub>N</sub>) at both monitoring locations, which is typical for sub-urban environments.

**Minimum and Maximum Sound Levels (LAS<sub>mn</sub> and LAS<sub>mx</sub>)**

The minimum sound level (LAS<sub>mn</sub>) observed at each monitoring location occurred several days apart. At the Pockwock northeast location, the minimum sound level was observed at 5:19 am on November 5th, 2012; the minimum sound levels observed at the Pockwock southeast location occurred at 10:17 pm on November 2nd, 2012. It is most likely that these minimums occurred at times when sound levels from sources such as wind and traffic noise were low.

The maximum sound level (LAS<sub>mx</sub>) observed at both monitoring locations occurred at approximately the same time on the afternoon of November 2, 2012. The most likely phenomenon that would explain the almost simultaneous sound level peaks observed at both these monitoring locations is a wind storm passing through the Project site area.

**Background Sound Levels (LAS<sub>95</sub>)**

The LAS<sub>95</sub> represents the sound level threshold that is exceeded 95% of the time. This measurement is an indicator of background sound levels that are always present. There is a fairly substantial difference between the LAS<sub>95</sub> values calculated at each monitoring location (25.0 dBA for Pockwock northwest vs. 32.0 dBA for Pockwock southeast). This difference is likely the result of the Pockwock southeast monitoring location’s proximity to anthropogenic sources of noise. This location was near power lines (observed to be omitting a constant hum) and it was close to a large residential sub-division.

**Predicted Sound Level Exposure vs. Observed Baseline Sound Levels**

Predictive sound modeling was completed for the Project as part of the Environmental Assessment (EA). Average existing sound levels recorded at the two monitoring locations exceed the predicted

Project sound levels for all residential receptors within 2 km of a proposed turbine. These results indicate that the sound of the turbines will be largely masked by the existing sound levels in the area.

## **SUMMARY**

Sound monitoring was completed at two locations to establish pre-construction sound levels near the perimeter of the Project site. Average sound levels were recorded at 38.7 and 43.3 dBA, which are typical for a rural / sub-urban area. Results indicate that noise from anthropogenic sources have a fairly significant influence on the acoustic environment of the area. Furthermore, the average existing sound levels recorded exceed all predicted sound levels at nearby residential receptors, indicating that the sound of the turbines will be largely masked by the existing sound levels present in the area.

If you have any questions, please contact us.

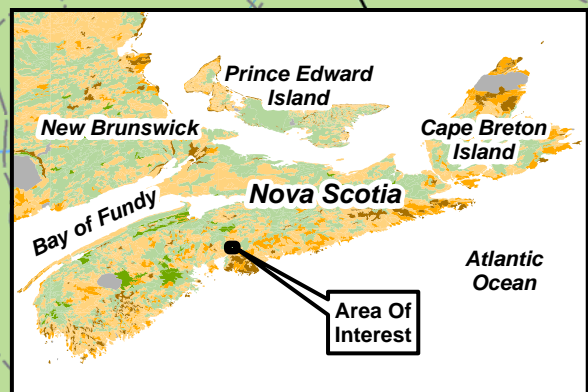
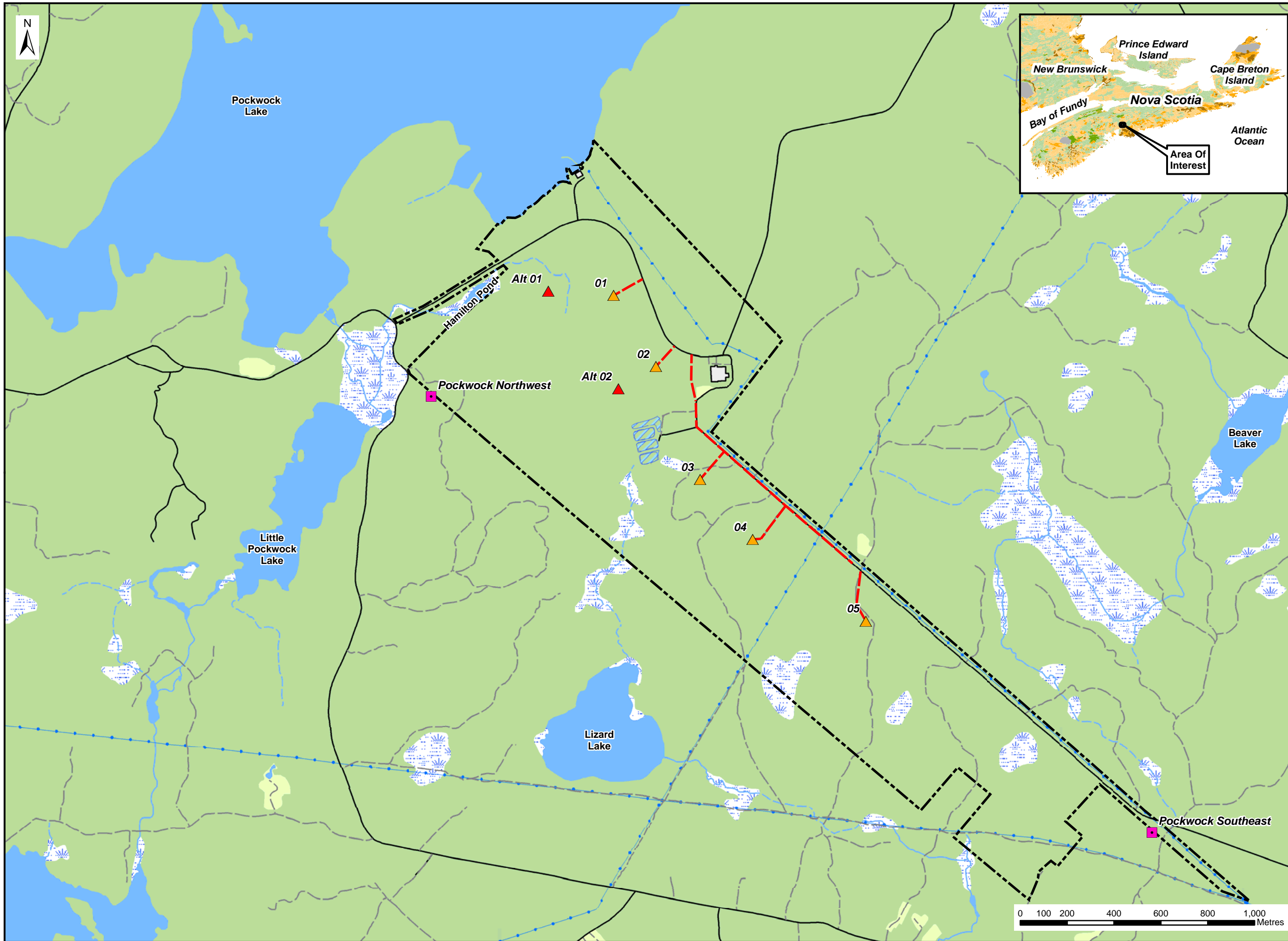
Thank you,



Scott Dickey, MREM  
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Vice President  
[sduncan@strum.com](mailto:sduncan@strum.com)



**Notes:**

- Reference: Digital Topographic Mapping By Nova Scotia Geomatics Centre.
- Projection: NAD83(CSRs), UTM Zone 20 North.

- Legend:**
- Proposed Turbine
  - Alternate Turbine
  - Sound Monitoring Location
  - Proposed Access Road
  - Project Site Boundary
  - Major Roads and Highways
  - Roads
  - Access Roads / Trails
  - Existing Transmission Lines
  - Mapped Stream
  - Indefinite Stream
  - Water Bodies
  - Mapped Reservoir
  - Mapped Wet Area
  - Cleared Area

**Sound Monitoring Locations**



|                         |                        |
|-------------------------|------------------------|
| Date:<br>April 2013     | Project #:<br>12-4326  |
| Scale:<br>1:15,000      | Drawing #:<br><b>1</b> |
| Drawn By:<br>G. Gregory |                        |
| Checked By:<br>M. Smith |                        |



- **The  $LAS_{eq}$**  – This is the average noise level that contains the same amount of sound energy as the actual fluctuating sound level during the sample period. This represents the average sound level over the duration of the sampling period.
- **The  $LAS_D$**  – This is the  $LA_{eq}$  of the daytime sound levels between the hours of 07:00 and 19:00. This represents the average sound level during the day over the sampling period.
- **The  $LAS_E$**  - This is the  $LA_{eq}$  of the evening sound levels between the hours of 19:00 and 23:00. This represents the average sound level during the evening over the sampling period.
- **The  $LAS_N$**  - This is the  $LA_{eq}$  of the nighttime sound levels between the hours of 23:00 and 07:00. This represents the average sound level during the night over the sampling period.
- **The  $LAS_{mx}$**  – This represents the highest ‘slow’ time weighted sound pressure level expressed in decibels. This represents the highest sound level attenuated over 1 second recorded during the sampling period.
- **The  $LAS_{mn}$**  - This represents the lowest ‘slow’ time weighted sound pressure level expressed in decibels. This represents the lowest sound level attenuated over 1 second recorded during the sampling period.
- **The  $LTM_5$**  – This is a time average value calculated every 5 seconds that takes the highest level occurring during the preceding five seconds and assumes that it was present for the whole of the 5 second interval. Comparing the  $LTM_5$  with the  $LA_{eq}$  gives an objective measure of how erratic the sound level was throughout the sampling period.
- **The  $LAS_{95}$**  – This is the sound level in decibels that is exceeded 95% of the time. This parameter is an objective measurement of the average background sound level measured throughout the sampling period.

| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R1                 | 433009             | 4956069             | 31.9                                |
| R2                 | 434476             | 4955840             | 31.8                                |
| R3                 | 433738             | 4955983             | 32.9                                |
| R4                 | 433699             | 4955933             | 32.5                                |
| R5                 | 433852             | 4956082             | 33.7                                |
| R6                 | 434206             | 4956264             | 35.3                                |
| R7                 | 433840             | 4955959             | 32.8                                |
| R8                 | 433518             | 4955975             | 32.5                                |
| R9                 | 434464             | 4955843             | 31.8                                |
| R10                | 434018             | 4955750             | 31.5                                |
| R11                | 433681             | 4955998             | 32.9                                |
| R12                | 433617             | 4956022             | 32.9                                |
| R13                | 432902             | 4956089             | 31.8                                |
| R14                | 432881             | 4956151             | 32                                  |
| R15                | 433004             | 4956115             | 32.2                                |
| R16                | 433563             | 4955964             | 32.5                                |
| R17                | 435047             | 4955538             | 28.9                                |
| R18                | 434429             | 4955474             | 29.6                                |
| R19                | 433663             | 4955780             | 31.5                                |
| R20                | 432289             | 4957759             | 36.9                                |
| R21                | 434490             | 4955861             | 31.9                                |
| R22                | 433944             | 4955839             | 32.1                                |
| R23                | 433754             | 4955760             | 31.4                                |
| R24                | 433542             | 4956068             | 33.1                                |
| R25                | 435030             | 4955516             | 28.8                                |
| R26                | 432462             | 4956232             | 31.1                                |
| R27                | 432696             | 4956237             | 31.9                                |
| R28                | 433833             | 4955836             | 32                                  |
| R29                | 432203             | 4957735             | 36.2                                |
| R30                | 434117             | 4955934             | 32.7                                |
| R31                | 434760             | 4955739             | 30.6                                |
| R32                | 435068             | 4955658             | 29.4                                |
| R33                | 434561             | 4955831             | 31.6                                |
| R34                | 432462             | 4956167             | 30.8                                |
| R35                | 432852             | 4956090             | 31.6                                |
| R36                | 433830             | 4955982             | 32.9                                |
| R37                | 433769             | 4955971             | 32.8                                |
| R38                | 432754             | 4956156             | 31.7                                |
| R39                | 433477             | 4956052             | 32.9                                |
| R40                | 433860             | 4955888             | 32.3                                |
| R41                | 434459             | 4955466             | 29.6                                |
| R42                | 435367             | 4955475             | 27.8                                |
| R43                | 434212             | 4955640             | 30.8                                |
| R44                | 432561             | 4956275             | 31.6                                |
| R45                | 434341             | 4955845             | 32                                  |
| R46                | 434465             | 4955827             | 31.7                                |
| R47                | 434014             | 4955939             | 32.8                                |
| R48                | 433866             | 4956009             | 33.2                                |
| R49                | 432973             | 4956074             | 31.9                                |
| R50                | 432677             | 4956383             | 32.6                                |



| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R51                | 432899             | 4956144             | 32                                  |
| R52                | 435233             | 4955461             | 28.1                                |
| R53                | 432888             | 4956173             | 32.2                                |
| R54                | 434425             | 4955774             | 31.4                                |
| R55                | 433692             | 4955810             | 31.7                                |
| R56                | 434354             | 4955863             | 32.1                                |
| R57                | 434246             | 4955817             | 31.9                                |
| R58                | 432825             | 4956078             | 31.5                                |
| R59                | 433117             | 4955763             | 30.6                                |
| R60                | 434163             | 4955836             | 32.1                                |
| R61                | 433625             | 4955938             | 32.4                                |
| R62                | 434497             | 4955821             | 31.6                                |
| R63                | 433326             | 4955926             | 31.8                                |
| R64                | 435211             | 4955636             | 28.9                                |
| R65                | 435323             | 4955484             | 27.9                                |
| R66                | 432902             | 4956127             | 31.9                                |
| R67                | 432415             | 4956231             | 31                                  |
| R68                | 435152             | 4955638             | 29.1                                |
| R69                | 434565             | 4955787             | 31.3                                |
| R70                | 434831             | 4955716             | 30.3                                |
| R71                | 434238             | 4955357             | 29.2                                |
| R72                | 435221             | 4955536             | 28.4                                |
| R73                | 433871             | 4955867             | 32.2                                |
| R74                | 435386             | 4955507             | 27.9                                |
| R75                | 434394             | 4955841             | 31.9                                |
| R76                | 433529             | 4956092             | 33.2                                |
| R77                | 434153             | 4955284             | 28.8                                |
| R78                | 432739             | 4956163             | 31.7                                |
| R79                | 434696             | 4955751             | 30.8                                |
| R80                | 432581             | 4956192             | 31.3                                |
| R81                | 433726             | 4955992             | 32.9                                |
| R82                | 433962             | 4955966             | 32.9                                |
| R83                | 435141             | 4956097             | 31.4                                |
| R84                | 433874             | 4955907             | 32.5                                |
| R85                | 434718             | 4955792             | 31                                  |
| R86                | 434000             | 4955877             | 32.3                                |
| R87                | 432646             | 4956192             | 31.5                                |
| R88                | 433695             | 4955982             | 32.8                                |
| R89                | 434287             | 4955912             | 32.5                                |
| R90                | 434421             | 4955829             | 31.8                                |
| R91                | 432889             | 4956038             | 31.5                                |
| R92                | 432123             | 4957029             | 33.1                                |
| R93                | 432447             | 4956174             | 30.8                                |
| R94                | 433834             | 4955880             | 32.3                                |
| R95                | 432667             | 4956090             | 31.1                                |
| R96                | 434615             | 4955660             | 30.4                                |
| R97                | 434826             | 4955701             | 30.2                                |
| R98                | 433810             | 4955908             | 32.4                                |
| R99                | 435220             | 4955440             | 28                                  |
| R100               | 432994             | 4956054             | 31.8                                |

| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R101               | 435086             | 4955623             | 29.2                                |
| R102               | 435220             | 4955553             | 28.5                                |
| R103               | 432117             | 4956784             | 32.1                                |
| R104               | 433850             | 4955906             | 32.5                                |
| R105               | 435079             | 4955655             | 29.4                                |
| R106               | 433969             | 4955880             | 32.3                                |
| R107               | 432648             | 4956229             | 31.7                                |
| R108               | 432098             | 4956786             | 32                                  |
| R109               | 434407             | 4955852             | 32                                  |
| R110               | 432678             | 4956401             | 32.7                                |
| R111               | 433777             | 4955988             | 32.9                                |
| R112               | 433977             | 4955860             | 32.2                                |
| R113               | 433055             | 4955703             | 30.1                                |
| R114               | 434099             | 4955860             | 32.2                                |
| R115               | 434154             | 4955256             | 28.7                                |
| R116               | 435413             | 4955500             | 27.7                                |
| R117               | 433739             | 4955754             | 31.4                                |
| R118               | 433623             | 4956003             | 32.8                                |
| R119               | 433825             | 4955851             | 32.1                                |
| R120               | 435127             | 4955615             | 29                                  |
| R121               | 432365             | 4958309             | 39.3                                |
| R122               | 432832             | 4956046             | 31.3                                |
| R123               | 432531             | 4956160             | 31                                  |
| R124               | 432842             | 4956156             | 31.9                                |
| R125               | 432532             | 4956243             | 31.4                                |
| R126               | 433320             | 4955913             | 31.8                                |
| R127               | 433781             | 4955927             | 32.5                                |
| R128               | 433340             | 4955920             | 31.8                                |
| R129               | 432529             | 4956229             | 31.3                                |
| R130               | 433841             | 4955831             | 32                                  |
| R131               | 435087             | 4955604             | 29.1                                |
| R132               | 432204             | 4957781             | 36.3                                |
| R133               | 434258             | 4955931             | 32.7                                |
| R134               | 434700             | 4955771             | 30.9                                |
| R135               | 432548             | 4956251             | 31.5                                |
| R136               | 432878             | 4956169             | 32.1                                |
| R137               | 433837             | 4955996             | 33                                  |
| R138               | 432609             | 4956386             | 32.3                                |
| R139               | 434959             | 4955494             | 28.9                                |
| R140               | 434970             | 4955470             | 28.7                                |
| R141               | 434992             | 4955481             | 28.7                                |
| R142               | 435036             | 4955504             | 28.7                                |
| R143               | 434930             | 4955657             | 29.8                                |
| R144               | 433902             | 4955983             | 33                                  |
| R145               | 434339             | 4955710             | 31.1                                |
| R146               | 434625             | 4955769             | 31.1                                |
| R147               | 434555             | 4955716             | 30.9                                |
| R148               | 434309             | 4955508             | 29.9                                |
| R149               | 433550             | 4955940             | 32.3                                |
| R150               | 432333             | 4956280             | 30.9                                |

**Table K1: Sound Modeling Results, Chebucto Pockwock Community Wind Project** **Project # 12-4326**

| <b><u>Receptor ID</u></b> | <b><u>Easting (m)</u></b> | <b><u>Northing (m)</u></b> | <b><u>Predicted Sound Levels (dBA)</u></b> |
|---------------------------|---------------------------|----------------------------|--|
| R151                      | 432463                    | 4957578                    | 37.4                                       |
| R152                      | 432229                    | 4957452                    | 35.3                                       |
| R153                      | 432139                    | 4957701                    | 35.6                                       |
| R154                      | 435407                    | 4955492                    | 27.7                                       |
| R155                      | 435426                    | 4955514                    | 27.8                                       |
| R156                      | 435231                    | 4955673                    | 29   |

APPENDIX L  
COMMUNITY ENGAGEMENT

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Extensive consultation for the Project has been ongoing with HRM, the Upper Hammonds Plains Community Development Association (UHPCDA), local residents and local Mi'kmaq communities. A summary of the consultation process and a description of the forums used for public consultation for the Project are provided in Sections 11.0 and 13.0 of the EA Registration Document.

Issues and concerns raised by the public and other stakeholders throughout the consultation process can be grouped into five broad categories which have been assessed throughout the EA. Concerns include:

- Potential effects from sound generated by wind turbines;
- Potential effects on property values on lands near the Project site;
- Potential effects to the visual landscape around the Project site;
- Potential effects to birds and other wildlife from the construction and operation of wind turbines; and
- Concerns regarding public health and safety.

#### Sound

Residents living near the Project site expressed concerns over the potential for noise during construction and decommissioning phases of the Project, as well as annoyance from noise generated by turbine blades during operation.

Ambient sound monitoring was carried out to determine existing ambient sound levels near the Project site. Sound modeling was also completed to ensure that sound levels generated by operating turbines at all non-participating residential receptors will comply with the NSE standard of 40 dBA (exterior of the residence).

Additional details regarding sound assessment methodology and results are provided in Section 12.4 of the Environmental Registration Document. Infrasound is considered in the Human Health Literature Review provided in Appendix C.

#### Property Values

Potential effects on property values has been identified as a potential concern of neighboring residents. A review was completed on available literature related to the effect of wind farms on surrounding property values and a discussion is provided in Section 9.2 of the Environmental Registration Document.

#### Visual Landscape

Potential effects to the visual landscape (i.e. visibility of turbines) surrounding the Project site was modeled using the WindPRO version 2.8 software package to provide the public with an indication of turbine visibility. In addition, photos taken from locations near the Project site were used to create simulated images of the view plane for public viewing. Additional details and results of the visual assessment for the Project are provided in Section 12.3 of the EA Registration Document.

### Birds and Wildlife

The public has raised concerns about mortality of birds and bats resulting from collisions with wind turbines. Sensory disturbance, as well as habitat loss for birds, bats and other forms of wildlife are also common concerns.

Extensive desktop and field studies have been completed to assess birds, bats and other wildlife and associated habitats at or near the Project site. Extensive consultation has been ongoing with NSDNR and CWS to ensure due diligence is practiced with regards to wildlife. The Proponent has committed to ongoing monitoring as requested by these agencies.

Details on wildlife methodology and results for fish, terrestrial fauna, birds, and bats are provided in Sections 8.3, 8.6, 8.8 and 8.8 of the EA Registration Document, respectively.

### Public Health and Safety

The public is often concerned about the potential for effects to health and safety from wind turbines. In addition to sound levels, common concerns include infrasound, shadow flicker and the risk of ice throw.

A shadow flicker assessment was completed for the proposed Project to assess the potential impact on surrounding shadow receptors and to ensure compliance with industry-standard guidelines. Additional details and results from the shadow flicker assessment are provided in Section 12.2 of the EA Registration Document.

A literature review regarding additional potential for effects to health and from wind turbines was also completed. The main findings of this review are provided in Appendix C.

# Project Benefits



## THE FUTURE IS GREEN

- **Provincial Energy Independence** – This project will be one of many steps to fulfill Nova Scotia's goal of 40% renewable sources by 2020.
- **Local Electricity Generation** – Nearly all the electricity generated by the project will be consumed locally with minimal upgrades to the existing electrical grid infrastructure.
- **Making the Local Price of Electricity More Stable** – All the electricity will be produced at a fixed price for the next 20 years and when combined with other wind projects, will reduce future increases in the price of electricity.

## INVESTING IN LOCAL COMMUNITIES

- **Local Community Education** – Once constructed, the project will fund The Pockwock Community Renewable Education Program. This program will be managed by a local committee and provide an annual scholarship for members of the local community who want to expand their education in an undergraduate or postgraduate field related to renewable energy or sustainability.
- **Local Community Investment and Economic Development** – Nova Scotia based companies will provide project development services such as environmental consulting, long-term management, construction, and website development.



## YOUR INPUT IS IMPORTANT TO US ...

Your comments and feedback on the proposed wind project are important to us. For additional information please visit the project website [www.chebuctopockwockwindfarm.ca](http://www.chebuctopockwockwindfarm.ca) or email us at [info@pockwockwindfarm.ca](mailto:info@pockwockwindfarm.ca)

... THANK YOU FOR COMING!

# POCKWOCK COMMUNITY WIND

Local Economic Development, Part of a Global Solution.

## PROJECT DESCRIPTION

**Chebucto Pockwock Community Wind** is a proposed wind energy generation facility located on Halifax Regional Water Authority land, approximately 25 km northwest of Halifax, Nova Scotia. The project is proposed under Nova Scotia Department of Energy's Community Feed-In-Tariff program. Project development will occur over the next few years, and will require a full Environmental Assessment to ensure that the project is developed in a manner fitting of the biological and cultural surroundings. Once constructed, the project will likely consist of three to four wind turbines capable of generating approximately 8 megawatts of energy. This is enough energy to power more than 2,400 Nova Scotia homes with stable, local, renewable energy.



## MEET YOUR TEAM



**Chebucto Wind Field Inc.** (Chebucto) is the proponent of this project under the Community Feed-In Tariff (COMFIT) program that was introduced by the Nova Scotia Department of Energy. Chebucto's mandate is to raise capital through the sale of shares to Nova Scotians and to invest that money in renewable energy projects in the province. Chebucto currently has more than 150 shareholders who reside in HRM. Chebucto will ensure that you will have an opportunity to invest in this project.



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# ASSESSMENT AND DEVELOPMENT

- Baseline studies are ongoing to determine and mitigate any effects of the project on the environment and local interests.
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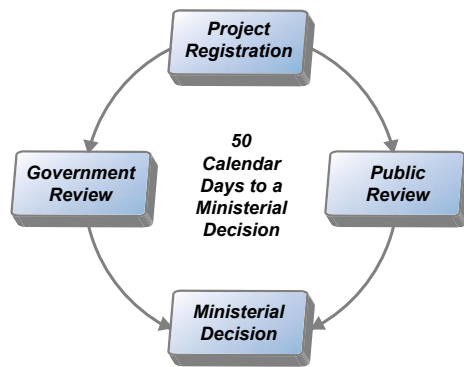


Fig. 1 - Regulatory Review Process

## Baseline studies will include:

- Birds, Bats and General Wildlife
- Plants and Wetlands
- Watercourses and Fish Habitat
- Groundwater and Geology
- Sound and Shadow Flicker
- Visual Aesthetics
- Cultural and Heritage Resources
- Socio-economic Conditions
- Mi'kmaq Ecological Knowledge Study

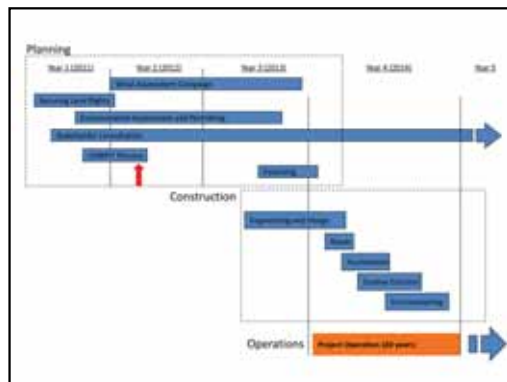


Fig. 2 - Project Timeline

# Wind Farm Viewscape



Photo 1  
Looking north at the project site.  
Photo location: Pockwock Road

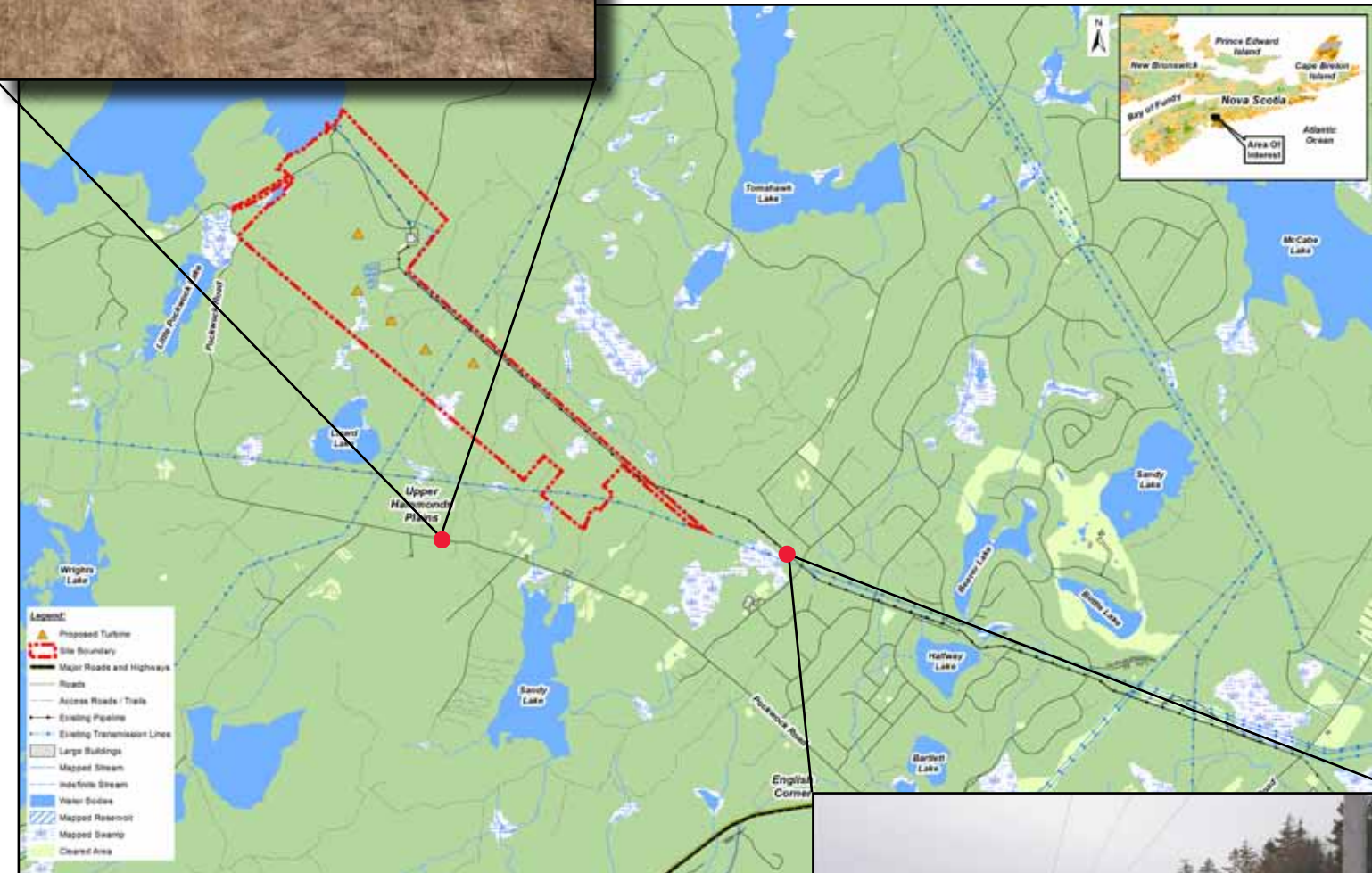


Photo 2  
Looking northwest at the project site.  
Photo location: Northwest of where White Hills Run meets the power line right of way.

# FACTS ABOUT SOUND AND SHADOW FLICKER

- You can stand below a wind turbine and carry on a normal conversation.
- Wind turbines have an aerodynamic blade design and sound-proofed generator enclosures.
- A sound analysis is currently in progress for the project using guidelines developed by the Ontario Ministry of the Environment. Results will be presented in the Environmental Assessment Registration Document.
- All turbines for the project will be located a minimum of **1200 m** from any residence or unidentified building.

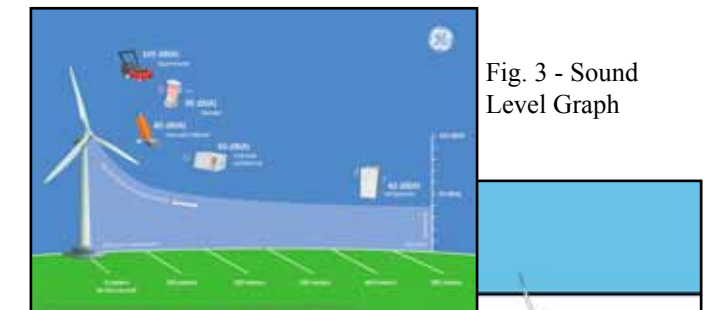


Fig. 3 - Sound Level Graph

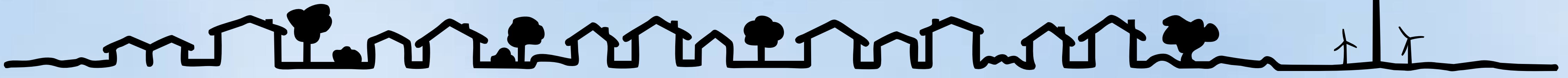
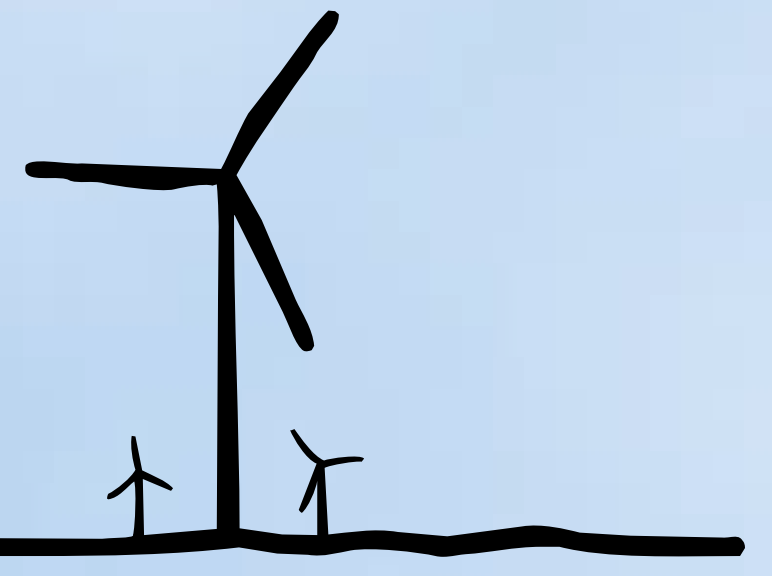


Fig. 4 - Shadow Flicker Schematic

- Shadow flicker occurs when rotating wind turbine blades cast shadows upon stationary objects.
- Shadow flicker only appears during very specific conditions:
  - The sun is shining and there is no cloud cover, fog, etc.
  - Windows of the residence have to directly face the wind turbine.
  - No obstructions (trees, hills, other structures) are in sight.
  - Turbine blades directly face toward or away from the sun.
- A shadow flicker analysis is currently in progress for the project. Results will be presented in the Environmental Assessment Registration Document.



# POCKWOCK COMMUNITY WIND

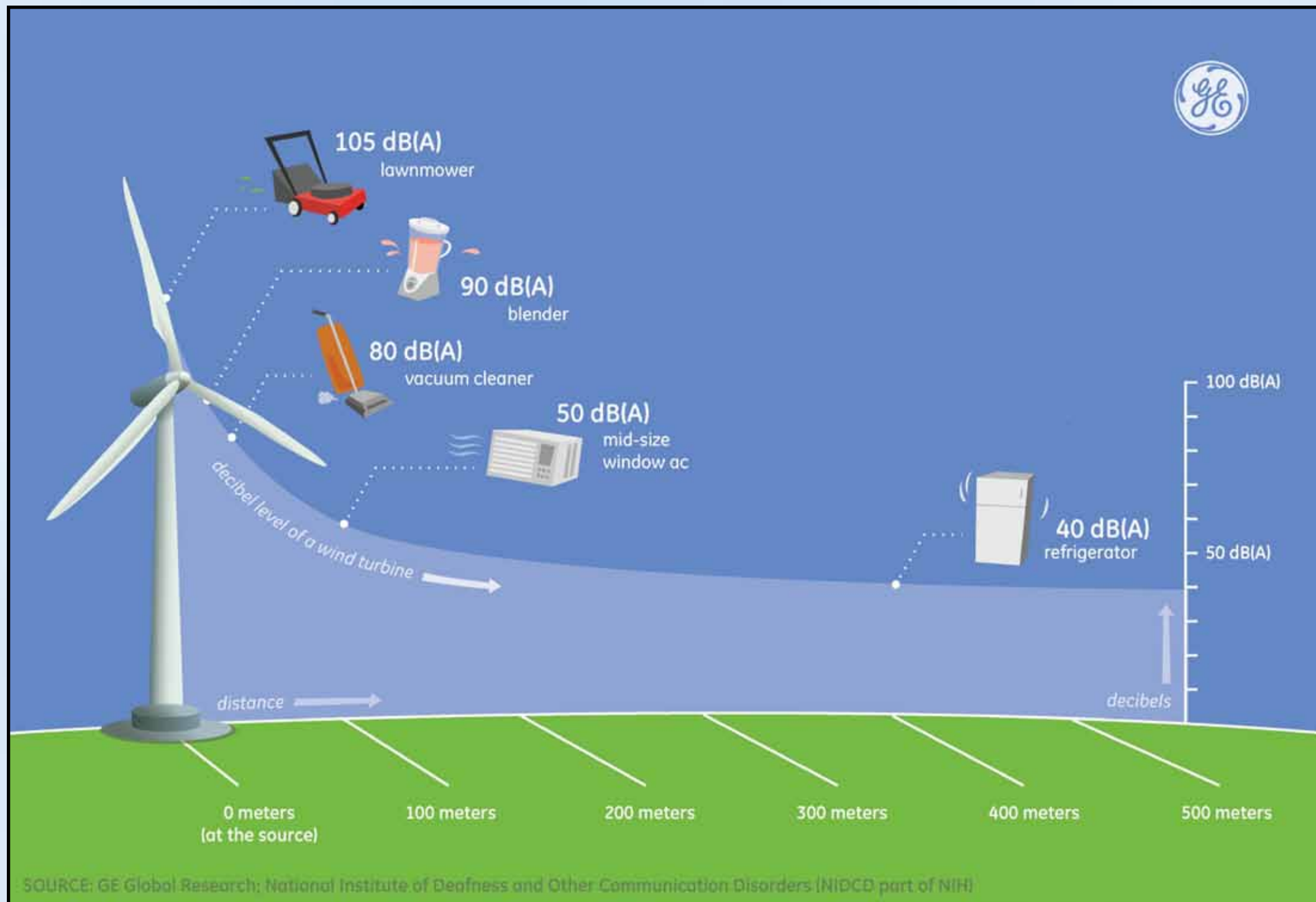


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## FACTS ABOUT SOUND AND SHADOW FLICKER

### WIND TURBINE SOUND LEVELS ARE LOW ...

### SHADOWS ARE NOT TAKEN LIGHTLY ...



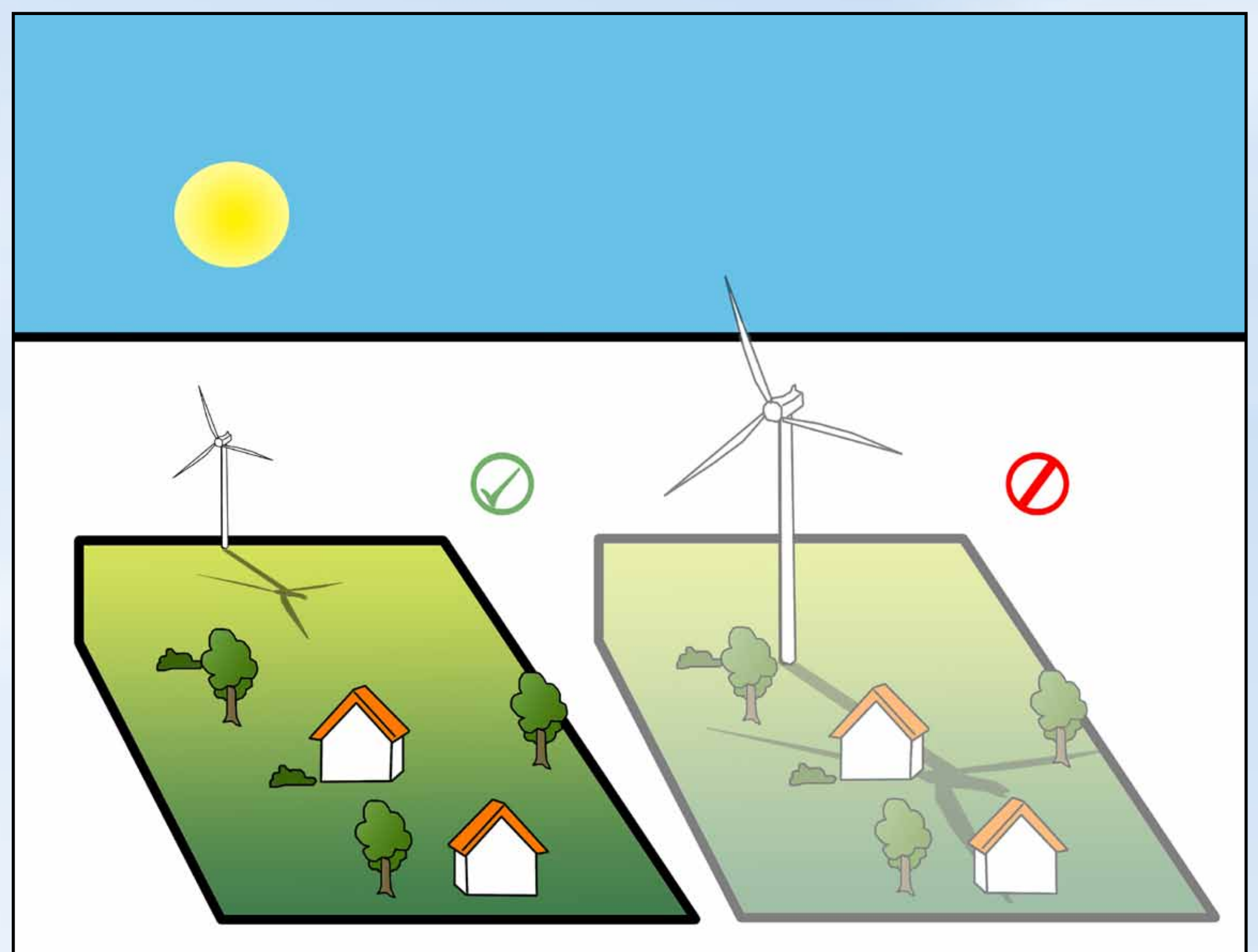
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### TYPICAL SOUND PRESSURE LEVELS

| Source        | Distance from Source |        | Sound Pressure Levels in dB (A) |
|---------------|----------------------|--------|---------------------------------|
|               | feet                 | meters |                                 |
| Freight Train | 100                  | 30     | 70                              |
| 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                              |

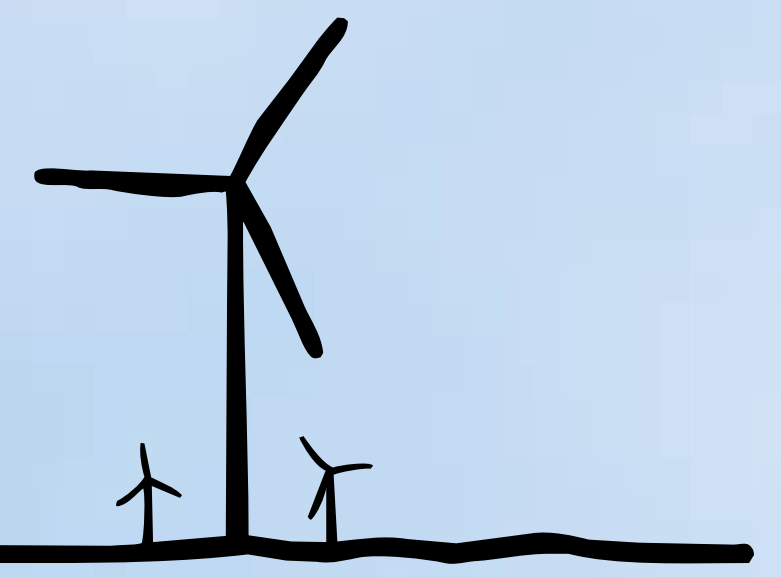
Source: AWEA 2011

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# POCKWOCK COMMUNITY WIND



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## PROJECT BENEFITS

### INVESTING IN LOCAL COMMUNITIES

- **Local Community Education** – Once constructed, the project will fund The Pockwock Community Renewable Education Program. This program will be managed by a local committee and provide an annual scholarship for members of the local community who want to expand their education in an undergraduate or postgraduate field related to renewable energy or sustainability.



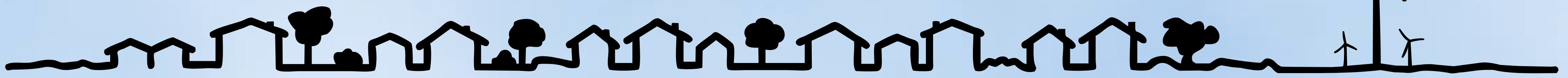
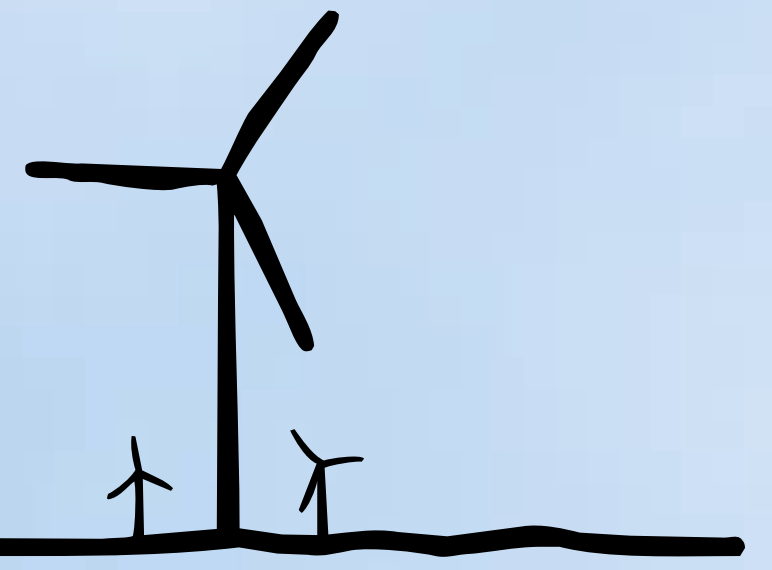
## THE FUTURE IS GREEN

- **Provincial Energy Independence** – This project will be one of many steps to fulfill Nova Scotia's goal of 40% renewable sources by 2020.
- **Local Electricity Generation** – Nearly all the electricity generated by the project will be consumed locally with minimal upgrades to the existing electrical grid infrastructure.
- **Making the Local Price of Electricity More Stable** – All the electricity will be produced at a fixed price for the next 20 years and when combined with other wind projects, will reduce future increases in the price of electricity.

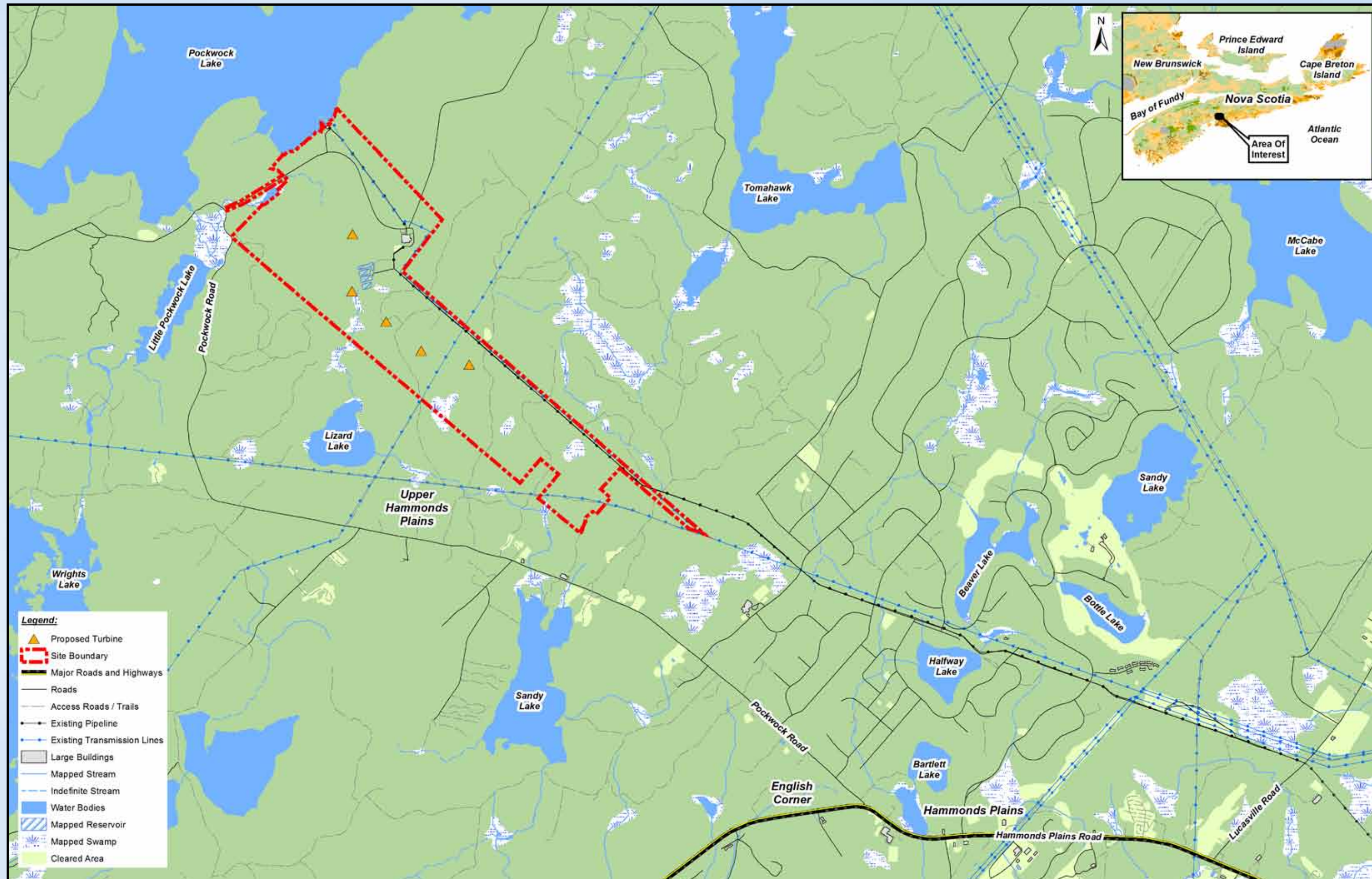


- **Local Community Investment and Economic Development** – Nova Scotia based companies will provide project development services such as environmental consulting, long-term management, construction, and website development.

# POCKWOCK COMMUNITY WIND



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## YOUR INPUT IS IMPORTANT TO US ...

Your comments and feedback on the proposed wind project are important to us. Please ask questions and be sure to pick up a handout before you leave.

## MEET YOUR TEAM



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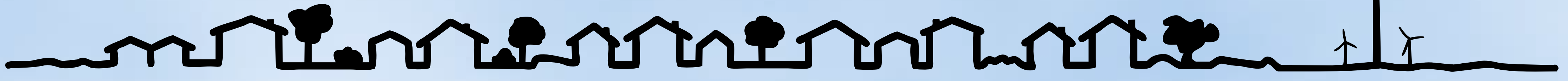
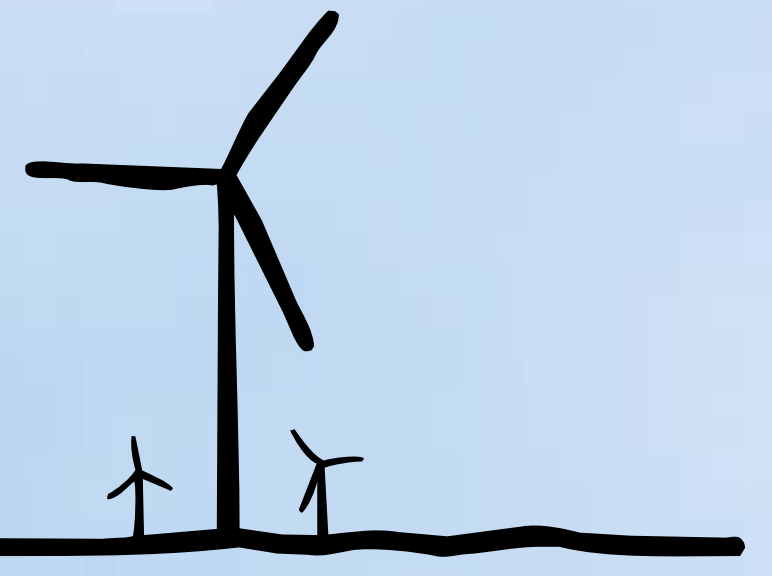


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Questions? Please contact:  
[info@pockwocwindfarm.ca](mailto:info@pockwocwindfarm.ca)

## ... THANK YOU FOR COMING!

# Pockwock Community Wind

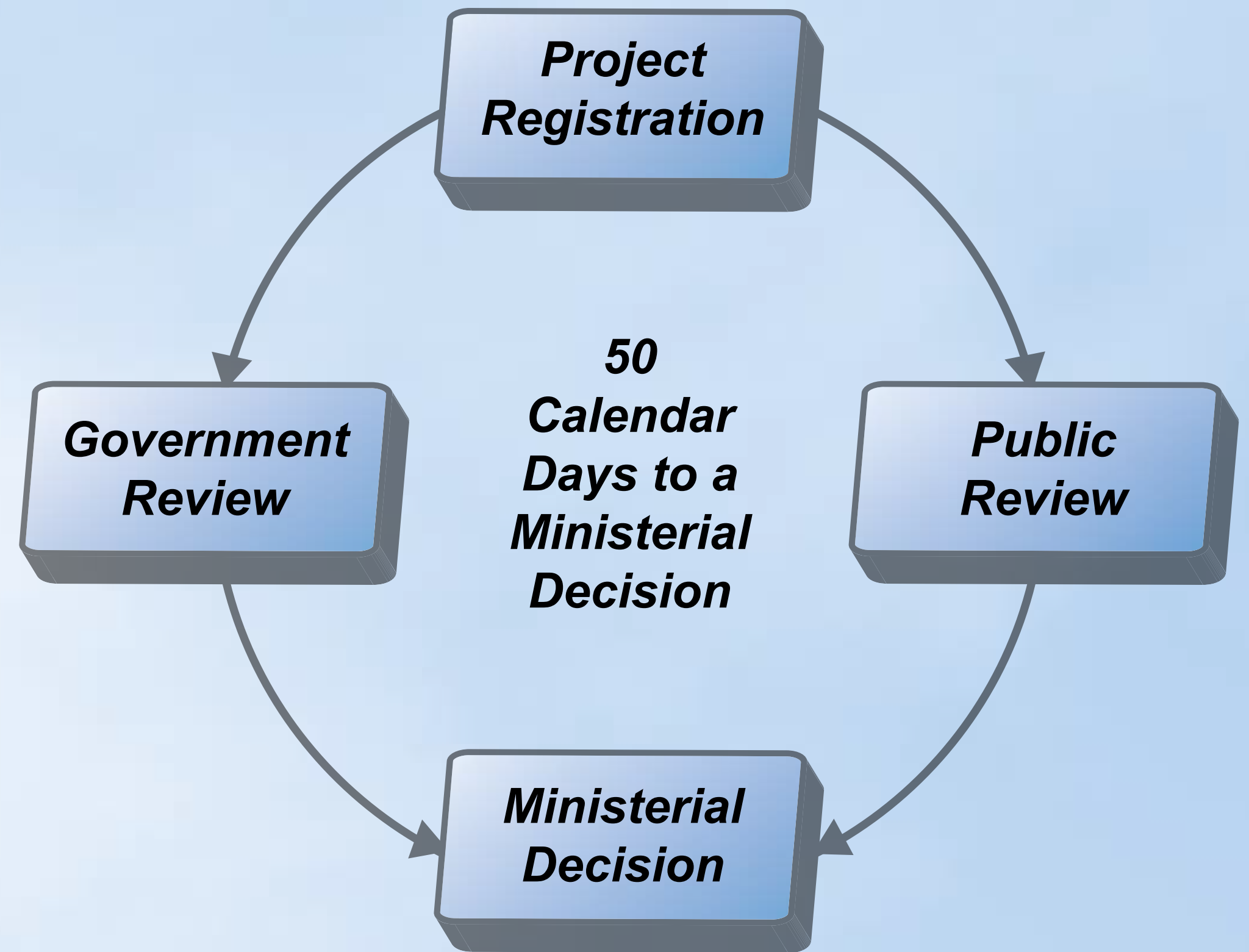


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## ASSESSMENT AND DEVELOPMENT

### ENVIRONMENTAL ASSESSMENT:

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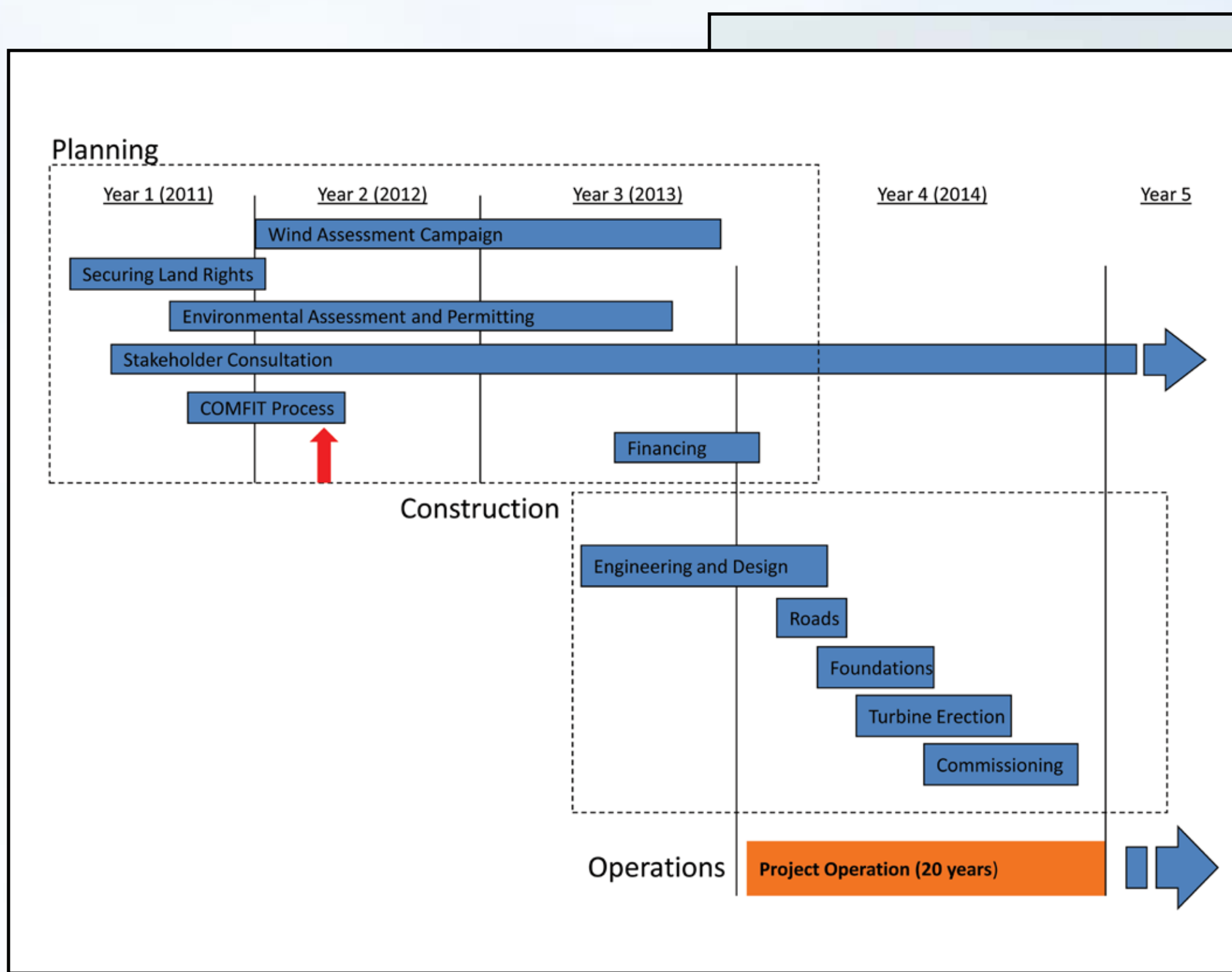


### BASELINE STUDIES:

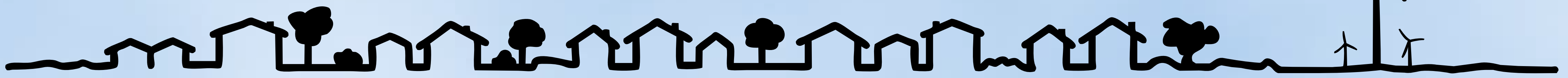
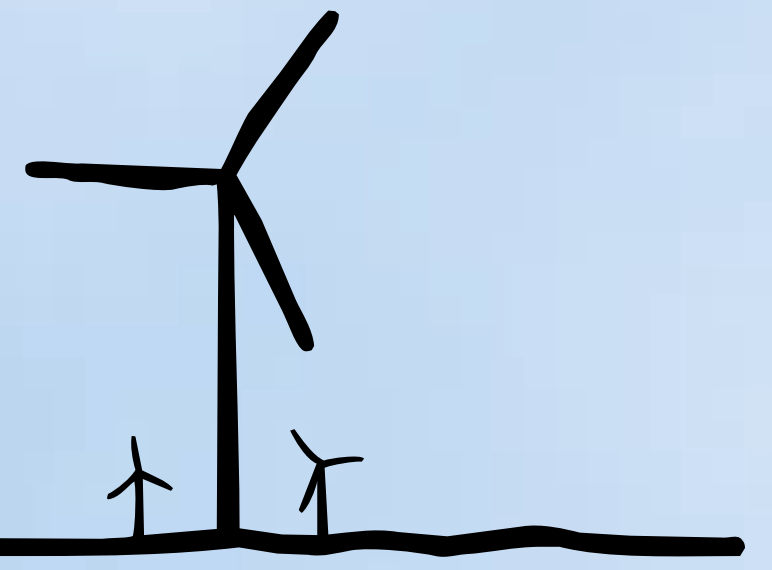
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### DEVELOPMENT PROCESS:



# POCKWOCK COMMUNITY WIND



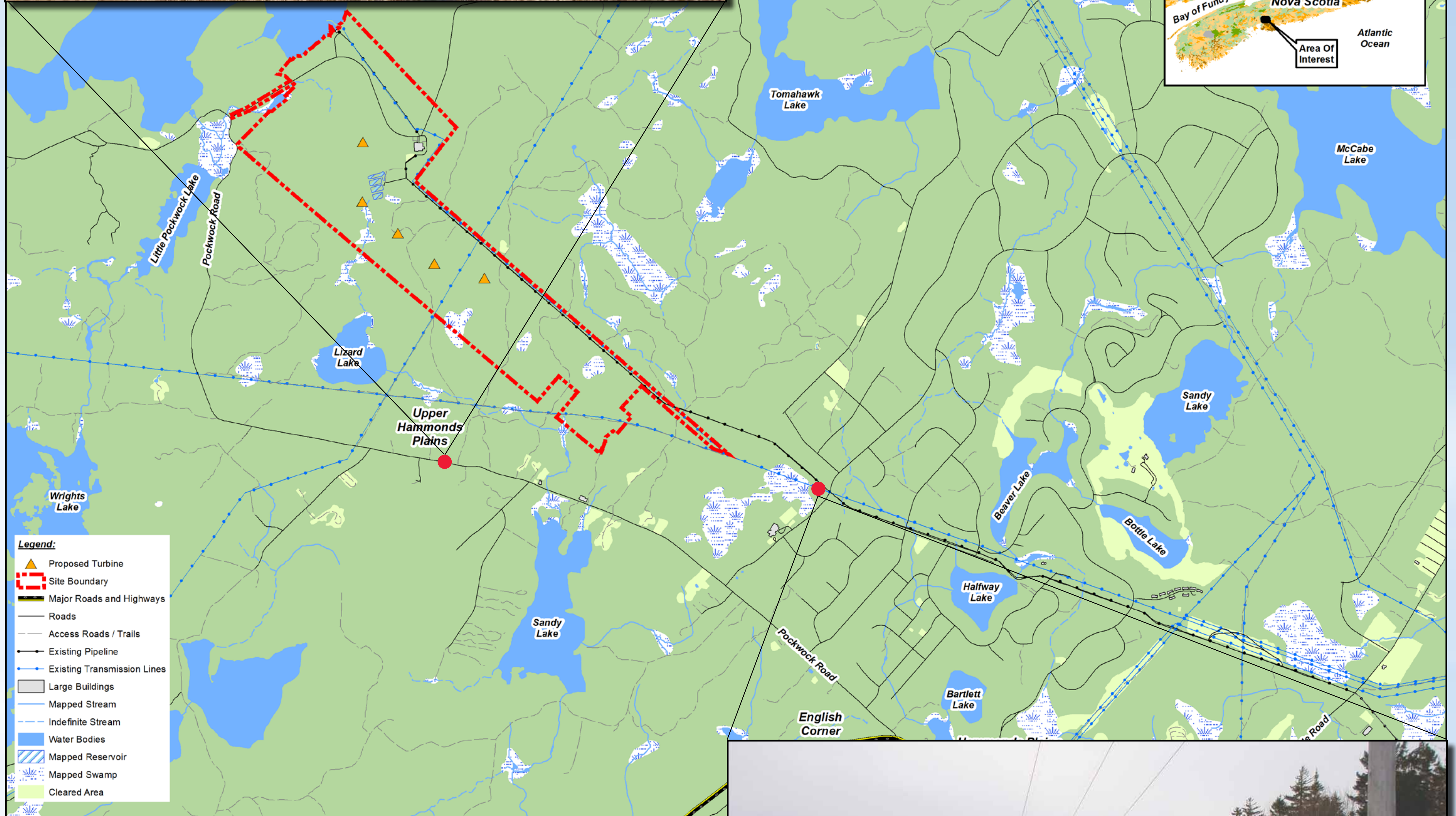
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## WIND FARM VIEWSCAPE



*Photo 1*

*Looking north at the project site. Photo location: Pockwock Road*



*Photo 2*  
*Looking northwest at the project site.*  
*Photo location: Northwest of where*  
*White Hills Run meets the power line*  
*right of way.*





Presents Guest Speaker Dr. Lukas Swan, PEng

# Wind Energy 101

Open to the public

April 4<sup>th</sup> – 7:00pm

**Upper Hammonds Plains Community Center**

711 Pockwock Rd - Hammonds Plains – Nova Scotia B4B 1N8

## Topics to include:

- energy and how we use it
- Nova Scotia's renewable energy policy
- wind energy technology
- wind energy benefits and impacts
- placement & permitting



**Chebucto Pockwock**  
COMMUNITY WIND

# Chebucto Pockwock Wind Farm Open House

**May 15<sup>th</sup>, 6:00 to 9:00 pm at Upper  
Hammonds Plains Community Centre,  
711 Pockwock Road, Hammonds Plains**

**Simulated view of  
wind farm from  
Pockwock Road**