

Varna Wind, LP

April 25, 2017

Ministry of the Environment and Climate Change
Environmental Assessments and Approvals Branch
2 St. Clair Avenue West, Floor 12A
Toronto, ON
M4V 1L5

Attention: Mohsen Keyvani, Director

Re: Request for Amendment to REA Number 7483-94DRPF for Installation of Acoustic Bat Deterrent Devices

Dear Mr. Keyvani,

Varna Wind, LP (“Varna”) received a Renewable Energy Approval (“REA”) from the Ministry of the Environment and Climate Change on April 22, 2013. The Varna Wind Energy Centre (the “Project”), consists of 37 wind turbine generators and has a total name plate capacity of approximately 60-megawatts. Varna submits this letter and included REA amendment application in Appendix A requesting the following amendment to the REA:

- Amending the REA to allow for the installation of acoustic bat deterrent devices on four (4) different turbines to be located on the nacelles of each turbine as an additional mitigation strategy to reduce the risk of bat collisions with wind turbines.

Proposed Project Modifications

The proposed devices will be located on the nacelles of existing Turbines 8, 21, 29, and 30; are inaudible to humans, pets, or livestock; and require no specialized equipment for installation. As such, there is no change to Project Location; no increase in the overall impact at noise receptors; no impacts on archaeological, cultural, or natural heritage resources; and therefore no new studies are required. Varna is of the understanding that a technical amendment is warranted in order to modify the mitigation strategy as identified in Section 6.2 Natural Heritage of the Design & Operations Report which forms part of the approved REA. The proposed project modification is summarized in Table 1, which documents the following:

- A description of the modification and rationale for the proposed modification; and
- That there are no new potential environmental effects and corresponding mitigation measures.

A full description of the proposed study design; technology; and installation details can be found in Appendix B-E.

Table 1: Summary of Project Modification

Approved Commitment	Proposed Modification and Details	Rationale for Proposed Modification	New Potential Environmental Effects	New Mitigation Measures and/or Monitoring Requirements
No specific mention of	Specifically permit installation of	Varna wishes to study the ability of	None. The devices will be located on	<ul style="list-style-type: none">• Testing of deterrent

Varna Wind, LP

<p>acoustic bat deterrent devices.</p>	<p>prototype acoustic bat deterrent devices on four (4) existing turbines. If the prototypes are determined to be successful, the prototype devices will be replaced with almost identical commercial devices in 2018.</p> <p>The form factor of the prototype and commercial units are exactly the same, as are the design of the ultrasonic speakers which are the critical element for producing the ultrasound. The circuit board will change slightly to reduce the thermal loads and enable MODBUS communication, but won't change the basic function of the unit itself.</p> <p>The commercial devices will be in place for the life of the project.</p>	<p>acoustic bat deterrent devices to reduce the risk of bat collisions with wind turbines.</p>	<p>turbines already permitted in the approved Project Location; are inaudible to humans, livestock, or pets; and will not require any specialized equipment to install.</p>	<p>devices does not trigger any further mandatory monitoring under the REA. As part of the effectiveness study, Varna will conduct bat mortality monitoring at each chosen turbine location. This monitoring will be conducted separately from existing REA monitoring commitments.</p> <ul style="list-style-type: none"> Seasonal updates (as necessary) and year-end reporting to MNRF and MOECC
--	---	--	---	--

Edits to Approved REA Reports

Given that the proposed technical amendment is associated with the installation of a device that does not affect turbine operations or impact any REA conditions, it is not recommended that any of the approved REA reports be modified as part of this amendment.

Varna Wind, LP

Conclusion

The modification described in the REA amendment request does not change the overall conclusion of the REA Report which states that the Project can be constructed, installed, operated and decommissioned without any significant adverse residual effects.

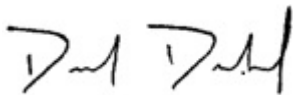
Appendices

- A. Varna Wind, LP, [REA Application Form](#)
- B. Bat Conservation International, [Evaluating the Effectiveness of an Ultrasonic Acoustic Deterrent in Reducing Bat Fatalities at Wind Energy Facilities \(Proposed Study Design\)](#)
- C. Renewable NRG Systems, [RNRG Bat Deterrence Program 12/9/16](#)
- D. Renewable NRG Systems, [RNRG Installation Notes Bat Deterrent System](#)
- E. NextEra Energy Canada, LP. [Project Proposal: "Installation of an Ultrasonic Acoustic Deterrent to Test Effectiveness at Reducing Bat Fatalities at Wind Energy Facilities"](#)

If you have any questions or require further details please do not hesitate to contact me.

Sincerely,

VARNA WIND, LP



Derek Dudek, MCIP, RPP
PGD Senior Technical Services Specialist, Canada
Email: derek.dudek@nexteraenergy.com

Appendix A – REA Application Form

General Information and Instructions

General Information

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990, c. E.19 (EPA) and will be used for the purposes of making decisions in respect of applications for the issue of, or amendment to, a Renewable Energy Approval. The information may also be used in connection with the Ministry's compliance and enforcement activities under the EPA.

For all questions related to preparing or submitting this form or about the Ministry's collection of information related to applying for a Renewable Energy Approval contact: Environmental Approvals Access and Service Integration Branch, 135 St. Clair Ave. W., 1st Floor, Toronto ON M4V 1P5. Telephone outside Toronto 1 800 461-6290 or in Toronto 416 314-8001. E-mail: EAASIBGen@ontario.ca.

Instructions

1. **Applicants are responsible for ensuring that they complete the most recent application form.** Application forms and information about the required supporting documentation and technical requirements are available from the Environmental Approvals Access and Service Integration Branch (the address and phone number are provided in the General Information on this page). As well, you can get this information from your local District Office of the Ministry of the Environment and Climate Change, and in the "Renewable Energy Approvals" section of the Ministry of the Environment and Climate Change website at <https://www.ontario.ca/environment-and-energy/renewable-energy-approvals>.

2. Complete Submission

In order to be eligible for the issue of a renewable energy approval, a person who proposes to engage in or change a renewable energy project, or alter the terms and conditions of a renewable energy approval shall, before submitting an application to the Director,

- 1) prepare the application in a form or format approved by the Director;
- 2) obtain or prepare, as the case may be, any documents that,
 - a) are required under Part IV of O. Regulation 359/09 (the Regulation) to be submitted as part of the application; or,
 - b) are to be submitted as part of the application for the purposes of obtaining an exemption from a provision of Part V of the Regulation; and,
 - c) comply with all other requirements of Part IV of the Regulation;
- 3) If there is more than one person applying for the issue of a renewable energy approval in respect of a renewable energy project, those persons shall jointly submit one application for the issue of a renewable energy approval;

New Renewable Energy Approval

Where a renewable energy approval has not yet been issued, a person who proposes to engage in a renewable energy project shall also

- 1) submit, as part of the application, the documents set out in Column 1 of Table 1 of the Regulation, wherever the renewable energy project is described opposite the document in Column 3 of Table 1 of the Regulation; and,
- 2) ensure the documents meet the requirements set out opposite the document in Column 2 of Table 1 of the Regulation.

Amendment to Renewable Energy Approval

Where a renewable energy approval has been issued, a person making an application in respect of a **proposed change to a renewable energy project or alteration** to the terms and conditions of the renewable energy approval shall, also

- 1) obtain or prepare, as the case may be, one or more reports that set out a description of and rationale for the proposed change or alteration, including any proposed change or alteration in respect of the following:
 - a) the nameplate capacity of the renewable energy generation facility.
 - b) the energy sources to be used to generate electricity at the renewable energy generation facility.
 - c) the project location.
 - d) the renewable energy generation facility, including any associated or ancillary equipment, systems or technologies.
 - e) the activities that will be engaged in as part of the project.
 - f) the negative environmental effects that may result from engaging in the project.
 - g) the measures to mitigate the negative environmental effects that may result from engaging in the project.

Supporting documents

- 1) Any document submitted as part of an application for the issue of a new, or amendment of an existing, renewable energy approval shall be in writing, with an electronic copy of the document attached.
- 2) Any document submitted as part of an application for the issue of a new, or amendment of an existing, renewable energy approval that is a diagram, map or plan shall be drawn to scale and shall include a scale bar and a north arrow.

Payment of the application fee (in Canadian funds) by certified cheque or money order made payable to the Minister of Finance, or credit card payment (for payments up to \$10,000) is required with the complete submission of your application.

INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.

The Ministry may require additional information during the technical review of any application.

3. Two (2) paper copies of the completed application form and the supporting documents required to be submitted as part of the application, one (1) electronic copy and the fee, must be sent to:

Ministry of the Environment and Climate Change

Director, Environmental Approvals Access and Service Integration Branch
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5

The fee should be mailed or faxed to our office with the application. For the protection of your credit card information, do not submit the fee by email.

4. You must also send one (1) paper copy of the complete application without the fee to any local Ministry District Office having jurisdiction over the project location. To locate the appropriate local Ministry District Office, please visit the Ministry of the Environment and Climate Change Internet site at: <https://www.ontario.ca/environment-and-energy/ministry-environment-regional-and-district-offices>.
5. Information collected by the Ministry of the Environment and Climate Change is subject to the *Freedom of Information and Protection of Privacy Act* (FIPPA). If you are of the view that any part of your application is confidential on the grounds that such information constitutes a trade secret or scientific, technical, commercial, financial or labour relations information, please make this known now. Otherwise, the Ministry may make the information available to the public without further notice to you.

It is an offence under the EPA to provide false or misleading information in this application and/or accompanying documents.

For Office Use Only			
Reference Number	Payment Received	Date (yyyy/mm/dd)	Initials
	\$		

Application Summary

Applicant Name (Legal name of individual or organization as evidenced by legal documents)

Varna Wind, LP

Project Name (Project identifier to be used as a reference in correspondence)

Bluewater Wind Energy Centre

Project Description Summary (This summary should reflect the description in the documents upon which consultation has been completed and if it does not, the difference should be highlighted)

A technical amendment for the Bluewater Wind Energy Centre is required to allow for the installation of acoustic bat deterrent devices on four (4) different turbines to be located on the nacelles of each turbine as an additional mitigation strategy to reduce risk of bat collisions with turbines.

Supplemental Application Information (Provide any other information that might be relevant to your application)

A separate Modifications Report is included with this application form which outlines the details of the proposed amendment.

Note: This form has been save-enabled; you can save a copy of this form that includes any information you have entered. Additional instructions and information on how to complete the application form can be found in the accompanying "Guide for Completing the Renewable Energy Approval Application".

Section 1 – Applicant Information**1.1 – Applicant Information** (Owner of works/facility)

Applicant Name (Legal name of individual or organization as evidenced by legal documents) Varna Wind, LP	Business Identification Number 83577 7251 RT001
Business Name (The name under which the entity is operating or trading, also referred to as trade name)	<input checked="" type="checkbox"/> Same as Applicant Name

Applicant Type

<input checked="" type="checkbox"/> Corporation	<input type="checkbox"/> Federal Government	<input type="checkbox"/> Individual	<input type="checkbox"/> Municipal Government
<input type="checkbox"/> Partnership	<input type="checkbox"/> Provincial Government	<input type="checkbox"/> Sole Proprietor	
<input type="checkbox"/> Other (describe):			

North American Industry Classification System (NAICS) Code
221119

Business Activity Description (A description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)
Large scale electricity generation

1.2 – Applicant Physical Address**Civic Address**

Unit Number 1720	Street Number 390	Street Name (Include type and direction) Bay Street	Province ON – Ontario	Postal Code M5H 2Y2
City/Town Toronto				

Survey Address (Not required if the Civic Address is provided)

Lot/Part	Concession/Reference Plan	Municipality/Unorganized Township		
County/District	Province/State	Country	Postal Code	

Telephone Number (incl. area code) 416 364-9714	ext. 5663	Fax Number (incl. area code)	Mobile Number (incl. area code) 519 318-0237
--	-----------	------------------------------	---

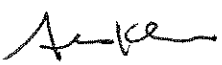
Email Address
bluewater.wind@nexteraenergy.com

1.3 – Applicant Mailing Address Same as Applicant Physical Address**Civic Address**

Unit Number	Street Number	Street Name (Include type and direction)	PO Box
City/Town/Municipality/Unorganized Township			Province/State
Country			Postal Code
Delivery Designator	Delivery Identifier	Postal Station	

1.4 – Statement of Applicant**I, the undersigned hereby declare that, to the best of my knowledge:**

- The information contained herein is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*;
- I understand that by submitting this form, I am guaranteeing the completeness and accuracy of all the information provided on this form and included in the draft reports. Failure to submit the correct information will result in an incomplete application being returned;
- The Project Technical Information Contact identified below is authorized to act on my behalf for the purpose of obtaining approval under section 47.3 of the EPA for the Project identified herein.

Name of Signing Authority (Please print) (Last name, first name) Kushner, Andrew	Title Vice President, Bus Mgmt	
Telephone Number (incl. area code) 561 691-2493	ext. Fax Number (incl. area code)	Mobile Number (incl. area code)
Email Address Andrew.Kushner@nexteraenergy.com		
Signature 		Date (yyyy/mm/dd) 2017/05/29

Section 2 – Project Information

2.1 – Application Type

New Renewable Energy Approval

Amendment to existing Renewable Energy Approval
Provide existing Renewable Energy Approval Number
7483-94DPRF

Application Initiated by

- Applicant
- Environmental Approvals Branch/Environmental Approvals Access and Service Integration Branch
- Provincial Officer Order (attach copy)
- Other (describe):

Relevant pre-submission rules subject to/elected (please select one of the following)

Notice of Proposal to Engage and if applicable, Notice of First Public Meeting, distributed on or before December 31, 2010.	<input checked="" type="checkbox"/> 2010 Rules <input type="checkbox"/> Elect into one or more 2011 Rules <input type="checkbox"/> Elect into Current Rules	If "Elect into one or more 2011 Rules", please specify which rules:
Notice of Proposal to Engage and Notice of First Public Meeting (or if public meeting not required, drafts of the documents identified in paragraphs 1 and 2 of subsection 18(2) of the Regulation) distributed after December 31, 2010 and on or before July 1, 2012.	<input type="checkbox"/> 2011 Rules <input type="checkbox"/> Elect into Current Rules	
Notice of Proposal to Engage or Notice of First Public Meeting distributed after July 1, 2012.	<input type="checkbox"/> Current Rules	

Current Environmental Compliance Approvals (please attach a separate list if more space is required)

Environmental Compliance Approval Number	Date of Issue (yyyy/mm/dd)
Environmental Compliance Approval Number	Date of Issue (yyyy/mm/dd)
Environmental Compliance Approval Number	Date of Issue (yyyy/mm/dd)
Environmental Compliance Approval Number	Date of Issue (yyyy/mm/dd)

Current Permit(s) to Take Water (please attach a separate list if more space is required)

Permit Number	Date of Issue (yyyy/mm/dd)
Permit Number	Date of Issue (yyyy/mm/dd)
Permit Number	Date of Issue (yyyy/mm/dd)
Permit Number	Date of Issue (yyyy/mm/dd)

Project Schedule

Estimated date for start of construction/installation (yyyy/mm/dd) **2013/11/25** | Estimated date for start of operation (yyyy/mm/dd) **2014/08/14**

2.2 – Statement of Project Technical Information Contact

The Project Technical Information Contact is the same as the Applicant (Identified in Section 1)

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application (electronically and in hard copy) is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I understand that by submitting this form, I am guaranteeing the completeness and accuracy of this form and the draft documents. Failure to submit the correct information will result in the application being returned as incomplete.
- That the information contained in the electronically submitted application form is the same as the information submitted in the hard copy submission.
- I have used the most recent application form (as obtained from the "Renewable Energy Approvals" section of the Ministry of the Environment and Climate Change website at <http://www.ontario.ca/environment-and-energy/renewable-energy-approvals> or from the Environmental Approvals Access and Service Integration Branch at 1 800 461-6290).

Name of Project Technical Information Contact (Please print) (Last name, first name)

Dudek, Derek

Company

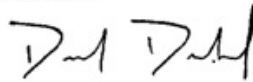
NextEra Energy Canada

Telephone Number (incl. area code) 519 294-1006	ext. 228	Fax Number (incl. area code)	Mobile Number (incl. area code) 519 318-0237
---	-----------------	------------------------------	--

Email Address

derek.dudek@nexteraenergy.com

Signature (hard copy submission **MUST** be signed)



Date (yyyy/mm/dd)

2017/04/27

Address

The Project Technical Information Contact Address is the same as the Applicant (Identified in Section 1)

Unit Number	Street Number 32185	Street Name (Include type and direction) Kerwood Road	PO Box
City/Town/Municipality/Unorganized Township Parkhill		Province/State Ontario	
Country Canada		Postal Code N0M 2K0	
Delivery Designator	Delivery Identifier	Postal Station	

2.3 – Other Approvals for Facility (Please attach a separate list if more space is required)

A separate list is attached

List all other environmental approvals/permits applied for related to this project or received in relation to this project

Approval Number	Approval Date (yyyy/mm/dd)
Approval Number	Approval Date (yyyy/mm/dd)
Approval Number	Approval Date (yyyy/mm/dd)
Approval Number	Approval Date (yyyy/mm/dd)

Ontario Power Authority Reference (i.e. FIT) Number (if applicable)

2.4 – Type of Renewable Energy Generation Facility (Select all that apply)

Wind	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 3	<input checked="" type="checkbox"/> Class 4	<input type="checkbox"/> Class 5
Other	<input type="checkbox"/> Biofuel	<input type="checkbox"/> Biogas	<input type="checkbox"/> Other (if other please describe):	
Anaerobic Digestion	<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 3	
Solar Photovoltaic	<input type="checkbox"/> Class 3			
Thermal Treatment	<input type="checkbox"/> Class 1	<input type="checkbox"/> Class 2	<input type="checkbox"/> Class 3	

2.5 – Generation of Electricity

Total Maximum Name Plate Capacity 60 MW (1 MW = 1000 kW / 1 kW = 0.001 MW)	Total Expected Generation Capacity MW (1 MW = 1000 kW / 1 kW = 0.001 MW)
--	---

Days and Hours of Operation

24 hours/day, 365 days/year

Section 3 – Site Information**3.1 – Project Location** (The site/location where project will be located) The Project Location is the same as the Applicant's Address (Identified in Section 1)**Civic Address**

Unit Number n/a	Street Number n/a	Street Name (Include type and direction) n/a
--------------------	----------------------	---

City/Town Bluewater	Province ON – Ontario	Postal Code
------------------------	--------------------------	-------------

Survey Address (Not required if the Civic Address is provided)

Lot/Part	Concession/Reference Plan	Municipality/Unorganized Township
----------	---------------------------	-----------------------------------

County/District	Province/State	Country	Postal Code
-----------------	----------------	---------	-------------

Non Address Information (where the project spans many locations or a large rural area, specify how the project area relates to the address provided)

Geo Reference (Southwest corner of property)

Map Datum NAD83	Zone 15	Accuracy Estimate
--------------------	------------	-------------------

Geo Referencing Method GIS	UTM Easting 446086.92m E	UTM Northing 4809845.28m N
-------------------------------	-----------------------------	-------------------------------

3.2 – Municipal or Local Authority Information (List all municipal or board authorities where the project is located. Attach a separate list if more space is necessary.)**Local Municipality (include each Single Tier or Lower Tier in which the project location is situated) / Unorganized Township**

Name of Municipality/Unorganized Township

Bluewater

Address

Unit Number	Street Number 14	Street Name (Include type and direction) Mill Avenue	PO Box
-------------	---------------------	---	--------

City/Town Zurich	Province ON – Ontario	Postal Code N0M 2T0
---------------------	--------------------------	------------------------

Telephone Number (incl. area code) 519 236-4351	ext.	Fax Number (incl. area code)	Mobile Number (incl. area code)
--	------	------------------------------	---------------------------------

Email Address
info@municipalityofbluewater.ca

Clerk

Last Name Overholt	First Name Charlene	Middle Initial
-----------------------	------------------------	----------------

Telephone Number (incl. area code) 519 236-4351	Email Address coverholt@municipalityofbluewater.ca
--	---

Is the project location situated in one or more Upper Tier Municipality? (i.e., county, regional or district municipality) Yes No**Is the project location situated in a Local Roads area?** Yes No**Is the project location in a Local Service Board area?** Yes No

3.3 – Site Information (Information about the site/location where project will be located)

Site Name

MOE District Office

Bluewater Wind Energy Centre

Southwest Region - Owen Sound District

Is any portion of the Project location on federally owned land or a reserve?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is any portion of the Project location on Crown Land?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Project location that is the subject of this application owned by the Applicant? If "no", please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Applicant the operating authority of the facility that is the subject of this application? If "no", please attach the operating authority name, address and phone number.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is the Project location in the area of the Niagara Escarpment Plan?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Project location in the area subject to the Oak Ridges Moraine Conservation Plan?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Project location in the Protected Countryside as shown in Schedule 1 to the Greenbelt Belt Plan?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Project location in the Lake Simcoe Watershed as defined in the <i>Lake Simcoe Protection Act, 2008</i> ?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the Project location in the Central Pickering Development Planning Area as shown in Schedule 1 to the Central Pickering Development Plan?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Has an Archaeological Report (s. 22) been prepared as part of the complete submission?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Has a Heritage Report (s.23) been prepared as part of the complete submission?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Has an Environmental Impact Study Report (s.38, s. 41 or s. 43) been prepared as part of the complete submission?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Has a Water Assessment Report or supplementary reporting on any additional mitigation (s.39, s. 40, s.44 s. 45) been prepared as part of the complete submission?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Does the Project require any authorizations under the <i>Endangered Species Act, 2007</i> ?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
If "yes", have they been obtained from the Ministry of Natural Resources?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Section 4 – Supporting Documents

4.1 – Supporting Documentation and Technical Requirements

This is a list of all supporting information to this application and is subject to the FIPPA and EBR.

Mandatory	Attachment	Attached	Reference	Confidential*
Yes	Proof of Legal Name of Applicant.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always Mandatory	<input type="checkbox"/>
Yes	A map that identifies the project location.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always Mandatory	<input type="checkbox"/>
	Name, Address and Phone Number of the Operating Authority.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory if applicant not operating authority.	<input type="checkbox"/>
	Name, Address and consent of land/site owner for the installation/construction and operation of the facility.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory if applicant not landowner	<input type="checkbox"/>
Yes	Project Description Report.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory	<input type="checkbox"/>
Yes	Design and Operations Report.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory for all but Class 2 Wind Facility.	<input type="checkbox"/>
Yes	Decommissioning Plan Report.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory for all but Class 2 Wind Facility.	<input type="checkbox"/>
Yes	Construction Plan Report.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory for all but Class 2 Wind Facility.	<input type="checkbox"/>
Yes	Consultation Report.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory for all but Class 2 Wind Facility.	<input type="checkbox"/>
	Development Permit under the <i>Niagara Escarpment Planning and Development Act</i> .	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Mandatory where permit required by NEC.	<input type="checkbox"/>
Yes	A copy of this application has been sent to the Ministry local district office(s).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Always Mandatory	<input type="checkbox"/>
	Report(s) that sets out a description of and rationale for the proposed change or alteration.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Mandatory for Amendment to REA applications.	<input type="checkbox"/>
	Document(s) required under Part IV the Regulation to be submitted as part of the application (list below).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/>
	Document(s) required for the purposes of obtaining an exemption from a provision of Part V of the Regulation (list below).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/>

Other Information Submitted in Support of the Application for the issue of a new, or amendment to an existing, Renewable Energy Approval, including any document that is required under Part IV of the Regulation and/or for the purposes of obtaining an exemption from a provision of Part V of the Regulation.

Title	Reference	Confidential*
Project Modifications Report		<input type="checkbox"/>
Additional Municipal Contact Information		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

Are you attaching an additional list of documents? Yes No

If there is not enough space to list all of the attached documents included in this application package, please include an additional listing of these attachments.

*Note: The collection of personal information in this application is necessary to administer the Ministry's approvals program, which is authorized pursuant to the *Environmental Protection Act*. The personal information collected in this application will be used to administer the program, including for the purposes of the Ministry's compliance and enforcement activities under the aforementioned acts, and for the purposes of making information in respect of the Renewable Energy Approval available to the public with the exception of payment information. Questions about the collection of the information can be directed to a Client Service Representative, Environmental Approvals Access and Service Integration Branch, 135 St. Clair Avenue West, 1st Floor, Toronto Ontario M4V 1P5; Telephone outside Toronto 1 800 461-6290 or in Toronto 416 314-8001 or Fax 416 314-8452.

**Renewable Energy Approval Application
Payment Information**

For Office Use Only			
Reference Number	Payment Received	Date (yyyy/mm/dd)	Initials
	\$		

- Note:**
- All fees should be paid in Canadian funds, payable to the Ontario Minister of Finance.
 - Credit card payments are accepted for payments under \$10,000 only.
 - This page can only be mailed or faxed to our office with this application. For the protection of your credit card information, do not submit by email.
 - If you are paying by certified cheque or money order, please staple your payment to this page.
 - Do not include this page in the copies of your application that are being provided to the local MOE District Office or the local municipality(s).
 - The information collected in this section of the form is considered confidential and will only be used to process your application fee.

Amount enclosed

\$ 300.00

Method of Payment

- Certified Cheque
 Money Order
 Visa
 MasterCard

Name on Card (please print)

*** to be called in**

Credit Card Number

Expiry Date (mm/yyyy)

Cardholder Signature

Date (yyyy/mm/dd)

If paying by certified cheque or money order, please attach it here.

Appendix A – REA Application Form – Additional Municipal Contact Information – Bluewater

Bluewater

Charlene Overholt, Clerk
Box 250, 14 Mill Ave.
Zurich, ON Canada
N0M 2T0
Phone: 519-236-4351 or 1-877-236-4351
Fax: 519-236-4329
info@municipalityofbluewater.ca

Huron East

Brad Knight, Clerk
72 Main Street South
P.O. Box 610
Seaforth, ON
N0K 1W0
Toll Free: 1.888.868.7513
Phone: 519.527.0160
Fax: 519.527.2561

Huron County

Susan Cronin, Clerk
1 Courthouse Square
Goderich, Ontario
N7A 1M2
Phone: 519.524.8394
Toll Free: 1.888.524.8394
Fax: 519.524.2044
huronadmin@huroncounty.ca

**Appendix B - Evaluating the Effectiveness of an Ultrasonic Acoustic Deterrent
in Reducing Bat Fatalities at Wind Energy Facilities (Proposed Study Design)**



Evaluating the Effectiveness of an Ultrasonic Acoustic Deterrent in Reducing Bat Fatalities at Wind Energy Facilities

Proposed Study Design for field data collection

Since 2006, Bat Conservation International (BCI), under the auspices of the Bats and Wind Energy Cooperative, has investigated the use of ultrasonic acoustic deterrents (UAD) to reduce bat fatalities at wind turbines. This technology offers a potentially mutually beneficial strategy of reducing bat fatalities at wind energy facilities, while allowing for the normal operation of wind turbines. Previous studies have shown promising results, but the technology requires further refinement and field testing to prove its effectiveness as an impact reduction strategy.

PROJECT TEAM

BCI, in partnership with Renewable NRG Systems (RNRG), U.S. Geological Survey (USGS), NextEra Energy (NextEra), and Natural Resource Solutions, Inc. (NRSI), will investigate the effectiveness of a UAD in reducing bat fatalities at three wind energy facilities in Ontario, Canada. With respect to data collection and analysis, BCI and USGS propose the following methodology, and will analyze the data and draft the report. NRSI will be responsible for data collection.

OBJECTIVES

The objective of this study is to test the effectiveness of a newly designed ultrasonic acoustic deterrent to reduce bat fatalities at wind turbines.

METHODS

The proposed study will occur across three wind energy facilities (Bluewater, Goshen, and Jericho) located in Ontario, Canada. A total of 16 turbines will be selected among these sites. Turbine selection was based on several factors, including landowner agreements, surrounding habitat, and existing monitoring requirements.

NRSI will monitor 16 wind turbines daily, weather and operational conditions permitting, between 13 July and September 30 2017 for a total of 80 days. We selected a randomized block design, which controls variation in fatality among turbines and offers greater power to detect treatment difference compared to the completely randomized design. Using 16 turbines (blocking factor), we will assign each treatment to 8 turbines/night. Treatments will be randomly assigned on a nightly basis and treatments will be rebalanced every 16 nights so that each turbine will receive each treatment 8 times over a 16-night period. The proposed study duration allows for 5 balanced sets over the 80-night period.

Searchers will walk along 5-m wide transects within a 90-m radius of each turbine. These larger than normal plots are necessary to reduce potential detection bias. It is possible that deterrents may only push bat activity to the tips of the blades and that bats struck near the tip will fall farther from the turbine than those that are struck closer to the hub.

Data recorded for each turbine search will, at a minimum, include data, start time, end time, observer, and weather conditions (e.g., temperature, cloud cover). Because treatments will be rotating on a nightly basis, it is imperative to correctly classify 'fresh' carcasses (i.e., those determined to have died the night before the search) to relate to the given treatment condition. Carcass data will, at a minimum, include species, sex, age, observer name, identification number of carcass, distance and azimuth from turbine, carcass condition, and time of death (e.g., fresh or 1 day, 2 day, etc). Certain data may not be possible, given the condition of the carcass.

As this is a comparative study (i.e., we are not estimating fatality for the different treatments), searcher efficiency and carcass removal trials are not necessary. All comparisons will be done within the statistical block (i.e., the turbines), so adjustments for detectability differences between turbines is not required. We are assigning treatments each night and blocking on the turbine, thus any difference in configuration of the searchable area or population of scavengers that might affect how many carcasses are found will be a part of the blocking factor.

BCI and NSRI will coordinate data collection and transfer during the field season. BCI and USGS will analyze the data and draft a preliminary report for review by project team members. Afterwards, BCI will draft a final report, considering comments and edits from project team members, and submit a manuscript to a peer-refereed scientific journal.

Appendix C - RNRG Bat Deterrence Program 12/9/16 Presentation



RNRG Bat Deterrence Program

12/9/16

Brogan Morton

bpm@nrngsystems.com

Discussion Overview

- What are we trying to solve?
- RNRG ultrasonic deterrent
 - Technology
 - Turbine integration
 - Initial results
- Next steps

Please ask questions throughout!

RNRG

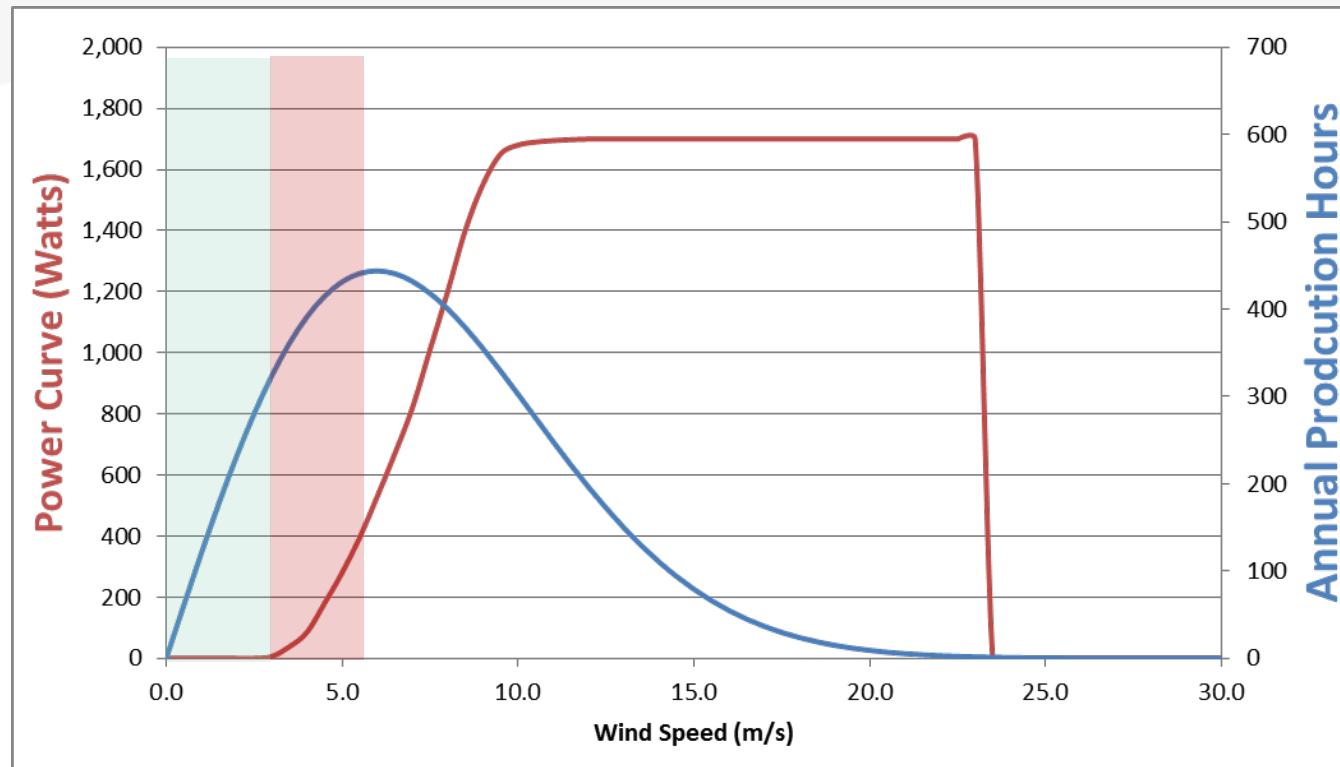
Program Overview

- Renewable NRG Systems (RNRG) and Bat Conservation International (BCI) are collaborating to develop a commercially viable bat deterrent technology for wind turbines and to quantify the effectiveness of the deterrents.
 - BCI leading bat conservation group in wind and has previous experience and expertise with deterrent devices.
 - RNRG has over 30 year in product development for wind

RNRG

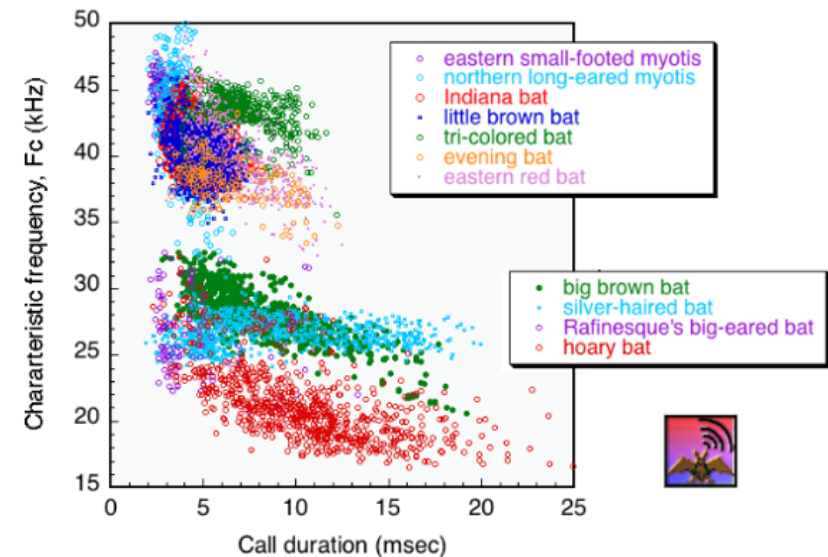
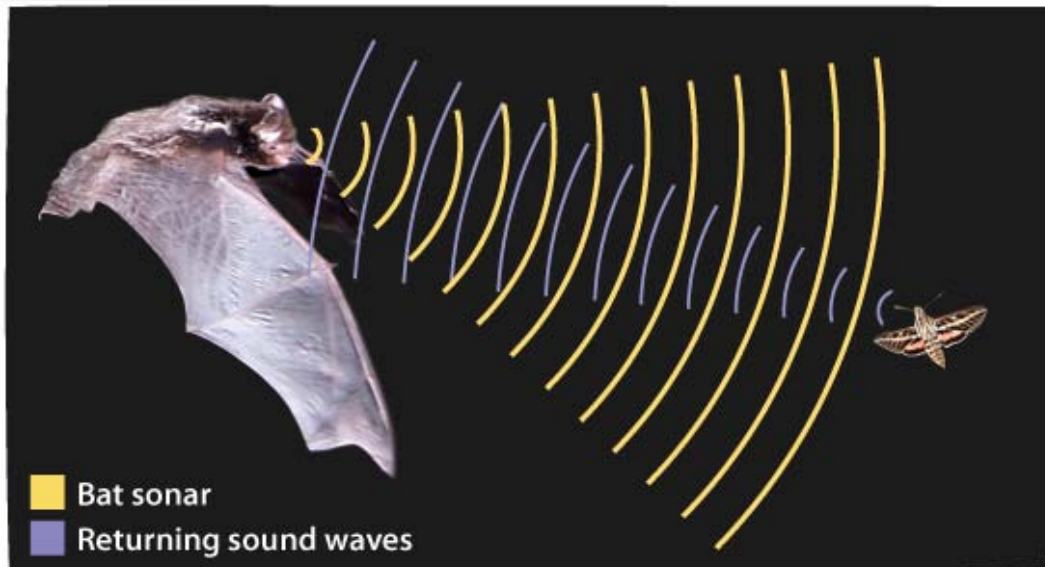
Current Solution – *Operational Minimization*

- Industry commitment to feather blades before cut-in speed on all projects
- Common project curtailment between 4.5 m/s and 6 m/s



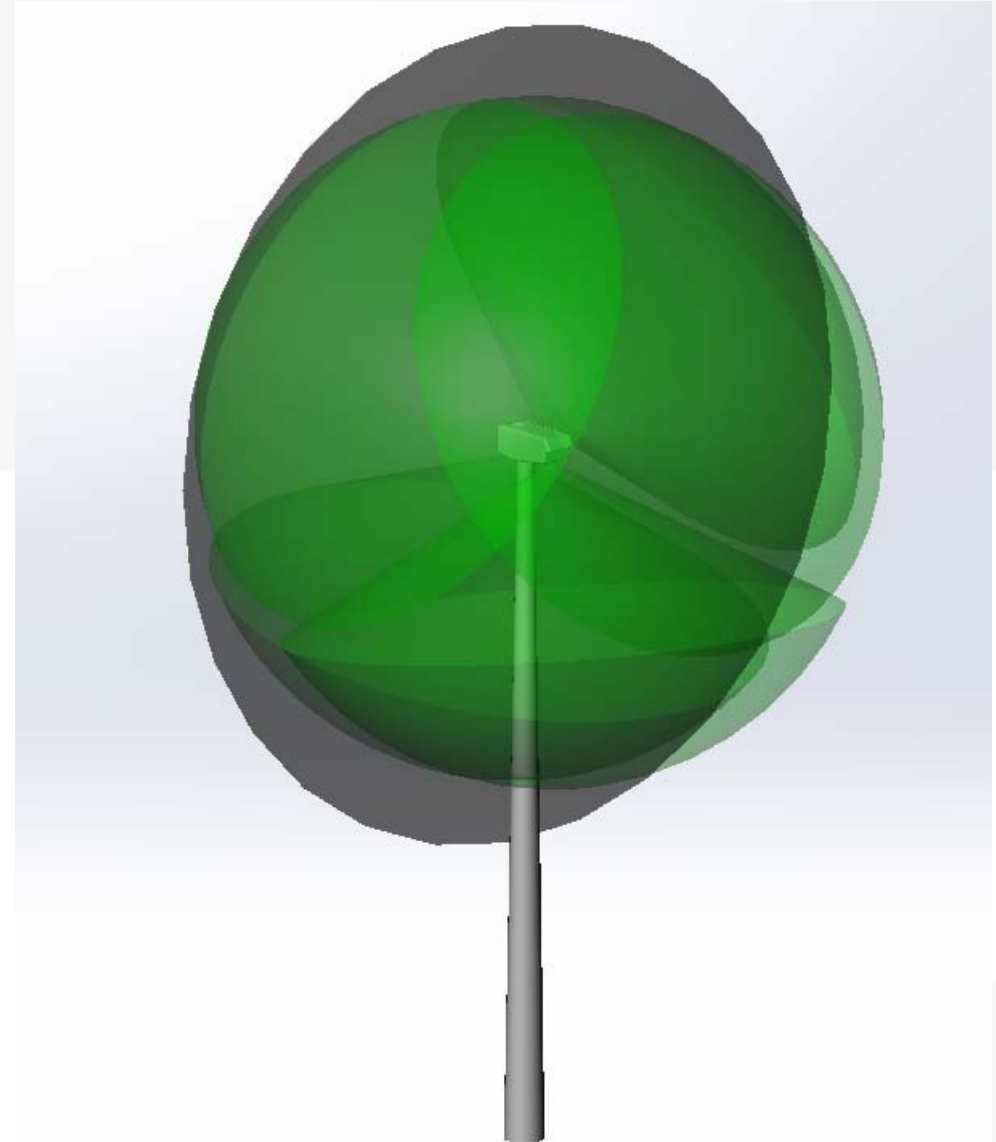
Ultrasonic Deterrent

- Instead of curtailing to avoid take, deter bats from the turbine
- Many bats rely on echolocation for orienting, foraging and communication
 - Echolocation “jamming” most effective defense against bats ever documented ([Grote’s tiger moth, *Bertholdia trigona*](#))



Ultrasonic Deterrent

- Deterrent units create a broad range of frequencies to deter different bat species
- Nacelle-mounted deterrent units generate an ultrasonic field
- Push bat activity away from nacelle and rotor swept area



Ultrasonic Deterrent



- No impact beyond the rotor sweep
- Bats are excluded from only a small airspace

Example Wind Plant

CONFIDENTIAL



Ultrasonic Deterrent - *History*

- BWEC began in 2006 with lab & preliminary field tests
- BCI conducted first operational test, published report (Arnett et al. 2012)
- In 2015 DOE funds BCI to demonstrate deterrents capability



Ultrasonic Deterrent - *Current Design*

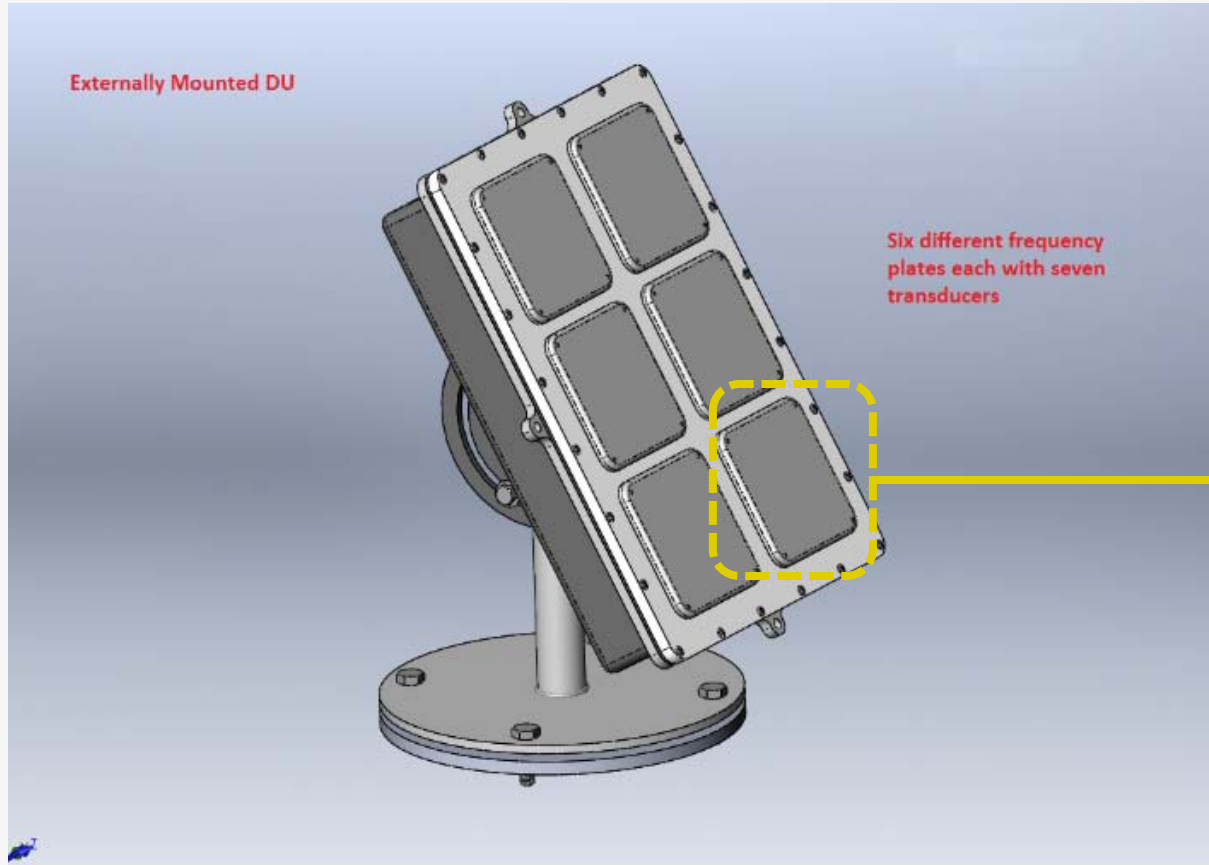
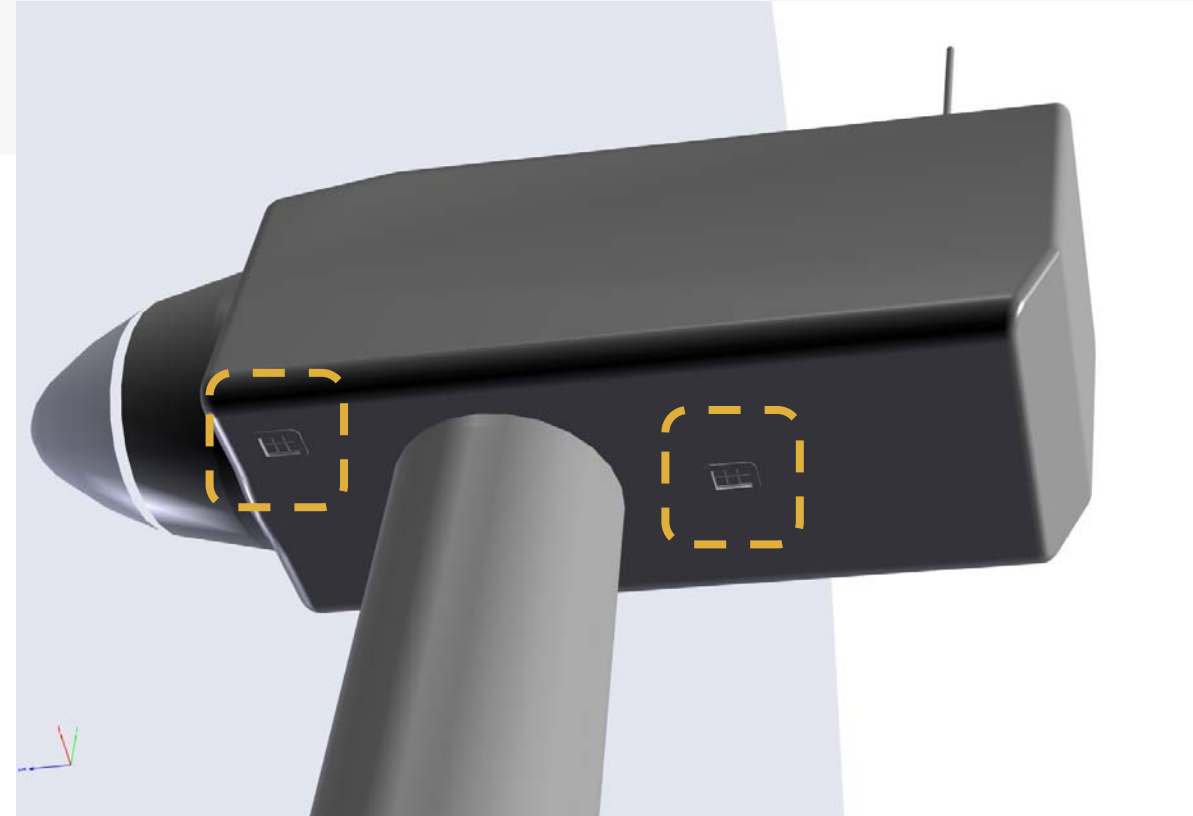
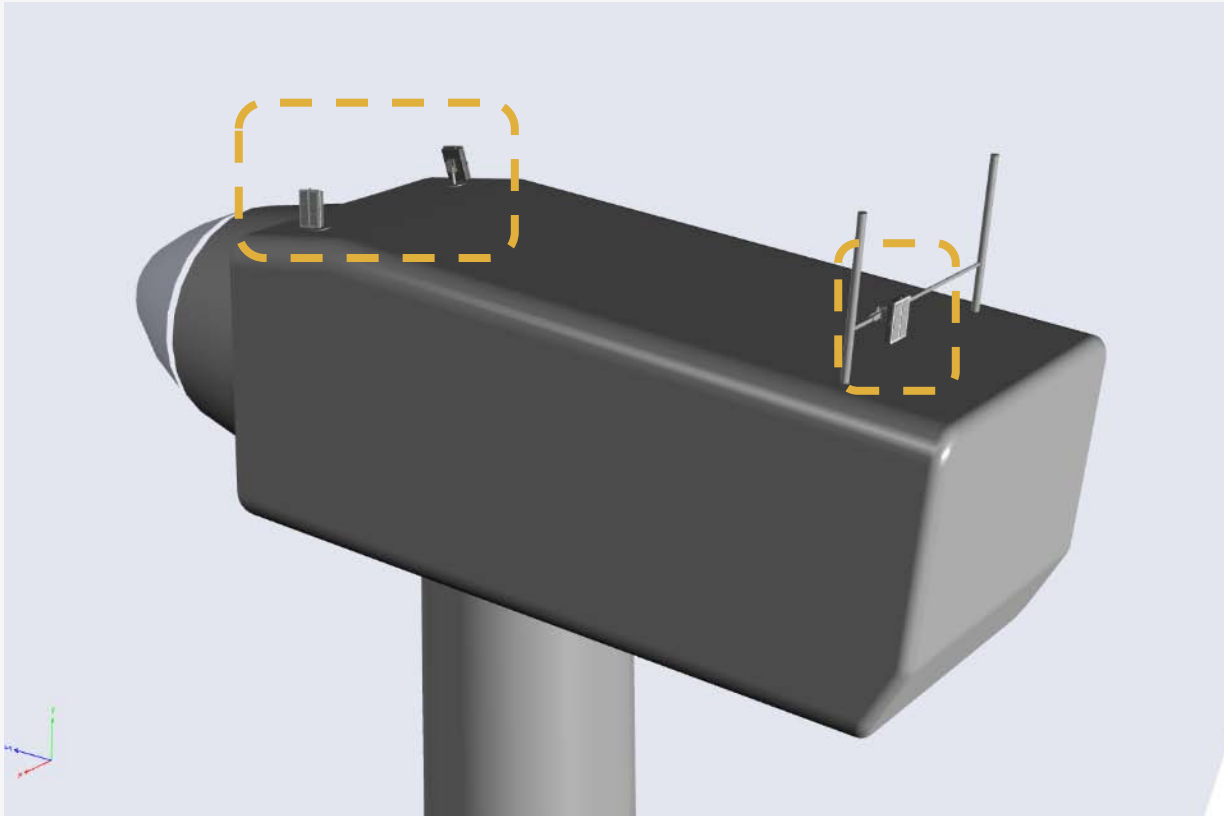


Image Removed - Proprietary Information

Use several nacelle-mounted deterrent units to generate an ultrasonic field around turbine nacelle and rotor sweep

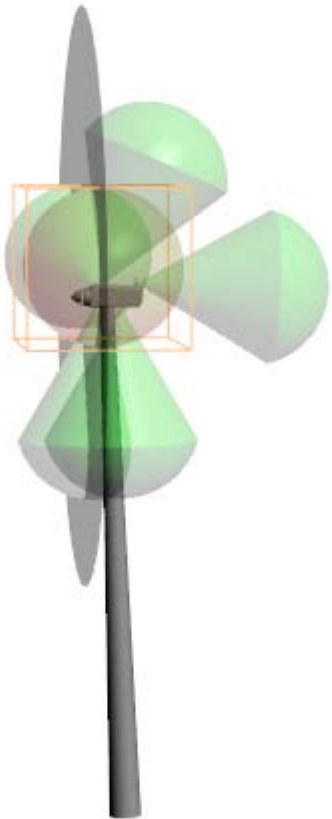
Ultrasonic Deterrent – *Physical Locations*

- Deterrent Unit Locations

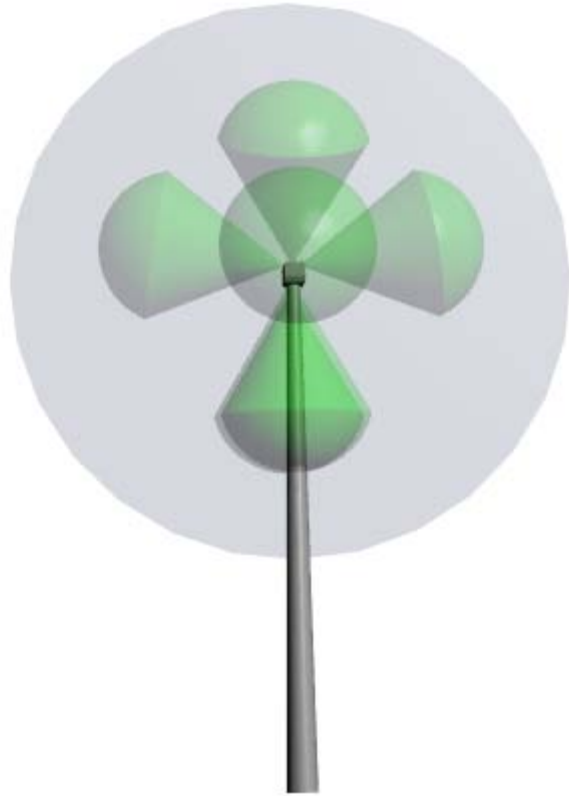


Ultrasonic Deterrent - *Sound Pattern & Levels*

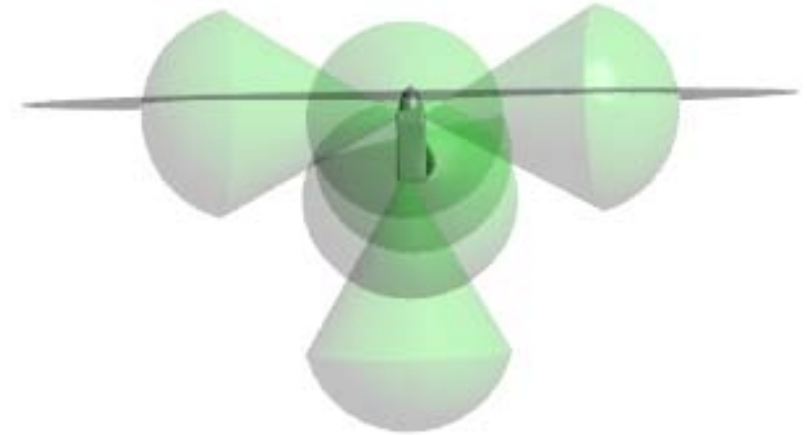
Side



Back



Top



Coverage based on observed/empirical data from field testing (e.g., *Myotis* spp., big brown bats [*Eptesicus fuscus*] and silver-haired bats [*Lasionycteris noctivagans*])

Questions & Comments

CONFIDENTIAL

RNRG

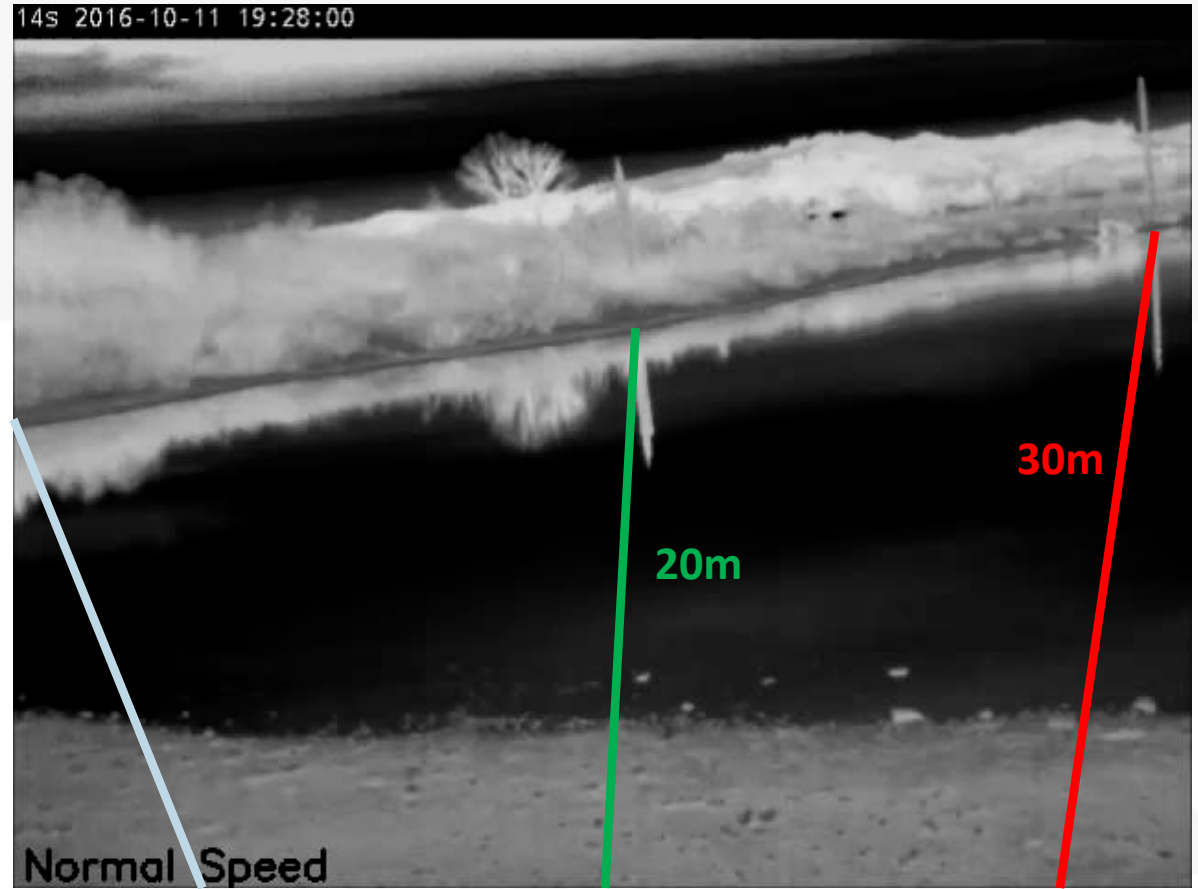
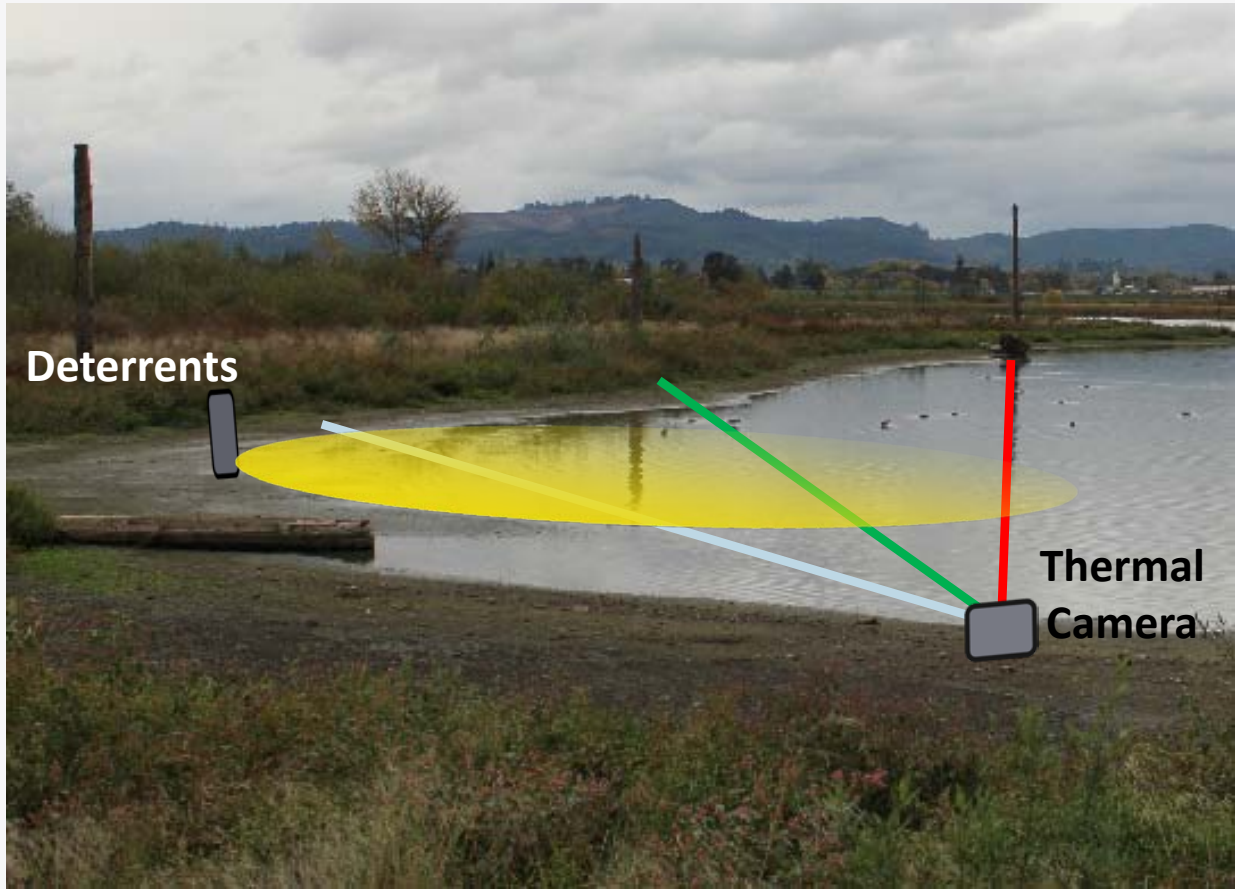
Ultrasonic Deterrent - *Preliminary Test*

- Pond outside Portland OR
- Record bat activity over a pond during control and treatment periods
- Conducted on *Myotis* species
- Conducted tests after bats were first observed and ended when few bats were observed



Ultrasonic Deterrent - *Preliminary Test*

CONFIDENTIAL



RNRG

Ultrasonic Deterrent - *Preliminary Test*

CONFIDENTIAL



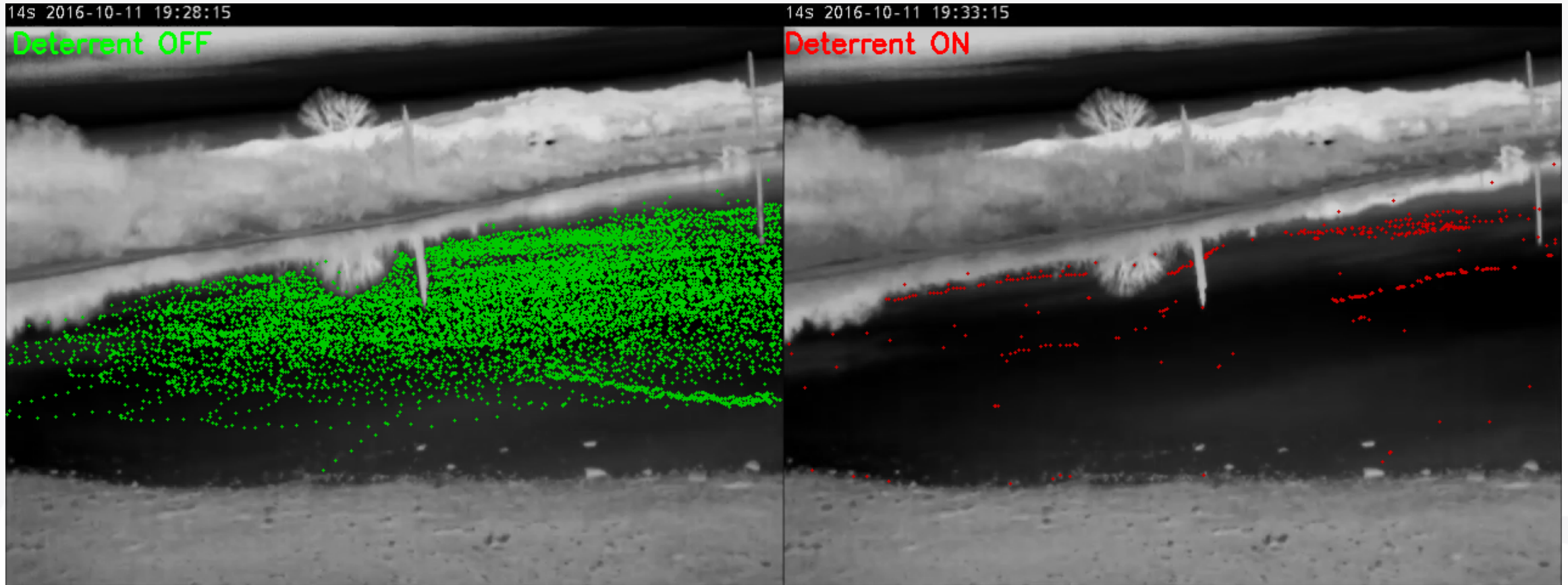
[VIMEO](#)

[LOCAL](#)

RINRG

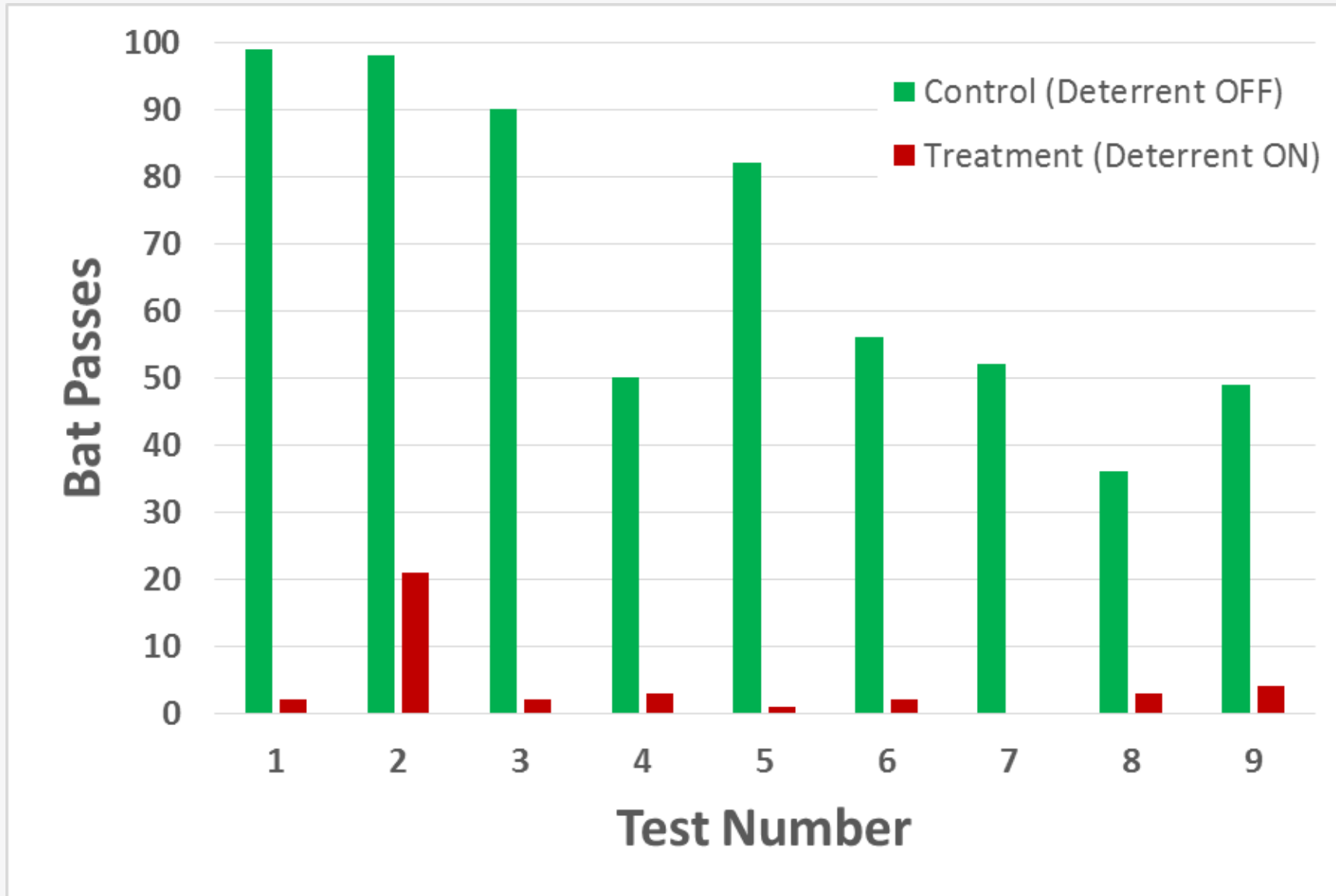
Ultrasonic Deterrent - *Preliminary Test*

CONFIDENTIAL



RNRG

Ultrasonic Deterrent - *Preliminary Test*



Testing Total:

Control – 612

Treatment - 38

94% Reduction

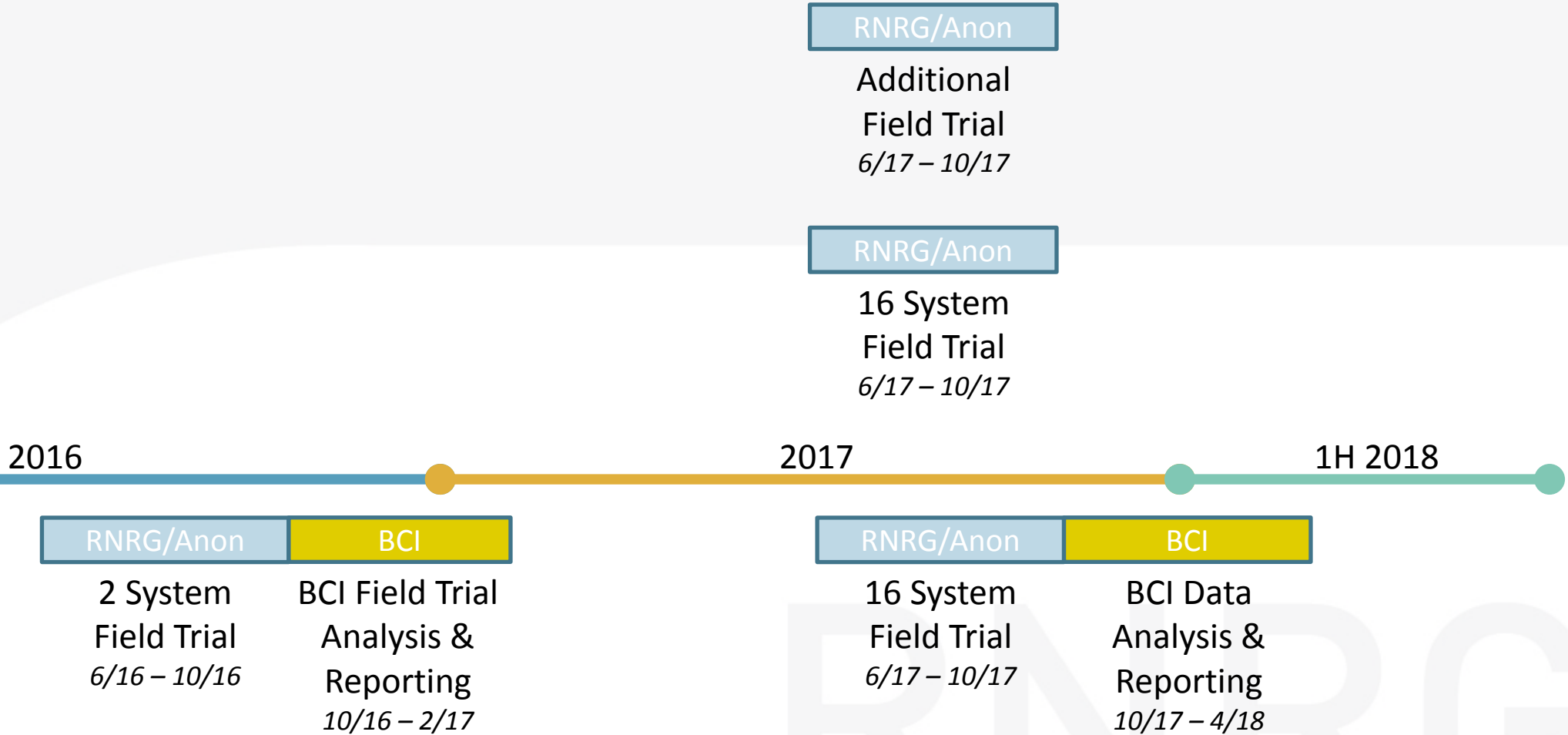
NRG

Future Testing

CONFIDENTIAL

Other Testing

DOE Project



Questions & Next Steps

CONFIDENTIAL

RNRG

Appendix D - RNRG Installation Notes Bat Deterrent System

CONFIDENTIAL

RNRG Installation Notes

Bat Deterrent System

Authors:
Cody Spiegel

For:
NextEra



TOP OF NACELLE

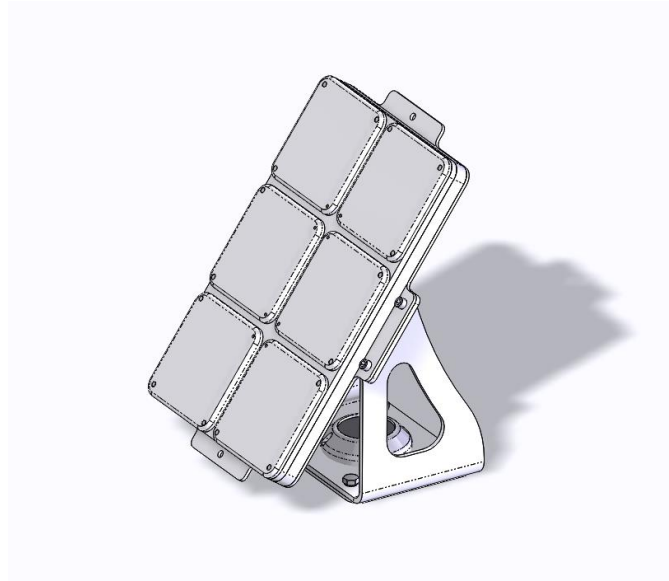


Figure 1 Deterrent for Top of Nacelle

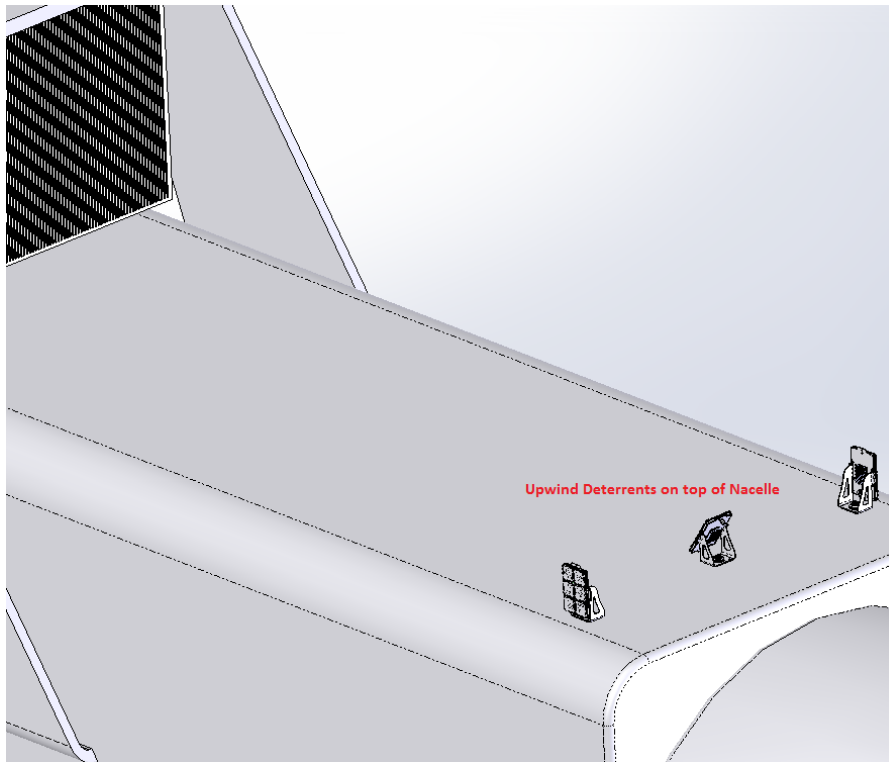


Figure 2 Three upwind deterrents on top of Nacelle

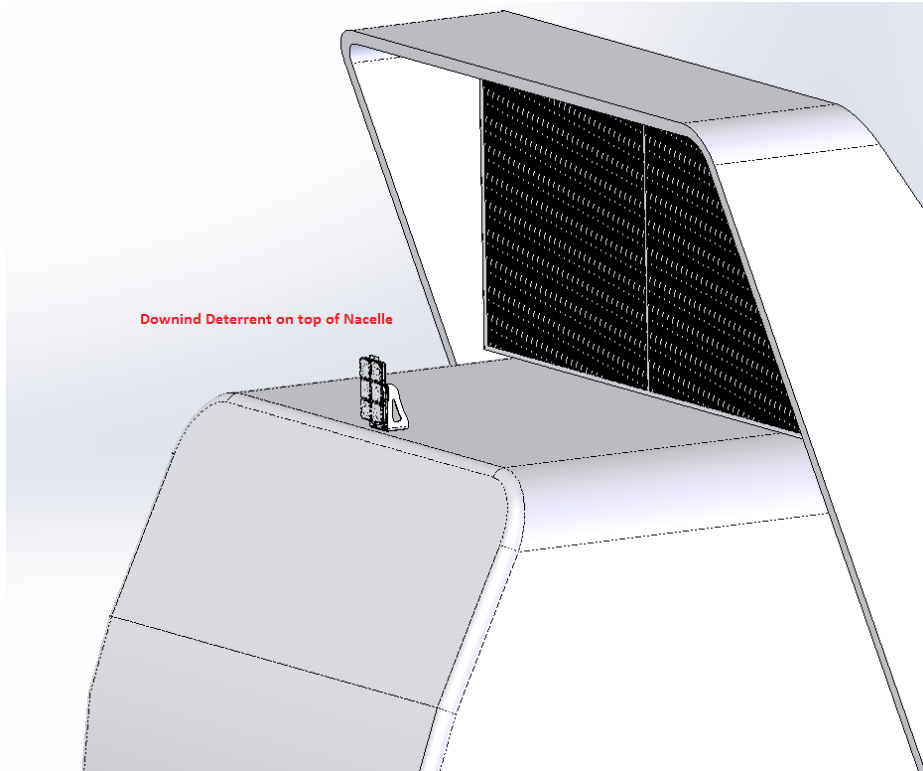


Figure 3 Downwind Deterrent on top of Nacelle

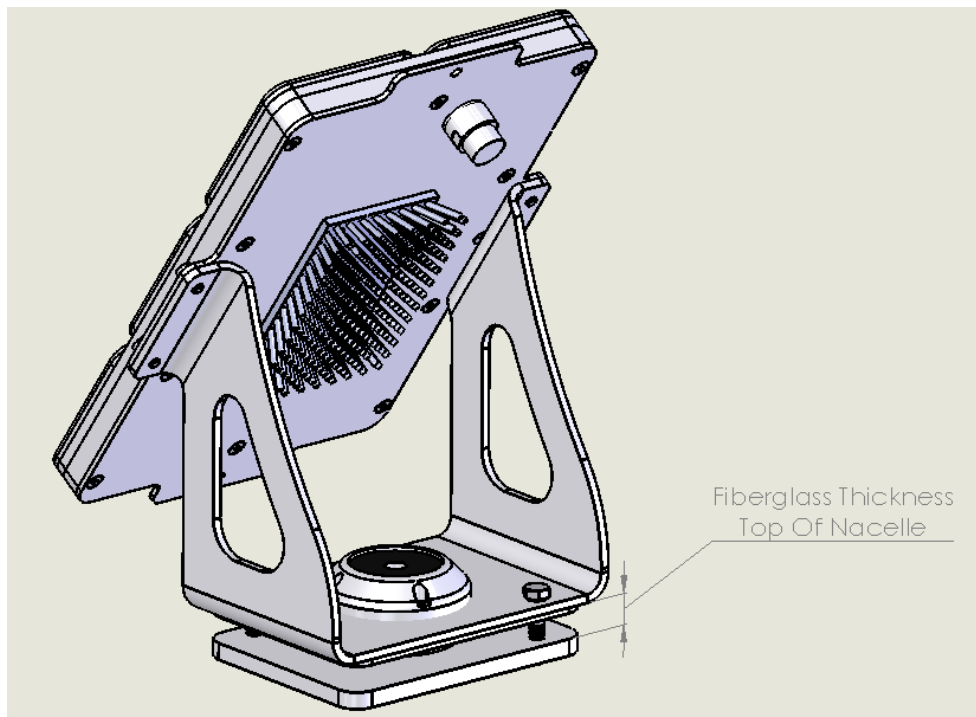


Figure 4 Top Mount Deterrent Assembly

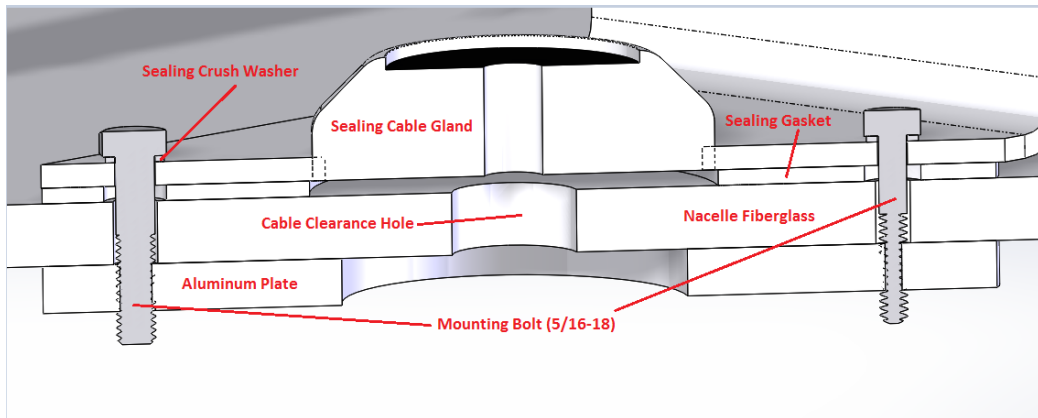


Figure 5 Cross section of top mount assembly

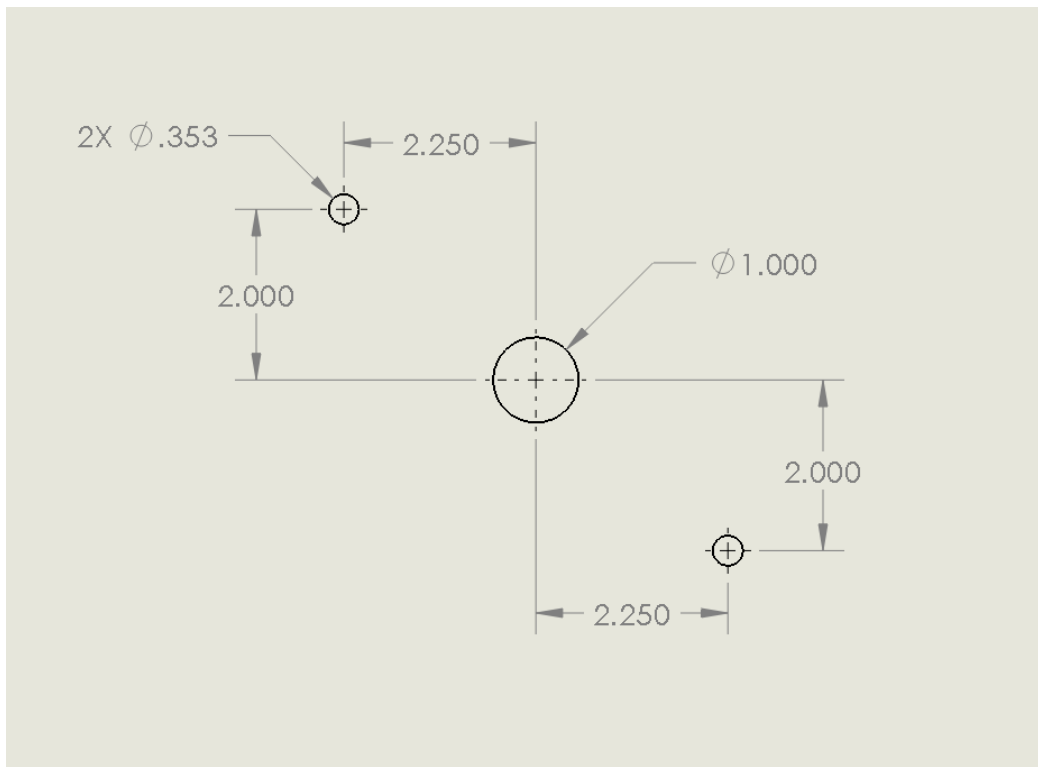


Figure 6 Top mount fiberglass drill pattern

BOTTOM OF NACELLE

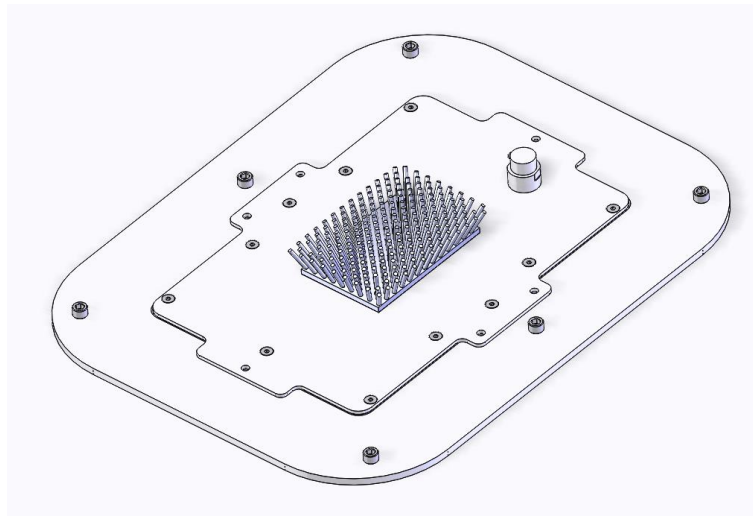


Figure 7 Bottom mount deterrent viewed from inside Nacelle

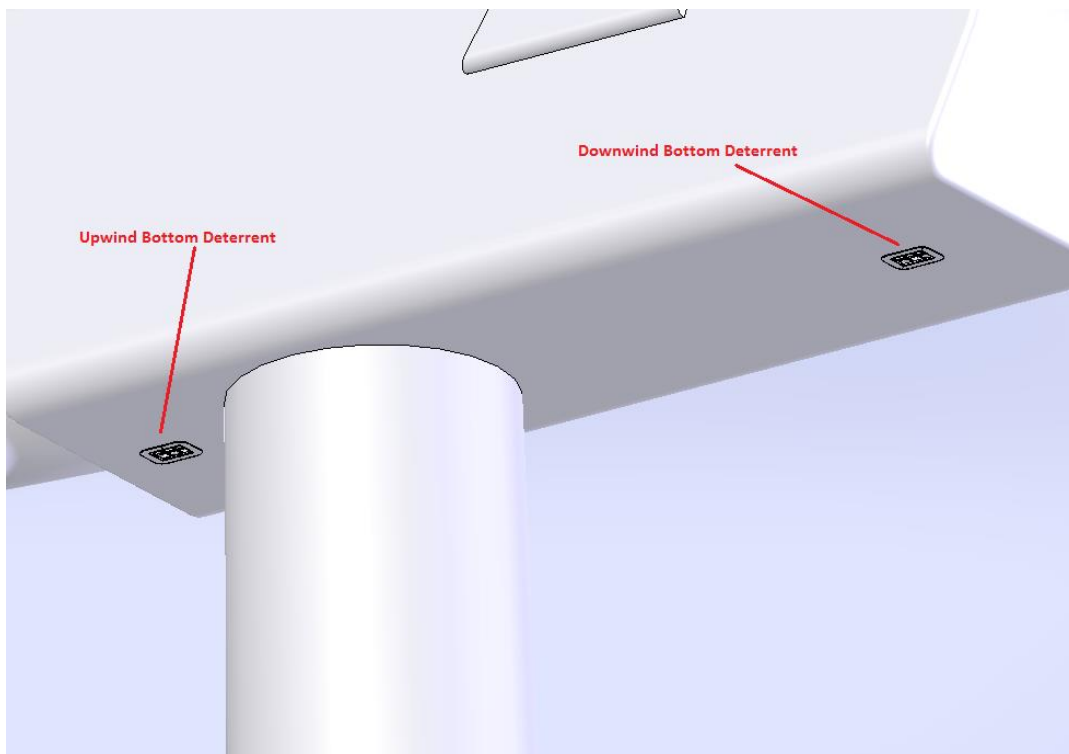


Figure 8 Upwind and Downwind Bottom Deterrents

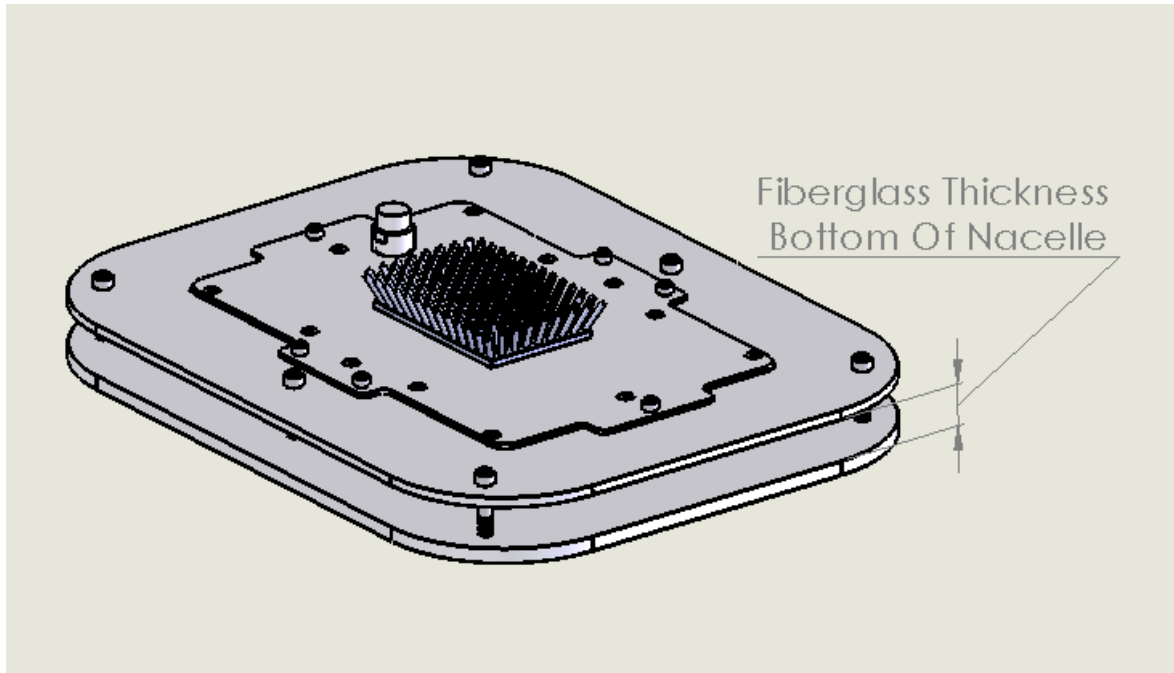


Figure 9 Bottom mount deterrent assembly

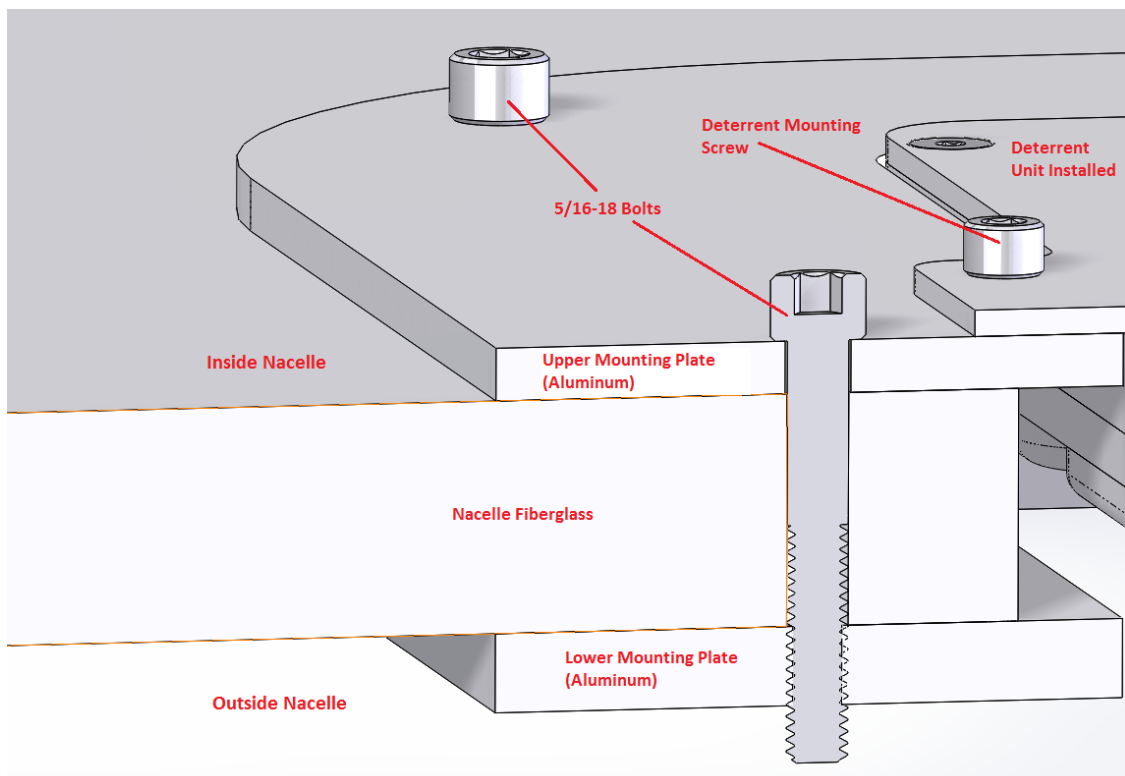


Figure 10 Cross section of bottom mount assembly

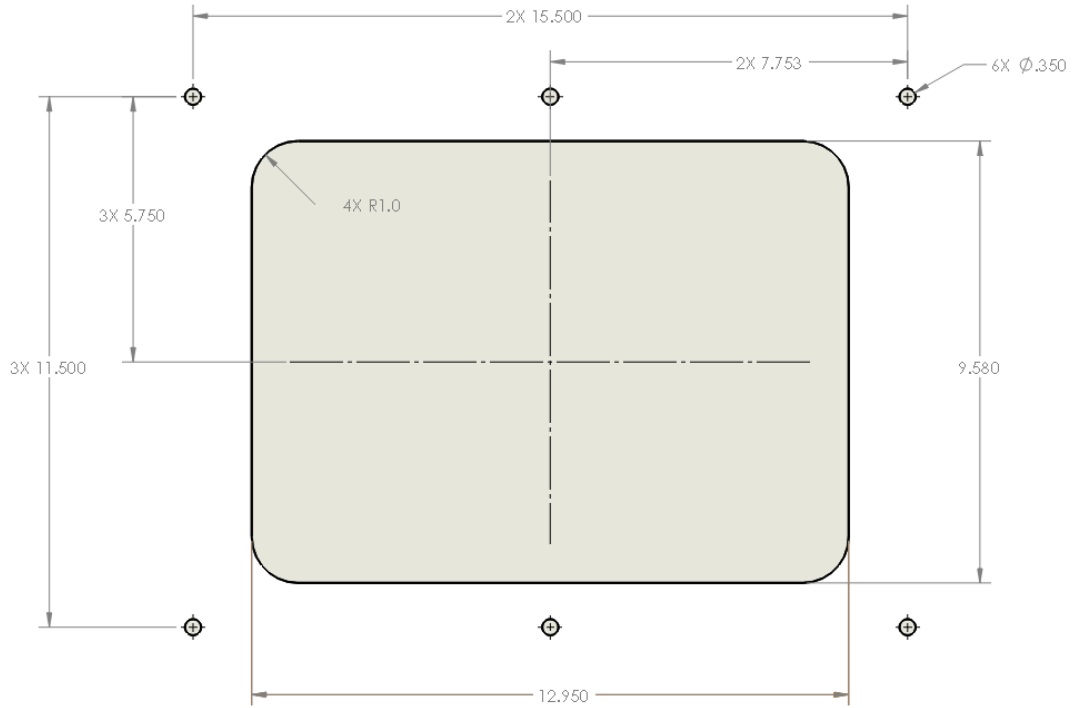


Figure 11 Bottom mount fiberglass drill/cut pattern

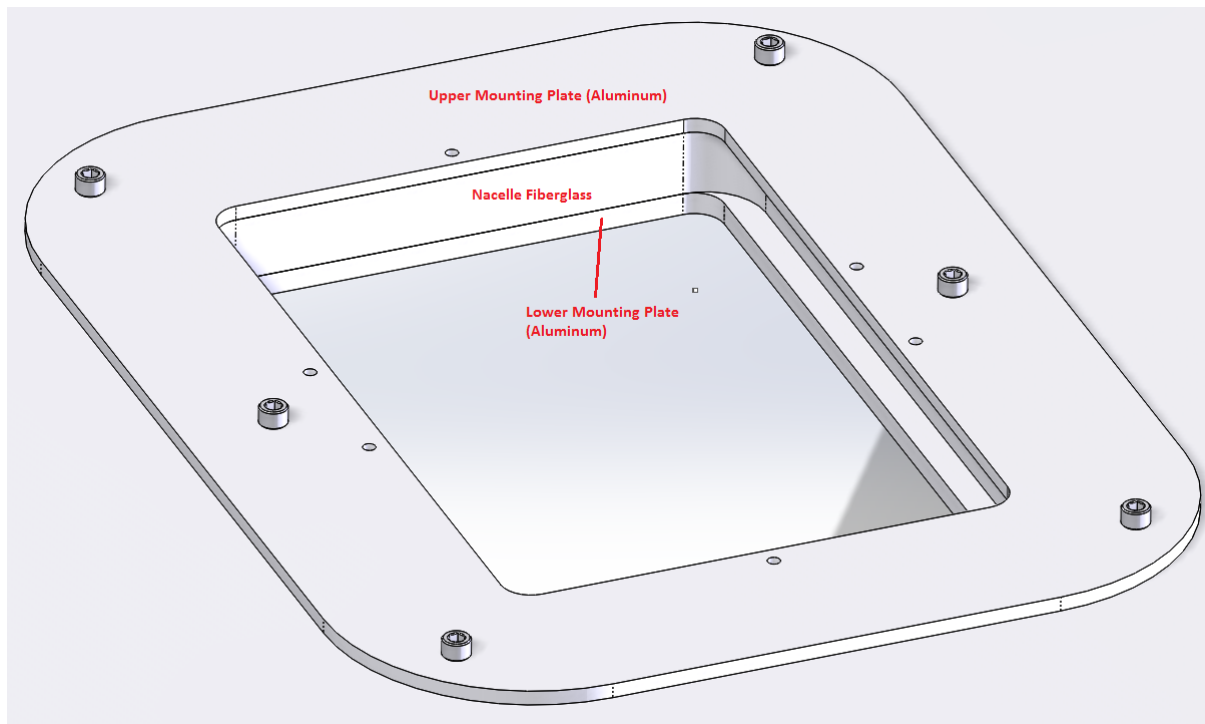


Figure 12 Lower Deterrent Mounting Hardware without Deterrent

Appendix E – Project Proposal: “Installation of an Ultrasonic Acoustic Deterrent to Test Effectiveness at Reducing Bat Fatalities at Wind Energy Facilities



Installation of an Ultrasonic Acoustic Deterrent to Test Effectiveness at Reducing Bat Fatalities at Wind Energy Facilities

Project Proposal

NextEra Energy, Canada, LP (NEEC) proposes to partner with Bat Conservation International (BCI) and Renewable NRG Systems (RNRG) to implement a test of an ultrasonic acoustic bat deterrent on a study group of 16 turbines across the Bluewater, Goshen, and Jericho Wind Energy Centres.

The purpose of the test is to document the effectiveness of bat deterrent systems by providing statistically significant proof that these systems reduce the mortality of bats at the wind turbines on which they are installed.

Background

The mission of Bat Conservation International, Inc. is to conserve bats and their ecosystems across the world. BCI combines science-based conservation efforts, research, and education to ensure that the bat population is protected now and into the future. BCI created the Bats and Wind Energy Cooperative (BWEC), a partnership between regulators, scientists, and industry, to pursue research and technology to investigate methods to reduce the number of bat fatalities at wind-energy sites.

BWEC began working on research and development of an ultrasonic acoustic deterrent (UAD) in 2006, beginning with preliminary lab and field studies with early generation devices. By reducing the ability of bats to capture prey items near turbines, UADs may be as or more effective than curtailment and allow wind energy facilities to operate without having to curtail to avoid risk to bats. This provides an economically feasible and ecologically sound approach to reducing bat fatalities.

In 2009 and 2010, the BWEC conducted the first ever test of the efficacy of reducing bat fatalities at an operational wind energy facility (Locust Ridge Wind Power Project, Pennsylvania; Arnett et al. 2013). Results showed a significant reduction in hoary bat and silver-haired bat fatalities, both of which are species that are susceptible to collision with wind turbines.



Overview of RNRG Acoustic Bat Deterrent System

Recently, RNRG has developed a bat deterrent system based on similar technology, and has made some critical improvements to make this technology more practical and feasible. Testing of this system on wind turbines started in 2016 with several full scale tests planned for 2017. All the testing that has been performed by RNRG has been in partnership with BCI. Please see attachment 3 for additional details.

The frequency emissions of these devices are above human hearing. The transmission of ultrasonic sound is very low beyond the swept rotor area; therefore no sound from the deterrent can be heard by humans or animals on the ground.

The devices are mounted on the nacelle of the turbines and are in an open area and bats are free to move in and out of the volume of airspace occupied by the deterrent sound. No harm (e.g., behavioral or physiological) to any bat species is expected. The frequency (kHz) and sound pressure levels (SPL) are within the range of what these species normally emit, thus the devices do not subject these bats to any sound beyond their threshold of tolerance. Observations in previous studies showed that once the device is turned off, bats re-occupy the airspace within seconds. Furthermore, bats continue to use the same airspace even after multiple nights of study, indicating no harm has occurred and that they have not been permanently excluded from the area.

Please see Appendix C and D for more details on the devices.

Study Plan

Please see Appendix B for a detailed study plan prepared by Bat Conservation International. At a high level, a sample of 16 turbines will be selected from the Bluewater, Jericho, and Goshen Wind Energy Centres. The following turbines are currently under consideration, and will be finalized upon submittal of final REA Amendment application(s):

Bluewater: (29, 30, 8, 21)

Goshen: (19, 20, 32, 33, 38, 59, 62, 64, 77)

Jericho: (12, 23, 44)

If unforeseen circumstances preclude the use of any of these turbines for testing, the following turbines can be considered as alternates:



Alternate Turbines: Goshen T60, Jericho T60

The testing will take place from July 13- September 30, 2017.

The study will follow a randomized block design, which controls variation in fatality among turbines and offers greater power to detect treatment difference compared to the completely randomized design. All 16 turbines will have deterrent devices installed. Each treatment (deterrent on vs deterrent off) will be applied to 8 turbines/night. Treatments will be randomly assigned on a nightly basis and treatments will be rebalanced every 16 nights so that each turbine will receive each treatment 8 times over a 16-night period. The proposed study duration allows for 5 balanced sets over the 80-night period.

We will apply for an REA amendment to permit the installation of prototype UAD's on the 16 study turbines. Prototype devices are anticipated to be nearly identical to commercial devices that will be available in 2018. The form factor of the prototype and commercial units are exactly the same, as are the design of the ultrasonic speakers which are the critical element for producing the ultrasound. The circuit board will change slightly to reduce the thermal loads and enable MODBUS communication, but won't change the basic function of the unit itself. The commercial devices are expected to be in place for life of project.

The installation and operation of the UAD will not have any effect on the operation of the turbine. We would otherwise comply with all the Ministry of Natural Resources and Forestry's (MNRF) Bird and Bat Guidelines for Wind Power Projects. The turbines selected for the study are not part of the formal post-construction mortality monitoring that is currently underway in order to comply with REA conditions. However, if a site testing the UADs were to exceed the mortality threshold at the formally monitored turbines, we would still undertake mandatory curtailment across the site in 2018.

If a species-at-risk (SAR) mortality is documented during the course of the study, MNRF will be notified as required under the ESA. NEEC will follow the requirements of each project Operational Mitigation Plan (OMP) in the event that SAR mortality is documented during the study.

Communication Plan

Project Team Members (NEEC, BCI, and RNRG) will coordinate weekly before and during the study, and provide updates to MNRF and MOE as appropriate. BCI, with support of Manuela Huso at the US Geological Service (USGS), will analyze the data and draft a



preliminary report for review by project team members. Afterwards, BCI will draft a final report, considering comments and edits from project team members, and submit a manuscript to a peer-refereed scientific journal.

NEEC is looking forward to the opportunity to conduct this research that will provide valuable information regarding the effectiveness of acoustic bat deterrents in Ontario. We are optimistic that this study will enhance conservation benefits for bats by reducing direct mortality, while simultaneously allowing for the generation of emission free wind energy, in an effort to lessen the harmful impacts of climate change.



Appendices

- A. (blank)
- B. Bat Conservation International, Evaluating the Effectiveness of an Ultrasonic Acoustic Deterrent in Reducing Bat Fatalities at Wind Energy Facilities (Proposed Study Design)
- C. Renewable NRG Systems, RNRG Bat Deterrence Program 12/9/16
- D. Renewable NRG Systems, RNRG Installation Notes Bat Deterrent System

Appendix F – Ministry of Natural Resources Letter of Support

Resource Development Section
Natural Resources Conservation
Policy Branch
Policy Division
Ministry of Natural Resources and
Forestry
300 Water Street
Peterborough, ON K9J 8M5

Section du développement des
ressources
Direction des politiques de conservation
des richesses naturelles
Division de l'élaboration des politiques
Ministère des Richesses naturelles et de
la Foresterie
300, rue Water
Peterborough (Ontario) K9J 8M5



Jennifer Tuck
Director, Regulatory Affairs and Government Relations
NextEra Energy Canada
390 Bay Street, Suite 1720, Toronto, ON M5H 2Y2
Jennifer.tuck@nexteraenergy.com

May 19, 2017

Dear Ms. Tuck,

Thank you for the research project proposal that NextEra submitted to MNRF on April 12, 2017. Our understanding of key components of your proposed project include:

- the testing of ultrasonic acoustic bat deterrent equipment at a group of 16 turbines at three NextEra wind projects in Ontario,
- documenting the results and providing statistically significant proof that the ultrasonic acoustic deterrent systems can reduce the mortality of bats at the wind turbines on which they are installed and
- partnership with Bat Conservation International, Renewable NRG Systems and Natural Resource Solutions Inc., to complete the study

It is our understanding that NextEra has briefed the Ministry of the Environment and Climate Change (MOECC) about this proposed project. The MOECC has advised that an amendment to the Renewable Energy Approvals (REA) for NextEra's Bluewater, Jericho, and Goshen Wind Energy Centres will be required. MNRF further understands that NextEra will be submitting a modifications document in accordance with MOECC's *Technical Guide to Renewable Energy Approvals, 2017*. The MOECC has requested NextEra include a letter of support for the project from MNRF as part of this modifications document.

MNRF supports your project subject to the following conditions:

- NextEra will continue to comply with the post-construction monitoring requirements outlined in the project's Renewable Energy Approval and in accordance with the *Bats and Bat Habitats: Guidelines for Wind Power Projects*. This monitoring will continue to be conducted concurrently on a different subset (30%) of the wind turbines at the proposed wind power facilities.
- NextEra will continue to comply with the Operational Mitigation Plan (OMP) implemented in accordance with the Section 23.20 of Ontario Regulation 242/08

under the Endangered Species Act applicable to each of the affected wind power projects.

- NextEra and MNRF will enter into a data sharing agreement for this project in support of the ministry's research efforts related to bats in Ontario.

MNRF has reviewed your proposal and the additional information that you have provided and the ministry is supportive of the proposed project for the duration of the study period from July 1 to September 30, 2017.

Based on the success of the project, MNRF encourages NextEra and its partners to consider expanding the study period into additional years. Such an approach will enhance the consideration of impacting variables (e.g. changing migration routes) and serve to better inform the science related to this new technology.

MNRF supports research efforts that can help inform Ontario-specific knowledge about bats, including the development and testing of innovative approaches to mortality mitigation.

We look forward to updates from you regarding the progress of the study and review of the draft and final report once the project is completed. We appreciate being copied on all correspondence with MOECC related to the study project. Please do not hesitate to contact, Hal Leadlay, Coordinator, Resource Development Section (705) 755-1827, should you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Desroches', written in a cursive style.

Pauline Desroches
Manager, Resource Development Section

cc. Mohsen Keyvani, MOECC
cc. Hal Leadlay, MNRF