

# Goshen 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 0558-9GUJ8T for Installation of Acoustic Bat Deterrent Devices**

Dear Mr. Keyvani,

Goshen Wind, LP (“Goshen”) received a Renewable Energy Approval (“REA”) from the Ministry of the Environment and Climate Change on July 24, 2014. The Goshen Wind Energy Centre (the “Project”), consists of 63 wind turbine generators and has a total name plate capacity of approximately 102-megawatts. Goshen 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 nine (9) different turbines to be located on the nacelles of each turbine as an additional mitigation strategy to reduce risk of bat collisions with the turbines.

## Proposed Project Modifications

The proposed devices will be located on the nacelles of existing Turbines 19, 20, 32, 33, 38, 59, 62, 64, and 77; are inaudible to humans, pets, or livestock; and require no specialized equipment for installation. Note that Turbine 60 may also be used as an alternate to one of the aforementioned turbines. 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. Goshen 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**

<b>Approved Commitment</b>	<b>Proposed Modification and Details</b>	<b>Rationale for Proposed Modification</b>	<b>New Potential Environmental Effects</b>	<b>New Mitigation Measures and/or Monitoring Requirements</b>
No specific	Specifically permit	Goshen wishes to	None. The devices	<ul style="list-style-type: none"><li>• Testing of</li></ul>

# Goshen Wind, LP

<p>mention of acoustic bat deterrent devices.</p>	<p>installation of prototype acoustic bat deterrent devices on nine (9) existing turbines. If the prototypes are determined to be successful, the devices will be replaced with almost identical commercial devices in 2018.</p> <p>The form 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>study the ability of acoustic bat deterrent devices to reduce the risk of bat collisions with wind turbines.</p>	<p>will be located on 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>deterrent devices does not trigger any further mandatory monitoring under the REA. As part of the effectiveness study, Goshen 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"> <li>Seasonal updates (as necessary) and year-end reporting to MNRF and MOECC</li> </ul>
---	--	---	--	---

## 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.

# Goshen 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.

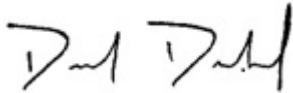
## Appendices

- A. Goshen 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,

**GOSHEN WIND, LP**



Derek Dudek, MCIP, RPP  
PGD Senior Technical Services Specialist, Canada  
Email: [derek.dudek@nexteraenergy.com](mailto: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., 1<sup>st</sup> Floor, Toronto ON M4V 1P5. Telephone outside Toronto 1 800 461-6290 or in Toronto 416 314-8001. E-mail: [EAASIBGen@ontario.ca](mailto: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, 1<sup>st</sup> 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)

Goshen Wind, LP

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

Goshen 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 Goshen Wind Energy Centre is required to allow for the installation of acoustic bat deterrent devices on nine (9) 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".

2017/01/10

## 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)

Goshen Wind, LP

Business Identification Number

80370 4634 RT0001

Business Name (The name under which the entity is operating or trading, also referred to as trade name)

Same as Applicant Name

### Applicant Type

Corporation

Federal Government

Individual

Municipal Government

Partnership

Provincial Government

Sole Proprietor

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

City/Town

Toronto

Province

ON – Ontario

Postal Code

M5H 2Y2

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

goshen.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)

2017/04/26



**Section 2 – Project Information**

**2.1 – Application Type**

New Renewable Energy Approval

Amendment to existing Renewable Energy Approval  
Provide existing Renewable Energy Approval Number  
**0558-9GUJ8T**

**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 <b>and</b> 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 <b>and</b> 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 <b>or</b> 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) <b>2014/08/01</b>	Estimated date for start of operation (yyyy/mm/dd) <b>2015/01/28</b>
---	---

**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)

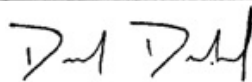
Mobile Number (incl. area code)

519 318-0237

Email Address

derek.dudek@nexteraenergy.com

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



Date (yyyy/mm/dd)

2017/04/26

**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

Class 2

Class 3

Class 4

Class 5

Other

Biofuel

Biogas

Other (if other please describe):

Anaerobic Digestion

Class 1

Class 2

Class 3

Solar Photovoltaic

Class 3

Thermal Treatment

Class 1

Class 2

Class 3

**2.5 – Generation of Electricity**

Total Maximum Name Plate Capacity

102 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, South Huron	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 18	Accuracy Estimate
--------------------	------------	-------------------

Geo Referencing Method GIS	UTM Easting 437333.09 m E	UTM Northing 4787525.99 m 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

Goshen 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*
<a href="#">Project Modifications Report</a>		<input type="checkbox"/>
<a href="#">Additional Municipal Contact Information</a>		<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 – Goshen**

### **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](mailto:info@municipalityofbluewater.ca)

### **South Huron**

Genevieve Sharback, Clerk  
322 Main Street South  
PO Box 759  
Exeter, Ontario N0M 1S6  
Phone: 519-235-0310  
Toll-Free: 1-877-204-0747  
Fax: 519-235-3304  
[info@southhuron.ca](mailto:info@southhuron.ca)

### **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](mailto: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](mailto: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

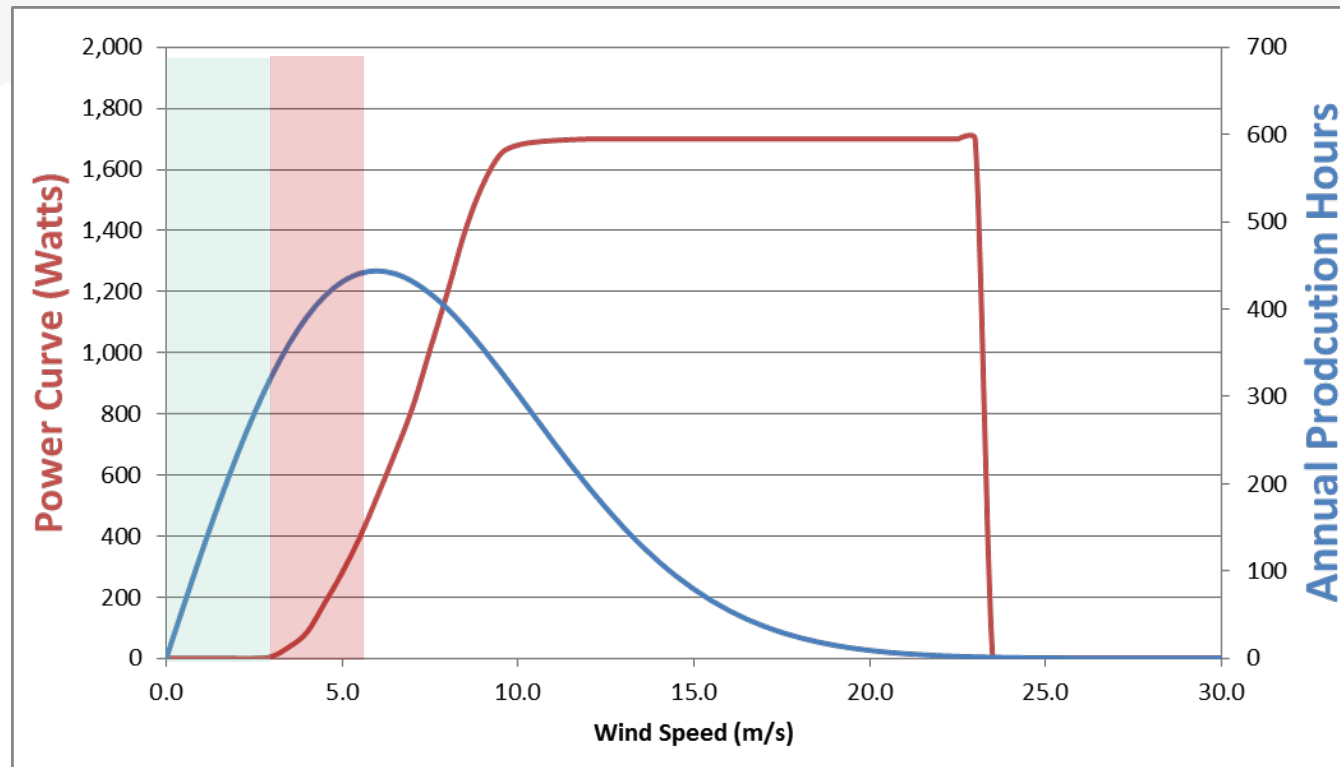
# Program Overview

- 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*

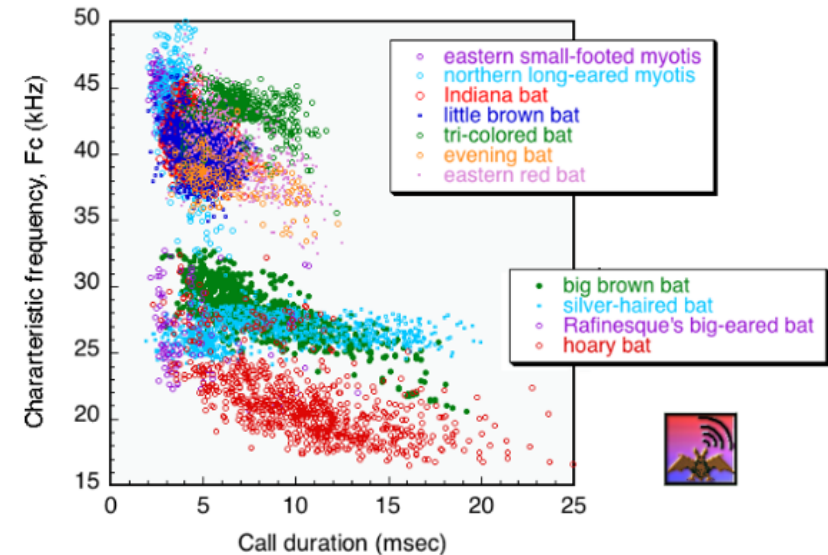
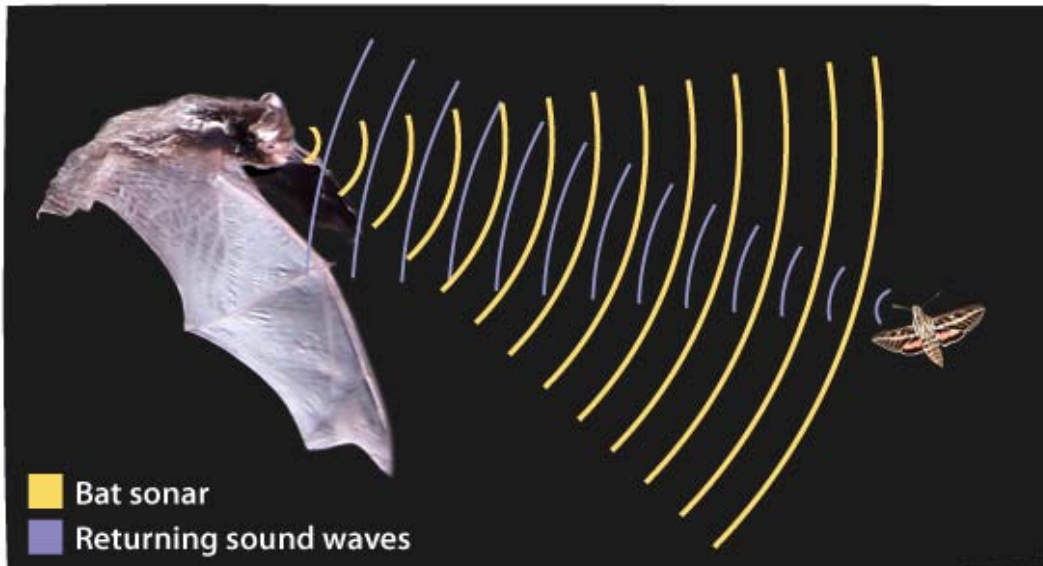
- Industry commitment to feather blades before cut-in speed on all projects
- Common project curtailment between 4.5 m/s and 6 m/s





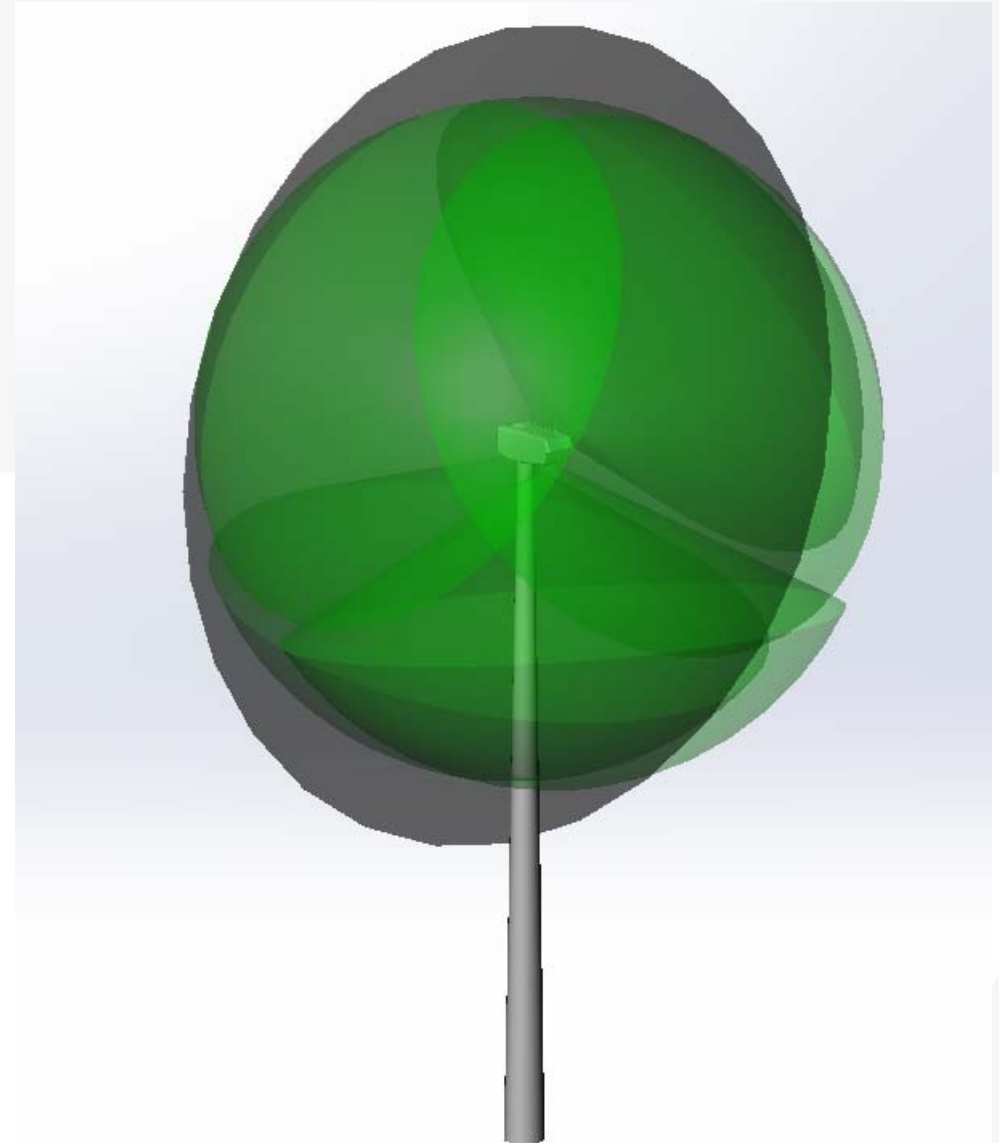
# Ultrasonic Deterrent

- 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\*](#))

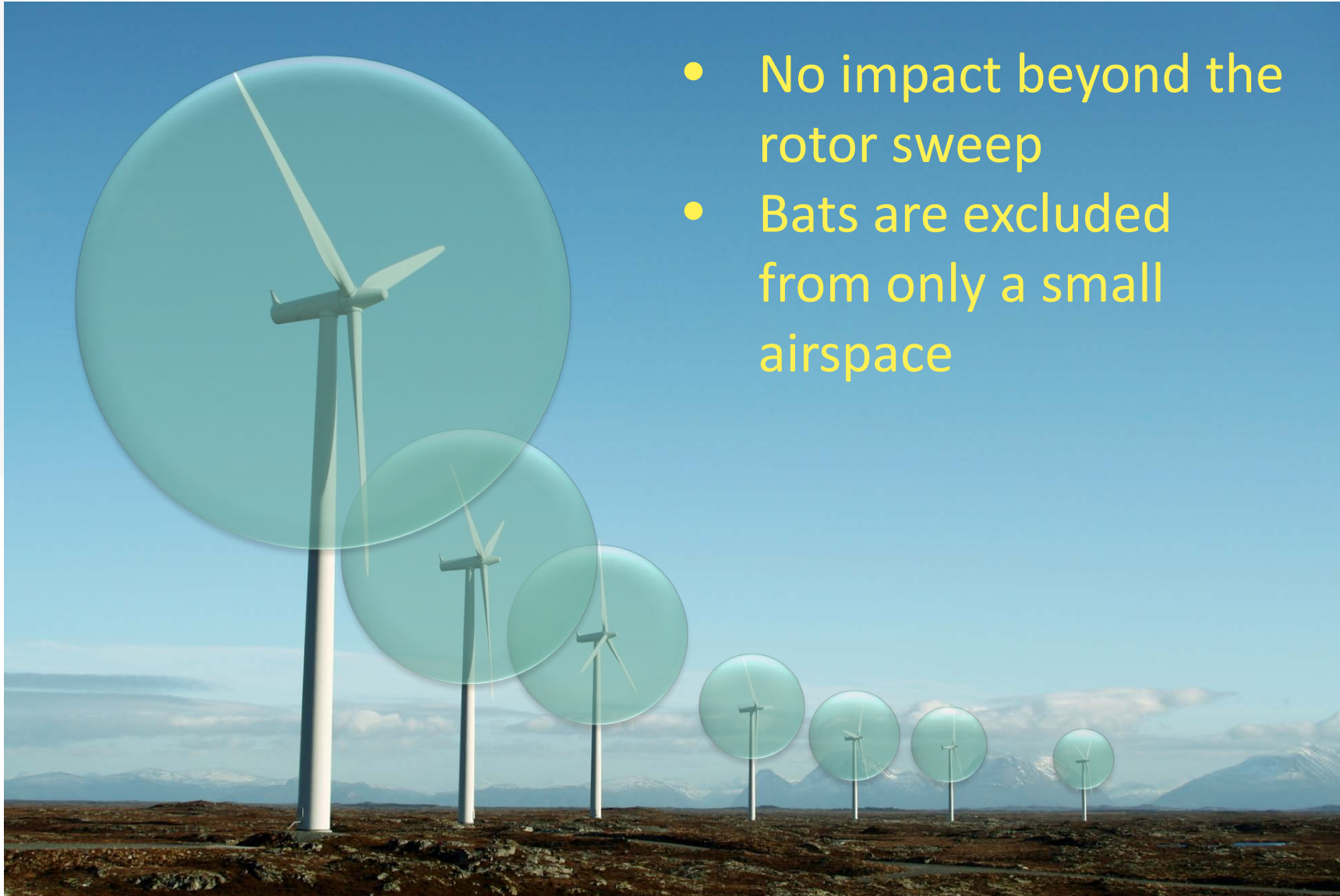


# Ultrasonic Deterrent

- 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*

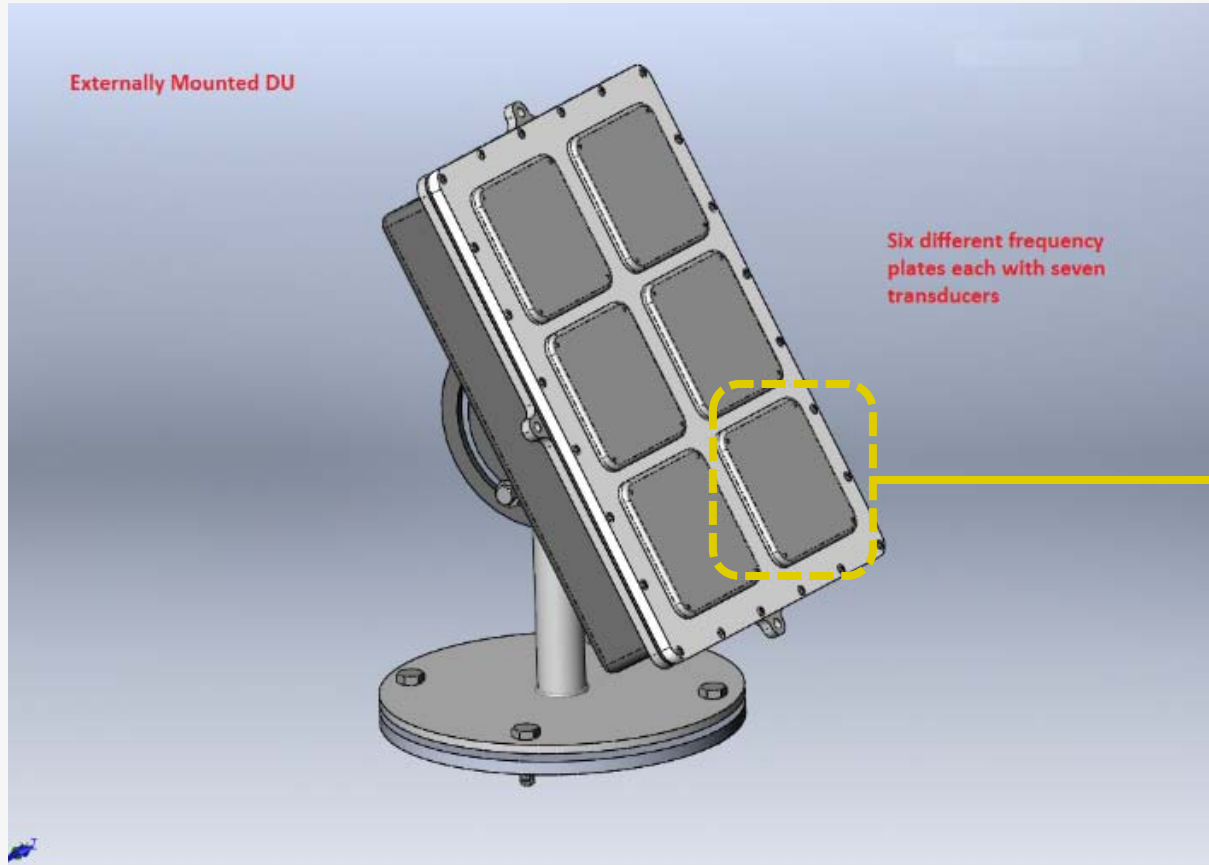
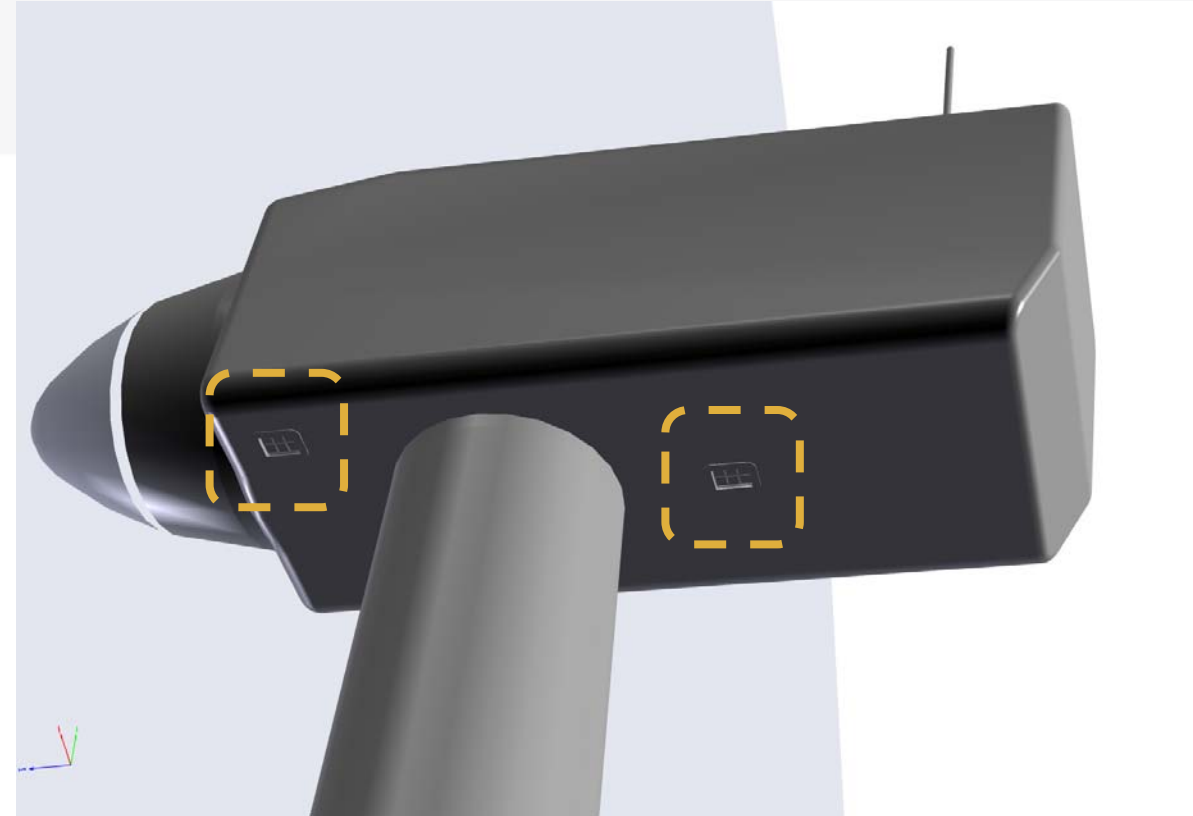
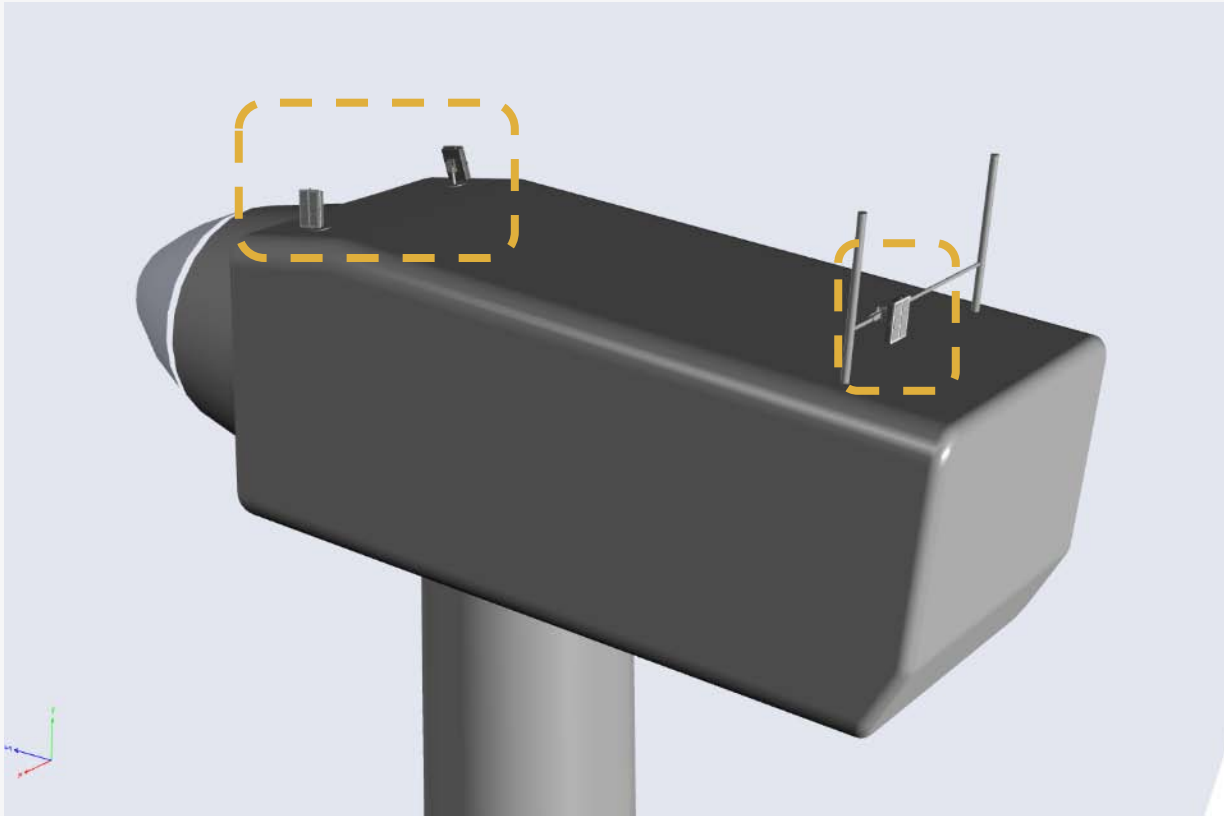


Image Removed - Proprietary Information

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

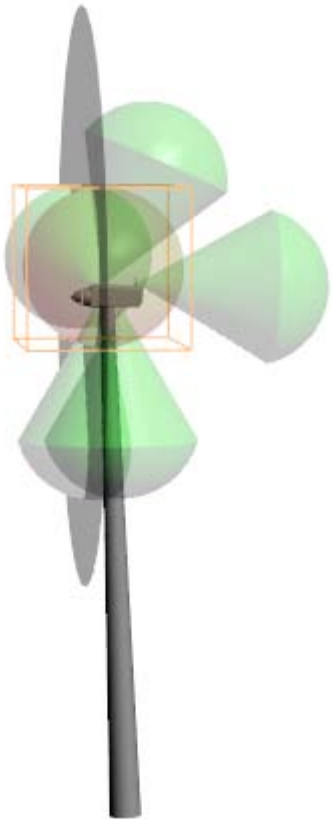
# Ultrasonic Deterrent – *Physical Locations*

- Deterrent Unit Locations

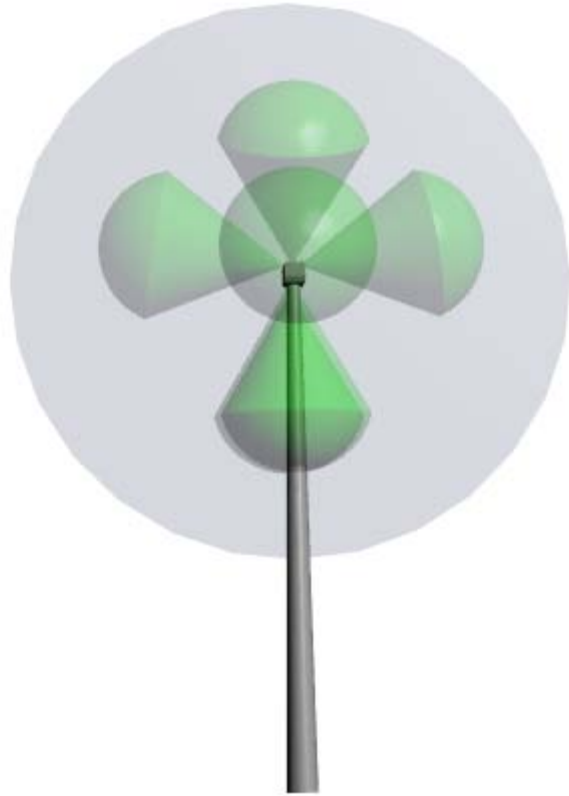


# Ultrasonic Deterrent - *Sound Pattern & Levels*

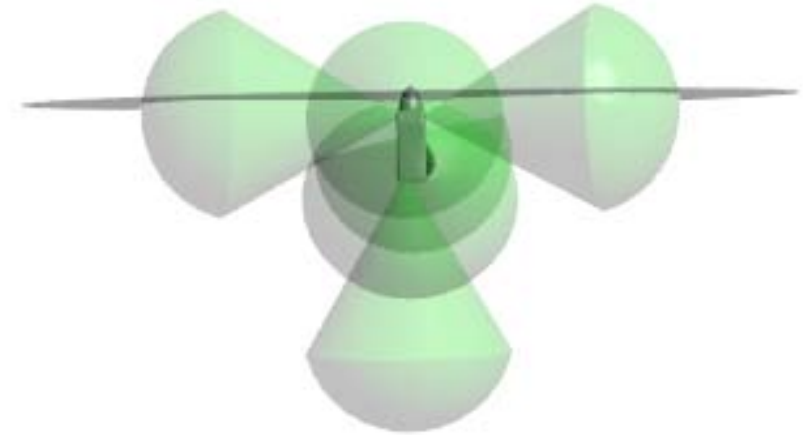
Side



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

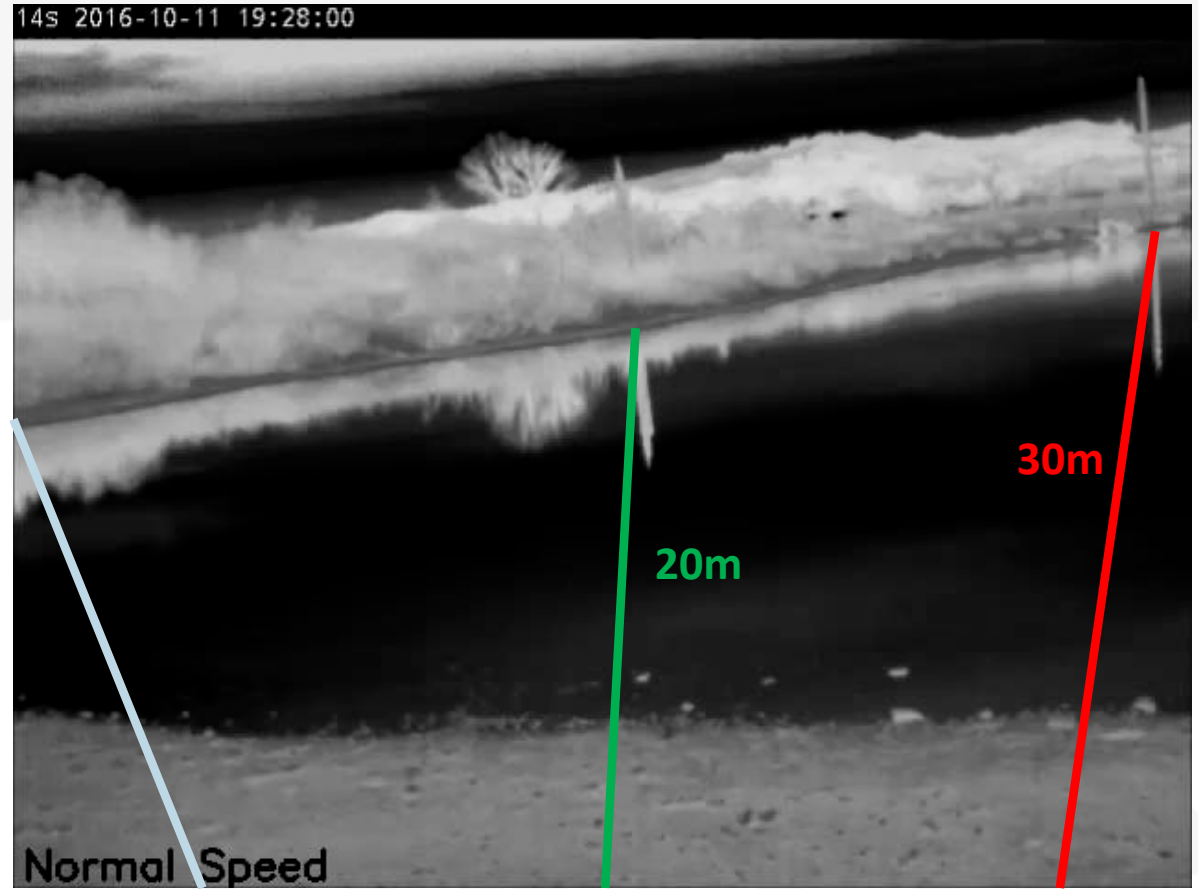
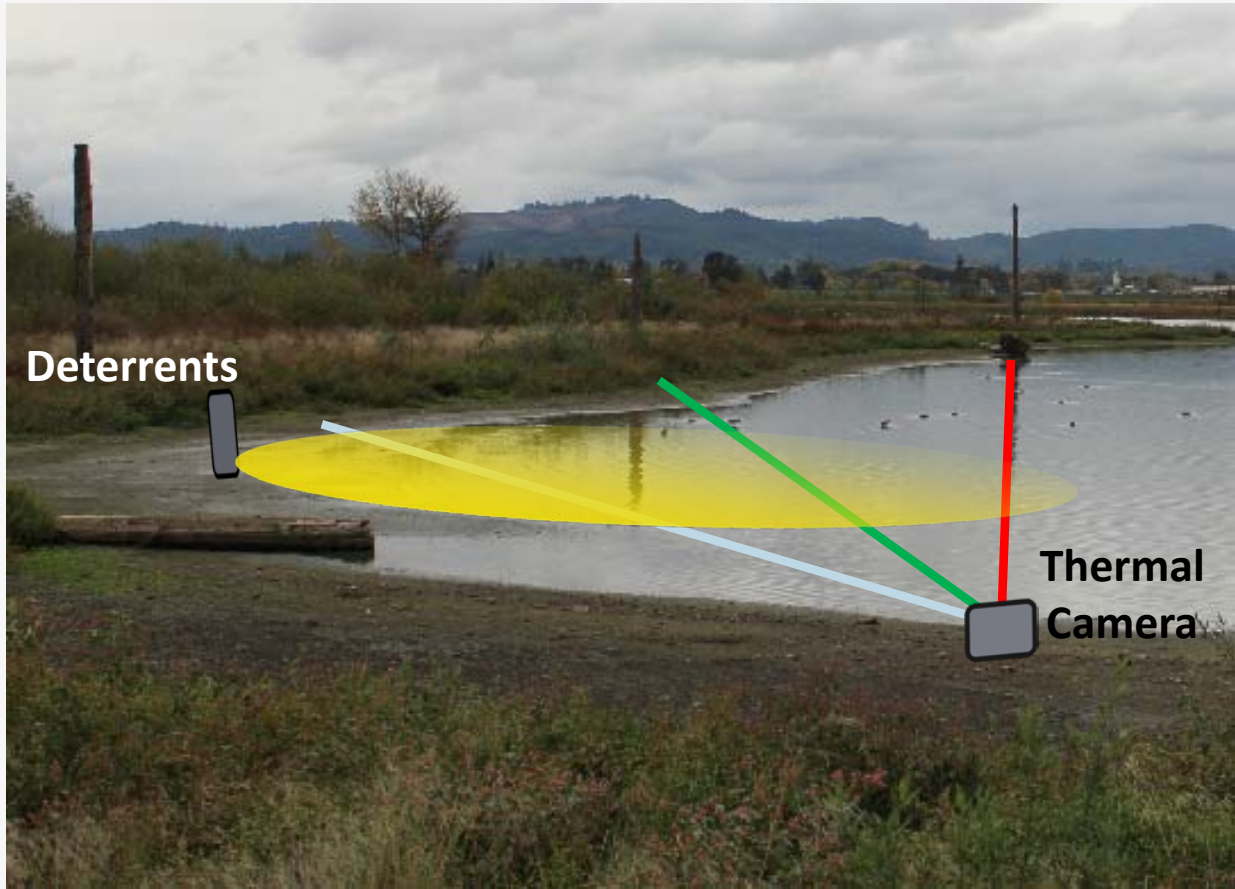
# Ultrasonic Deterrent - *Preliminary Test*

- 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*

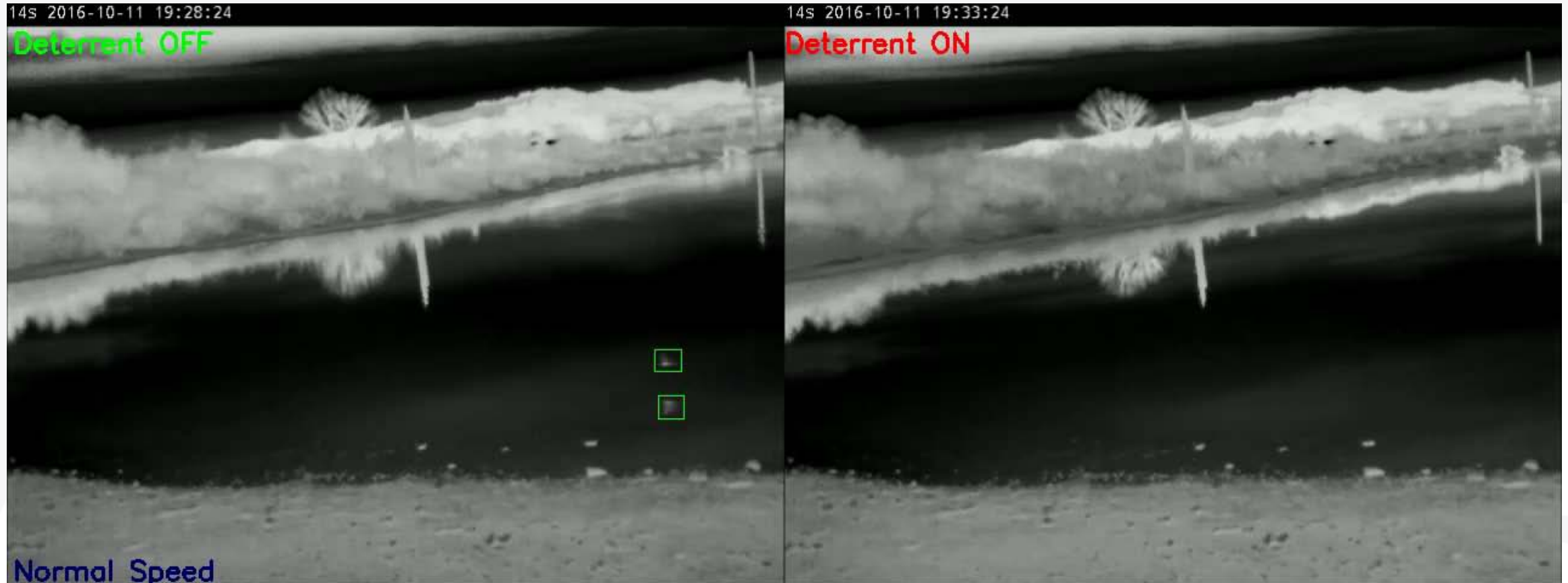
CONFIDENTIAL



RNRG

# Ultrasonic Deterrent - *Preliminary Test*

CONFIDENTIAL



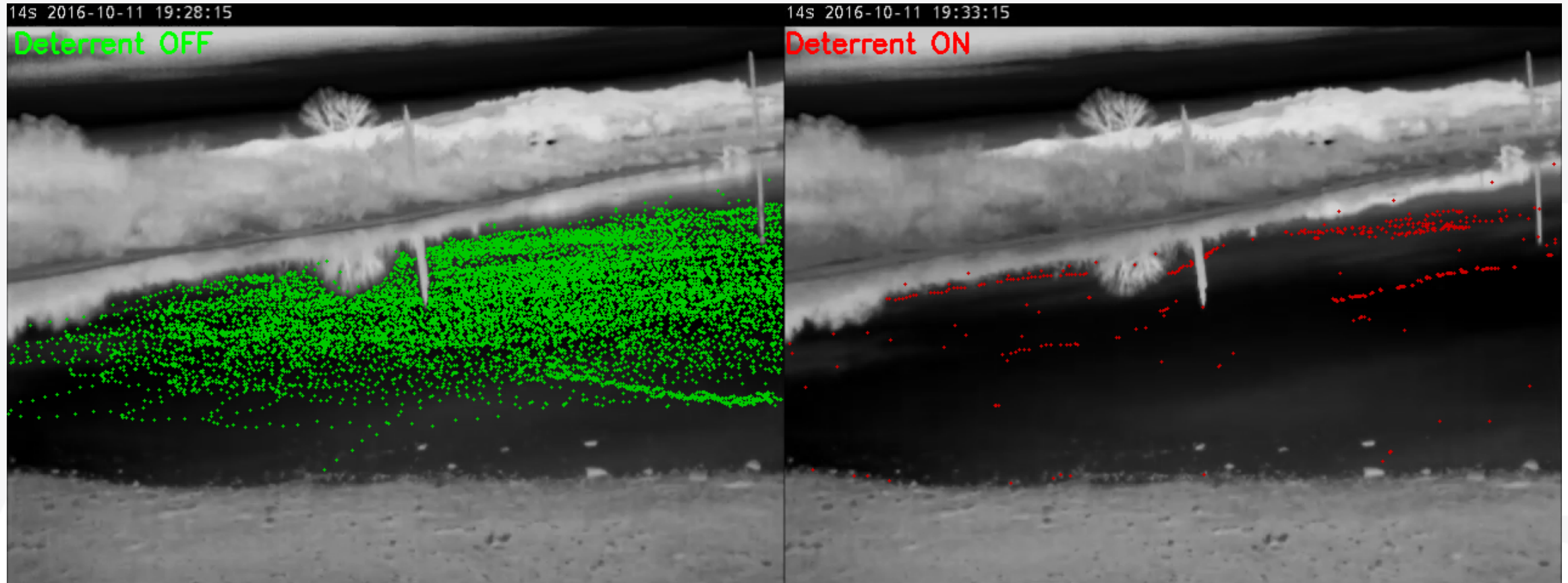
[VIMEO](#)

[LOCAL](#)

RNRG

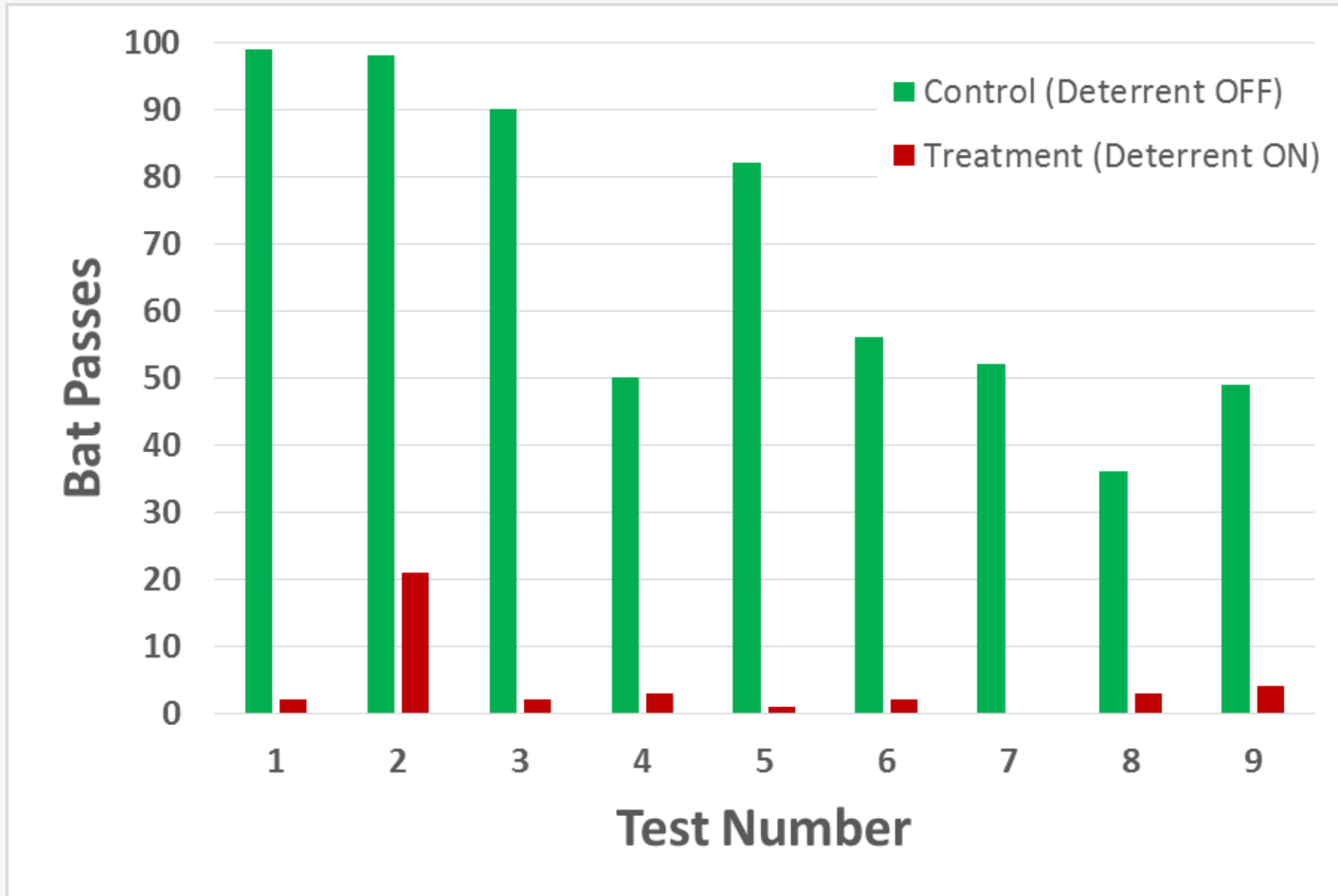
# Ultrasonic Deterrent - *Preliminary Test*

CONFIDENTIAL



RNRG

# Ultrasonic Deterrent - *Preliminary Test*



**Testing Total:**  
**Control – 612**  
**Treatment - 38**

**94% Reduction**

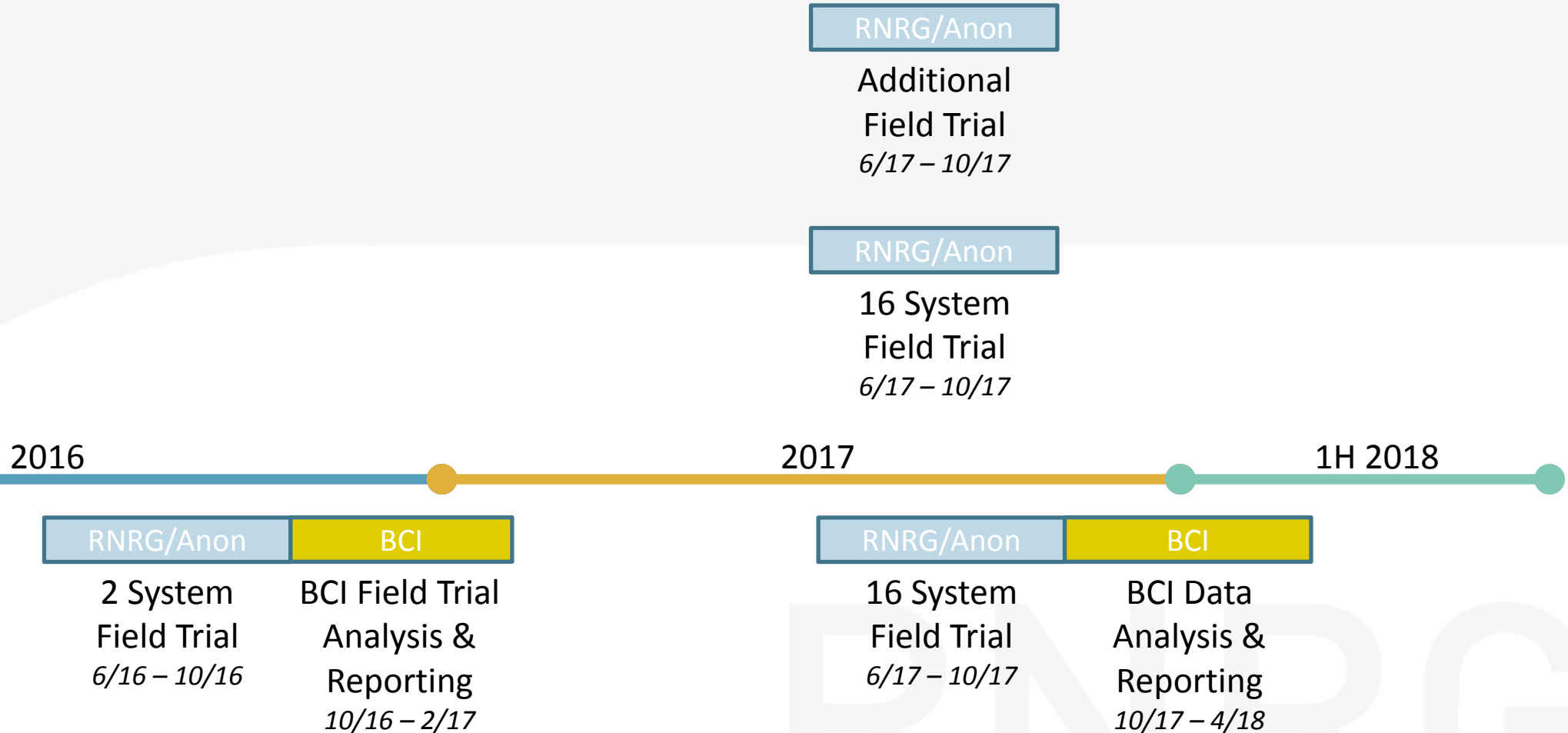


# Future Testing

CONFIDENTIAL

Other Testing

DOE Project



# Questions & Next Steps

CONFIDENTIAL

RNRG



## **Appendix D - RNRG Installation Notes Bat Deterrent System**

CONFIDENTIAL

## RNRG Installation Notes

---

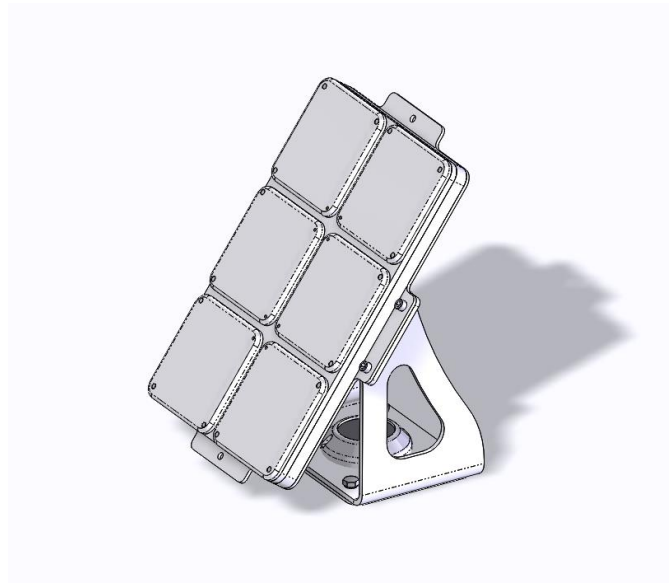
# Bat Deterrent System

Authors:  
Cody Spiegel

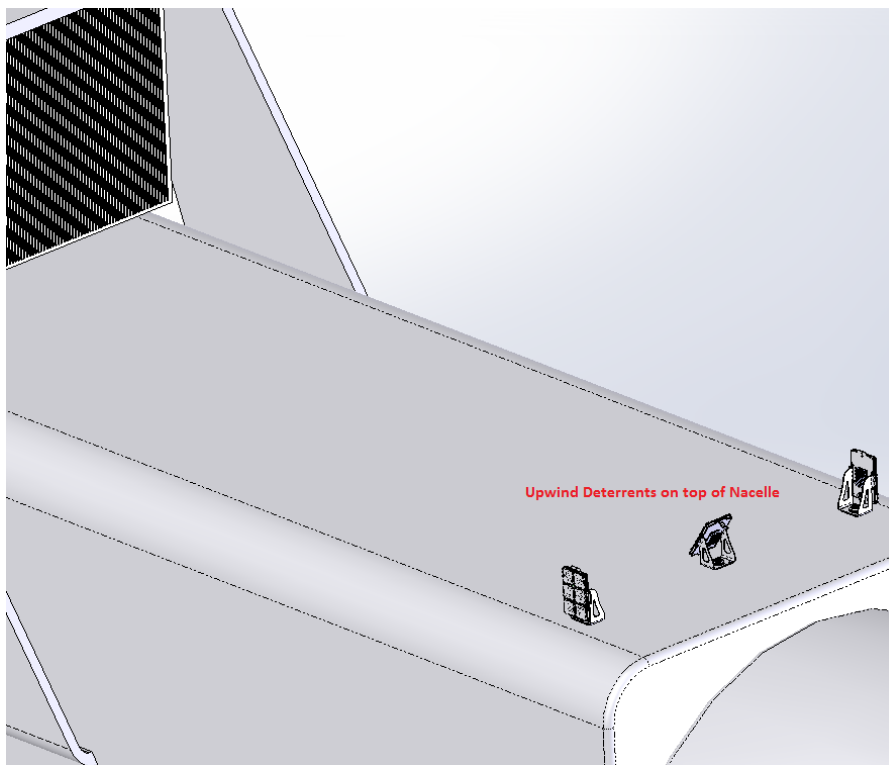
For:  
NextEra



**TOP OF NACELLE**



*Figure 1 Deterrent for Top of Nacelle*



*Figure 2 Three upwind deterrents on top of Nacelle*

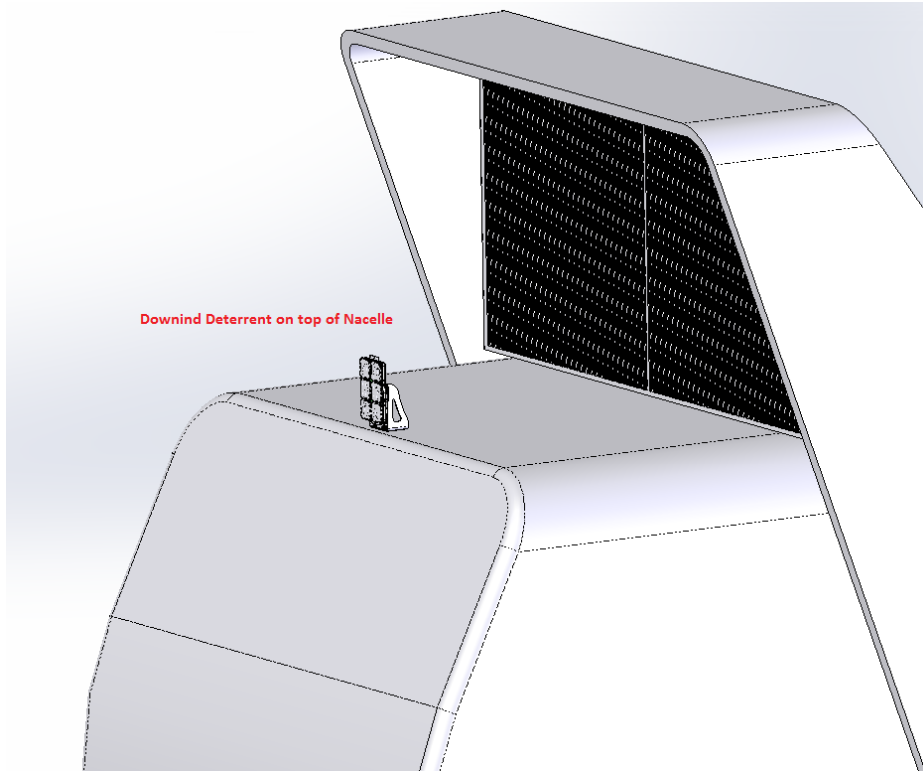


Figure 3 Downwind Deterrent on top of Nacelle

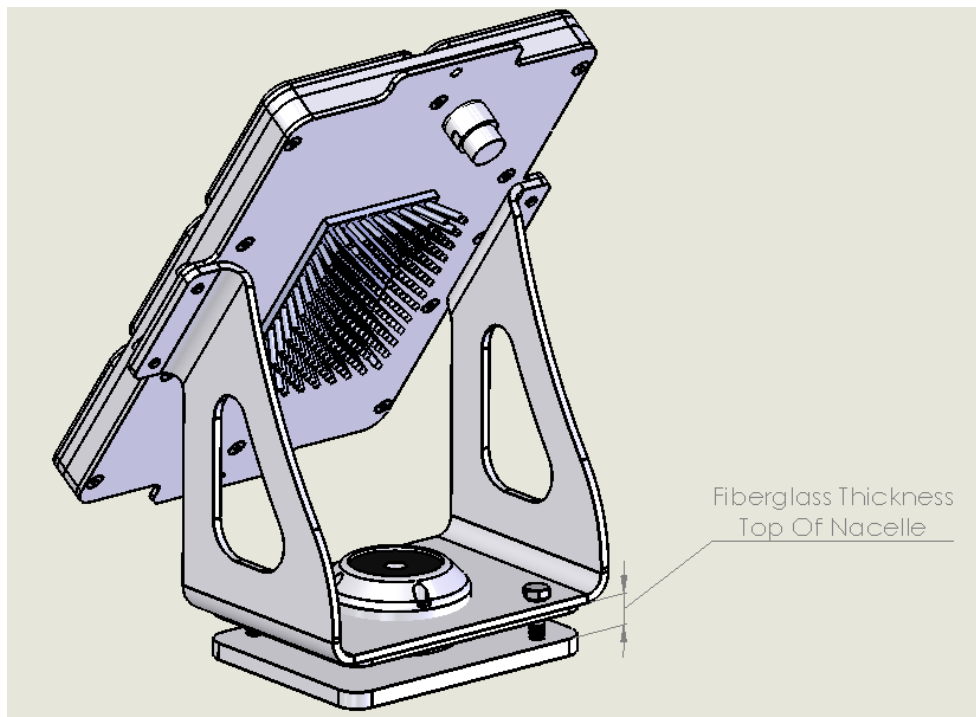


Figure 4 Top Mount Deterrent Assembly

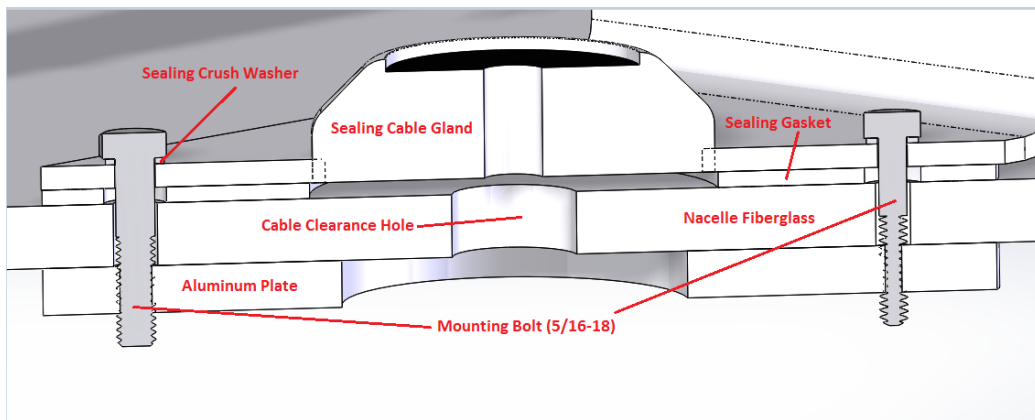


Figure 5 Cross section of top mount assembly

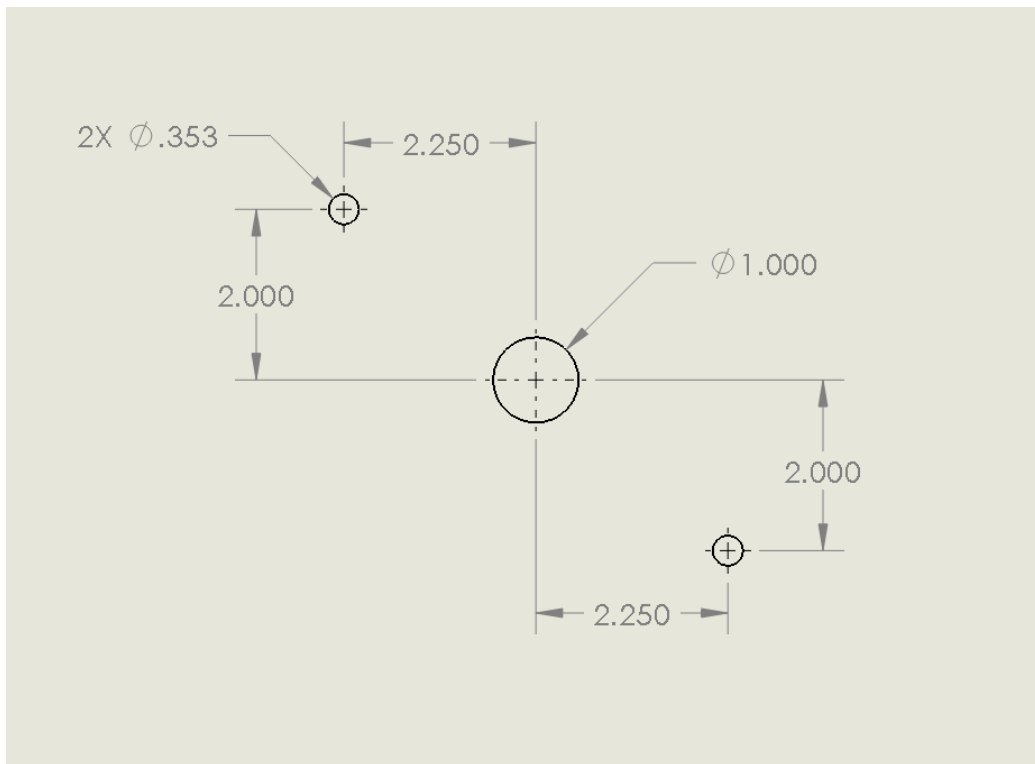


Figure 6 Top mount fiberglass drill pattern

### BOTTOM OF NACELLE

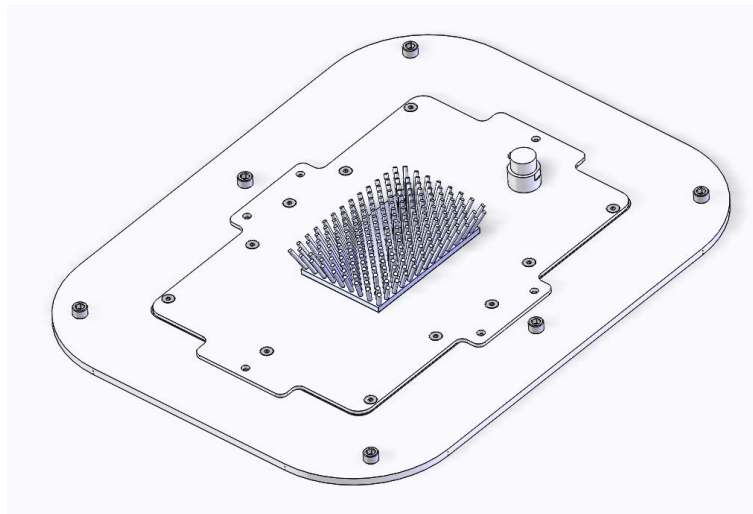


Figure 7 Bottom mount deterrent viewed from inside Nacelle

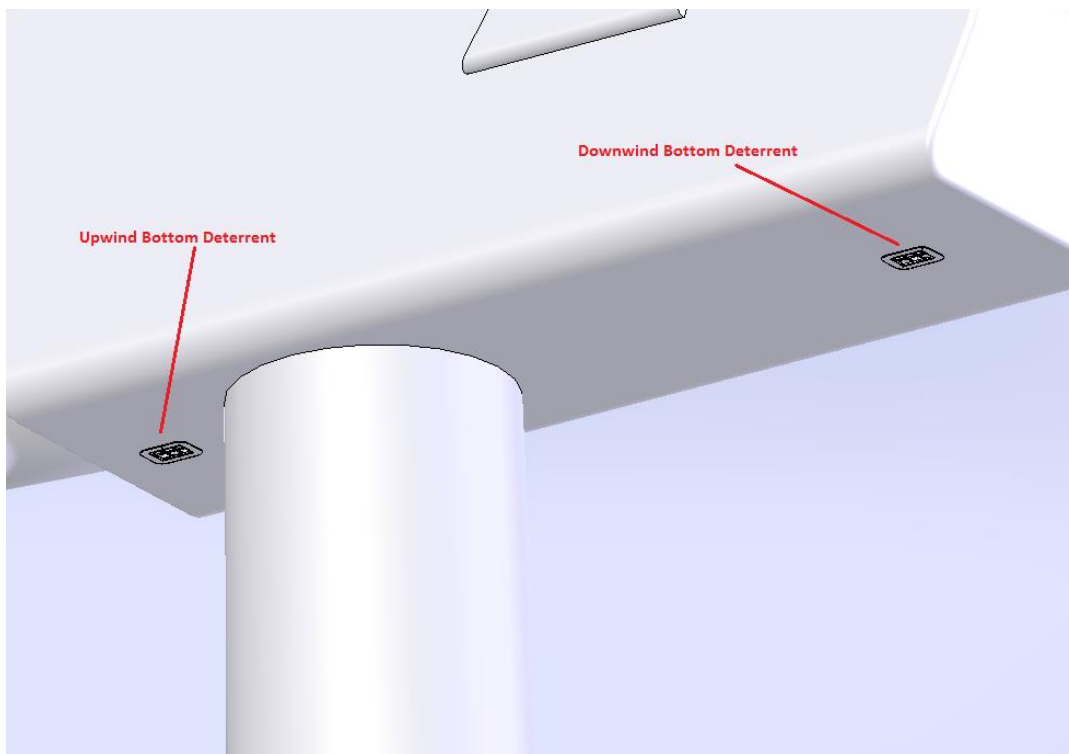


Figure 8 Upwind and Downwind Bottom Deterrents

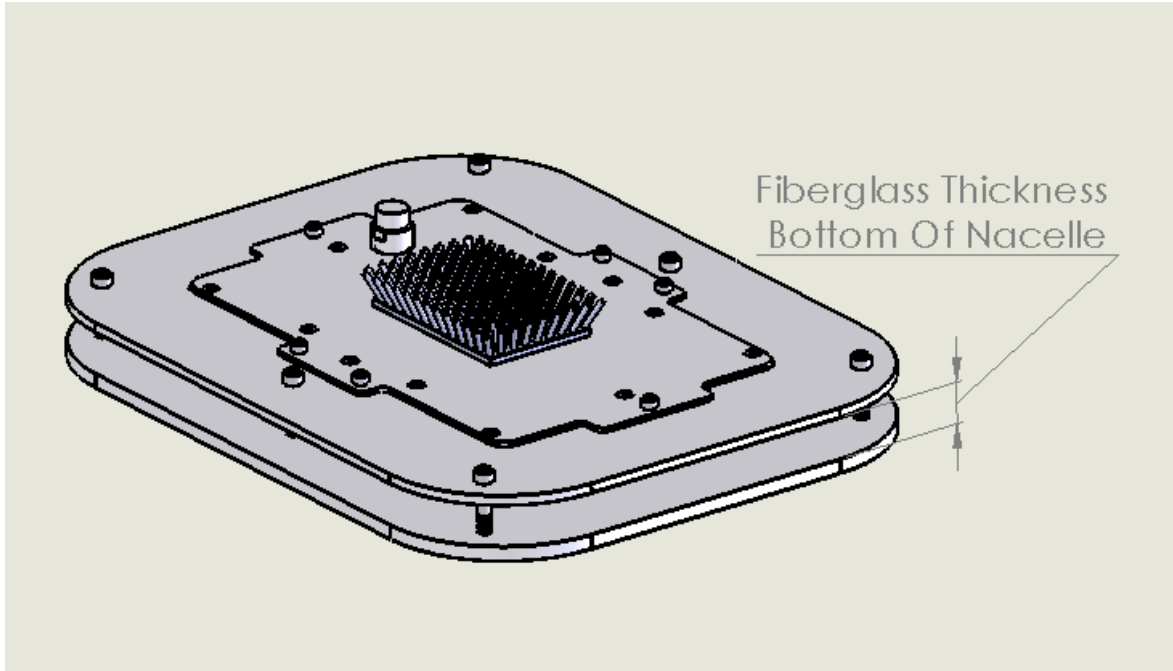


Figure 9 Bottom mount deterrent assembly

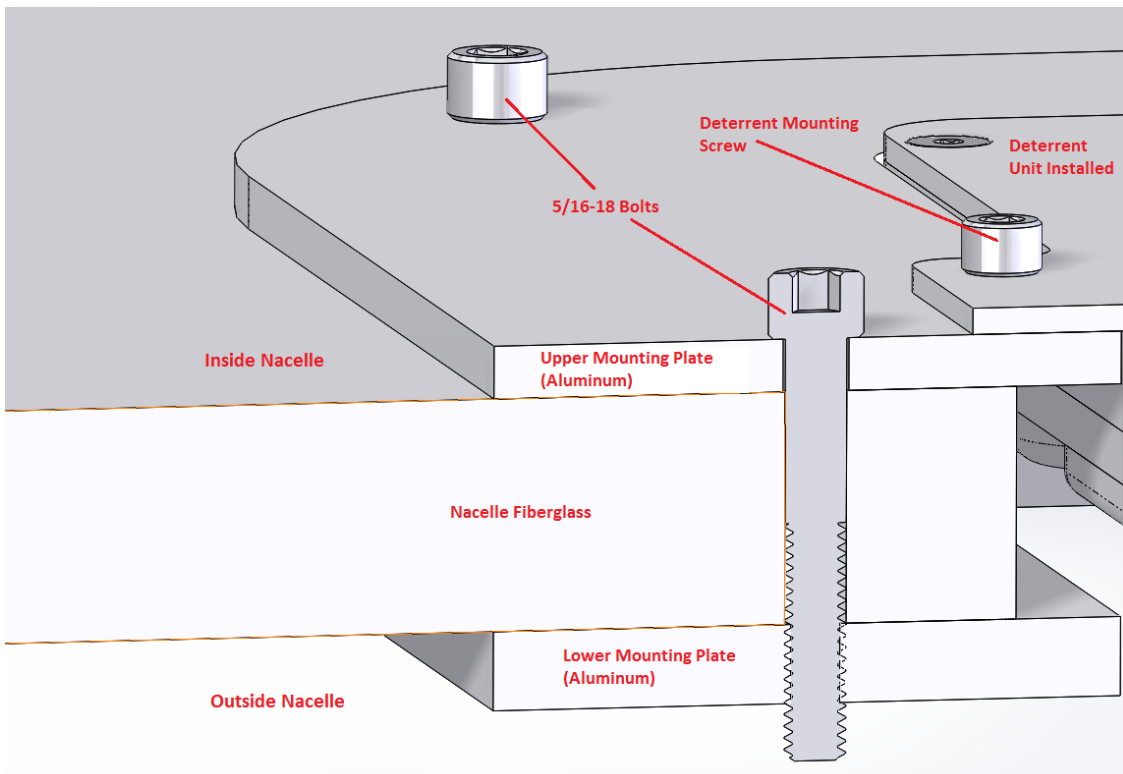


Figure 10 Cross section of bottom mount assembly

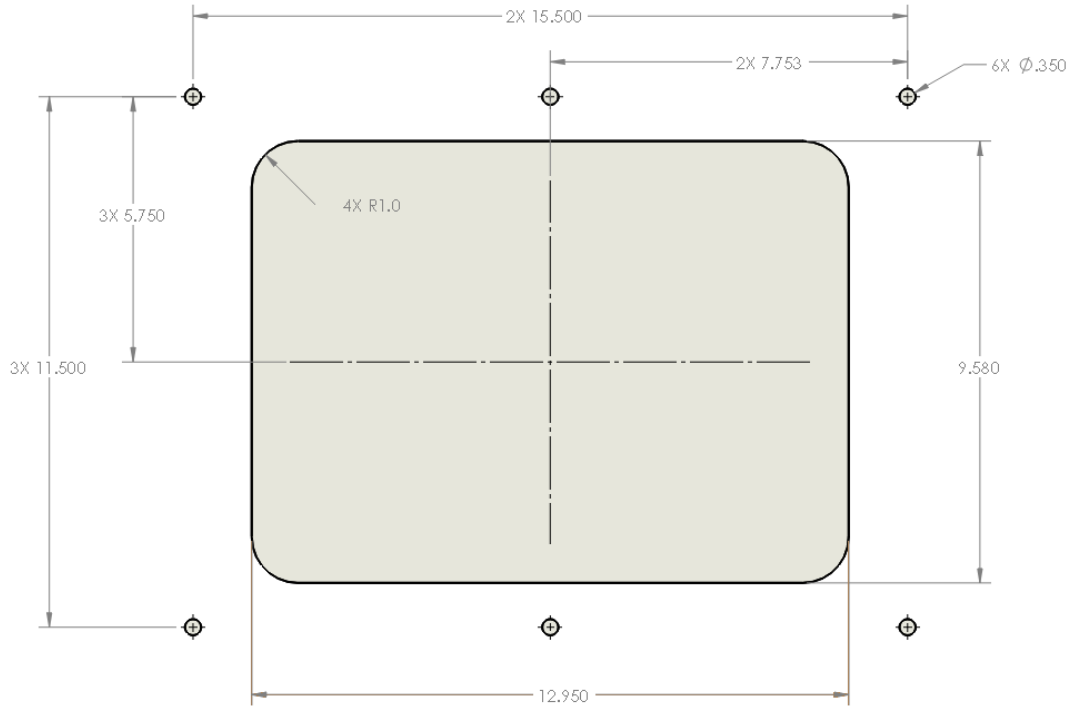


Figure 11 Bottom mount fiberglass drill/cut pattern

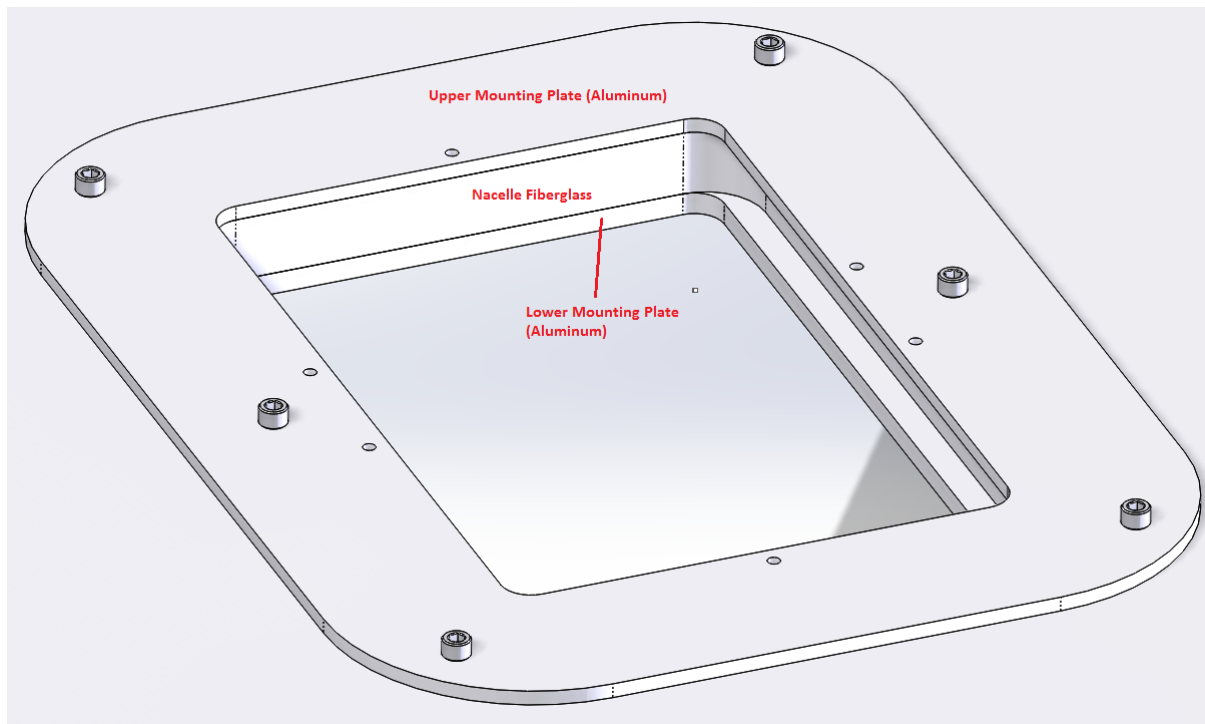


Figure 12 Lower Deterrent Mounting Hardware without Deterrent



**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](mailto: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,



Pauline Desroches  
Manager, Resource Development Section

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