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

Research on Bat Detection and Deterrence Technologies
NWCC Webinar

2 December 2015
Since 2006, Bat Conservation International (BCI), under the auspices of the Bats & Wind Energy Cooperative (BWEC) has investigated the potential of using UADs to reduce bat fatalities at wind turbines.

BWEC priority to continue deterrent research.

Our project for DOE builds on previous studies & our understanding of how bats interact with wind turbines.
Project Team

- Bat Conservation International
  - Cris Hein & Michael Schirmacher

- Iberdrola Renewables
  - Don Rogers & Jerry Roppe

- Renewable NRG Systems
  - Wally Lafferty & Tom Nostrand

- U.S. Geological Survey
  - Manuela Huso
Project Objectives

• Determine best placement & orientation to ensure safety, compatibility & functionality

• Assess functionality of newly designed UAD

• Evaluate the effectiveness of UAD to reduce bat fatalities

• Compare costs & benefits of UAD to operational minimization
Phase 1: Functionality Study

- **Initial Installation Plan (Fall 2015)**
  - Decide initial placement & orientation
  - Improve methods & infrastructure for installation

- **Initial Manufacturing of UADs (Winter 2015–Spring 2016)**
  - Build sample set of UADs for the functionality study

- **Functionality Study (Summer–Fall 2016)**
  - Use thermal cameras to monitor bat behavior at treatment & control turbines
  - Assess performance of UADs & determine gaps in coverage
Phase 2: Comparative Study

• Final Manufacturing UADs (Winter 2016–Spring 2017)
  – Make final modifications to UADs & installation strategy

• Comparative Study (Summer–Fall 2017)
  – Conduct fatality & video monitoring study comparing the following treatments
    • Control turbines (no deterrents & operating at manufacturer’s cut-in speed)
    • Deterrent-equipped turbines
    • Higher cut-in speed turbines (TBD)
    • Deterrent-equipped & higher cut-in speed turbines