

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of Baron Winds LLC for
a Certificate under Article 10 of the Public Service Law

Case No. 15-F-0122

PRE-FILED TESTIMONY OF:

TREVOR PETERSON

PROJECT MANAGER

STANTEC CONSULTING SERVICES INC.

30 PARK DRIVE

TOPSHAM, MAINE, 04086

1 **Q: Please state your name, employer, and business address.**

2 A: Trevor Peterson, Stantec Consulting Services Inc., 30 Park Drive, Topsham, Maine, 04086.

3 **Q: What is your position at Stantec?**

4 A: I am a senior wildlife biologist and project manager.

5 **Q: How long have you been employed Stantec?**

6 A: I have been employed at Stantec since 2003.

7 **Q: Please describe your educational background and professional experience.**

8 A: I earned my Bachelors degree in Biology and Environmental Studies from Bowdoin College in
9 2002. I am currently enrolled in a PhD program in University of Maine's Ecology and Environmental
10 Sciences program where I am studying use of long-term acoustic bat survey datasets to study bat
11 migration and manage potential impacts at wind projects. During my time at Stantec, I have
12 conducted and managed a wide range of ecological surveys, focusing since 2006 on bird and bat
13 issues at proposed and existing wind projects. Please see my resume attached.

14 **Q: Please describe your current responsibilities with Stantec.**

15 A: I design and conduct field studies and existing data as needed to support our clients' needs,
16 typically related to assessing and measuring impacts to birds and bats associated with
17 development and operation of commercial wind energy projects. I am also a technical lead within
18 the company for acoustic bat survey methods.

19 **Q: Have you previously testified before the New York State Public Service Commission or**
20 **Siting Board on Electric Generation?**

21 A: I recently provided written and oral testimony in the matter of Cassadaga Wind LLC Application for
22 a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 to Construct a
23 126 MW Wind Energy Project; Case No. 14-F-0490.

24 **Q: Have you previously served as an expert witness before any other court, agency, or other**
25 **body on the subject you plan to offer testimony on today?**

26 A: I provided written and oral testimony on potential impacts to birds and bats at the proposed Laurel
27 Mountain Wind Energy Project in West Virginia, before the West Virginia Public Service
28 Commission (Case No. 08-0109-E-CS-CN).

29 **Q: What is the purpose and scope of your testimony in this proceeding?**

30 A: To sponsor certain portions of the Baron Winds Project Application or the Exhibits thereto.

31 **Q: What portion(s) of the Application is your testimony sponsoring?**

32 A: Exhibit 22: Terrestrial Ecology and Wetlands. Specifically my testimony is to provide explanations
33 of results of pre-construction bird and bat studies conducted by Stantec and the associated
34 appendices.

35 **Q: Were these Exhibits, Application sections, or studies prepared by you or under your**
36 **direction and supervision?**

37 A: Yes.

38 **Q: In your testimony, will you refer to, or otherwise rely upon, any studies, publications, data**
39 **or documents produced by persons other than yourself/your company? If so, please cite**
40 **these sources. [These are independent studies, etc.]**

41 A: References are listed in Exhibit 22 and Stantec's reports.

42 **Q: Does this conclude your testimony?**

43 A: Yes.

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist



Mr. Peterson is a senior wildlife biologist and project manager specializing in renewable energy projects, bird and bat migration, and rare species assessments. He focuses on solutions to quantify and manage turbine-related wildlife impacts at terrestrial and offshore commercial wind projects. Since joining the company in 2003, Trevor's project experience has included a wide range of wildlife surveys at proposed and existing wind projects, rare bat surveys, breeding bird surveys, raptor surveys, nocturnal radar surveys, vernal pool water quality and ecological monitoring, rare turtle telemetry and demographic studies, natural community characterization, and vegetation monitoring. He is a PhD candidate in the University of Maine's Ecology and Environmental Science program, where he is researching the use of long-term acoustic bat data to study bat migration and predict and manage potential impacts from land-based and offshore wind projects. Before working at Stantec, Trevor worked seasonally for the National Park Service at Acadia National Park and Isle Royale National Park and as an island caretaker for the Maine Island Trail Association. Mr. Peterson serves as Stantec's technical lead for acoustic bat surveys, responsible for updating equipment, survey methods, and data analysis/reporting methods.

PROFESSIONAL EXPERIENCE

- Stantec Consulting Services Inc. 2007-present. Project Manager and Senior Wildlife Biologist
- Woodlot Alternatives, Inc. 2003-2007. Project Manager
- Acadia National Park. 2000. Biological Technician
- Isle Royale National Park. 1999. Biological Technician

EDUCATION

PhD candidate in Ecology and Environmental Science program, University of Maine, Orono, Maine, 2017

Semester Program in Costa Rica, Tropical Field Biology, Environmental Studies, and Spanish, Duke University, Durham, North Carolina, 2000

AB, Biology/Environmental Studies, Summa cum Laude, Phi Beta Kappa, Bowdoin College, Brunswick, Maine, 2002

40-Hour Hazwoper Certification, OSHA, Topsham, Maine, 2005

OSHA 8-Hour HAZWOPER Refresher Certification, Topsham, Maine, 2017

McMillan Offshore Survival Training, Castine, Maine, 2016

MEMBERSHIPS

Member, The Wildlife Society, Maine

Member, Northeast Bat Working Group

Member, Northeast Regional Migration Monitoring Network

PROJECT EXPERIENCE

Renewable Energy, Offshore

Regional Offshore Acoustic Bat Monitoring, Gulf of Maine, mid-Atlantic, Great lakes

Senior Biologist and Project Manager. Developed and implemented survey techniques and data analysis for long-term (2009–2014) acoustic bat monitoring in the Gulf of Maine, mid-Atlantic, and Great Lakes. Surveys included long-term monitoring at over 40 locations including remote islands, offshore weather buoys, ships, and coastal sites. Project was funded by Stantec, the US Department of Energy, and supported by federal, state, academic, and NGO partners.

Tracking Bats using Nanotag Telemetry in the Gulf of Maine

Senior Biologist and Project Manager. Developed and implemented survey techniques to track bats along the Maine coast using nanotag technology. Constructed and installed 5 telemetry receivers along the coast to supplement an existing network of monitoring stations. Project was funded by Stantec and supported by federal, state, academic, and NGO partners.

* denotes projects completed with other firms

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Renewable Energy

Pre-construction Avian and Bat Surveys at Proposed Wind Energy Project, Texas

Project Manager and Field Supervisor. Developed an innovative work scope to conduct a variety of field surveys focusing on assessing potential impacts to Mexican free-tailed bats and managed a variety of field surveys including nocturnal radar surveys, NEXRAD data analysis, acoustic bat monitoring, and visual night-vision surveys. Mr. Peterson also coordinated discussions between project developers, state wildlife agencies, and non-profit groups.

Avian and Bat Surveys at proposed New Creek Wind Energy Project, Grant County, West Virginia

Project Manager, Field Supervisor, Expert Witness. Developed protocols for pre-construction and post-construction bird and bat field surveys within wind project. Coordinated field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, bat telemetry surveys, acoustic bat surveys, carcass monitoring, and curtailment studies. Managed correspondence between the developer, operator, and state and federal wildlife agencies. Prepared survey reports, a site-specific bird and bat risk assessment, and direct testimony, all of which were presented at public hearings.

Avian and Bat Surveys at Laurel Mountain Wind Energy Project, Randolph and Barbour Counties, West Virginia

Project Manager, Field Supervisor, Expert Witness. Conducted bird and bat field surveys within proposed wind project. Coordinated pre-construction and post-construction field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, acoustic bat surveys, carcass monitoring, and curtailment studies. Managed correspondence between the developer, operator, and state and federal wildlife agencies. Prepared survey reports, avian bird and bat risk assessment, testimony, and a site-specific Avian and Bat Protection Plan.

Avian and Bat Surveys at Armenia Mountain Wind Energy Project, Tioga and Bradford Counties, Pennsylvania

Project Manager and Field Supervisor. Conducted bird and bat field surveys within proposed wind project. Coordinated field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, and acoustic bat surveys. Managed correspondence between the developer and state and federal wildlife agencies. Prepared survey reports and a site-specific bird and bat risk assessment for the project. Managed two years of post-construction monitoring according to Pennsylvania Game Commission protocols.

Post-construction Avian and Bat Mortality Monitoring at Forward and Lookout Wind Projects, Somerset County, Pennsylvania

Project Manager and Field Supervisor. As the Project Manager for post-construction bird and bat mortality surveys at two of the first operational wind projects to participate in Pennsylvania's Voluntary Cooperative Wind Energy agreement, Mr. Peterson developed survey work scopes, and coordinated fieldwork for multiple years of monitoring, including daily mortality surveys, acoustic bat surveys, and diurnal raptor surveys. Mr. Peterson also coordinated project-related agency communications with state and federal wildlife agencies.

Natural Resource Services

Acoustic Bat Surveys: Proposed Road Corridors, Tennessee

Technical and Field Supervisor. Conducted acoustic bat surveys in a variety of habitats within 67-kilometer long segments of multiple potential highway corridors within a National Forest for the Tennessee Department of Transportation. Completed data analysis and prepared survey reports.

Indiana Bat and Rare Bird Surveys at Proposed Wind Energy Project, Jefferson and Oswego Counties, New York

Project Manager and Field Supervisor. Coordinated multiple years of habitat evaluations, acoustic bat surveys, and radio telemetry surveys for Indiana bats at a proposed wind project in northwestern New York. Mr. Peterson also coordinated and conducted field surveys for breeding birds and rare birds within the area.

* denotes projects completed with other firms

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Spotted Turtle and Vernal Pool Monitoring on Greenbush Railroad, Southeastern Massachusetts

Project Manager, Field Team Leader, Field Technician. Managed a field crew responsible for monitoring the water quality, invertebrate diversity, amphibian populations, and plant communities within vernal pools located in a commuter rail corridor. Led efforts to document and track populations of spotted turtles within the same corridor. Assisted with development of amphibian/turtle crossing structures, and protocols for testing the effectiveness of these structures.

Natural Community Surveys and Resource Inventory, Moosehead Lake Region, Maine

Field Scientist. Mr. Peterson conducted natural community surveys and rare species surveys, classified natural communities, identified rare plants and animals, and evaluated potential wildlife habitat within parcels proposed for development and conservation within a large proposed development in Maine's north woods.

Eastern Box Turtle Protection Plan, Construction Monitoring, and Relocation, Duxbury, Massachusetts

Field Scientist. Mr. Peterson developed a protocol to protect box turtles during construction in compliance with MESA, and participated in fieldwork efforts, which included pre-construction searches, construction monitoring, turtle handling/relocation, and habitat management.

Blue-Spotted Salamander Surveys and Relocation, Reading, Massachusetts

Field Scientist. Mr. Peterson developed and implemented a survey protocol to inventory, identify, and relocate blue and yellow-spotted salamanders from an upland area proposed for development. Coordinated communications with state wildlife agencies.

Diamondback Terrapin Habitat Assessment and Nesting Surveys, Massachusetts

Field Scientist. Mr. Peterson developed survey protocols and conducted an assessment of suitable habitat features to evaluate mating and nesting activities of a newly discovered diamondback terrapin population at a former landfill proposed for mixed use development in southern Massachusetts.

* denotes projects completed with other firms

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

PUBLICATIONS

Peterson, T.S. Bats in the rotor zone...managing risk with acoustics. *Presented at the 2nd International Bat Echolocation Symposium, Tuscon, Arizona, 2017.*

Peterson, T.S. and A.J. Gravel. How do mortality and activity relate?. *Presented at the American Wind Energy Association Wind Project Siting and Environmental Compliance Conference, Austin, Texas, 2017.*

Peterson, T.S. Unprecedented change in Maine bats; evidence of the widespread effects of white-noise syndrome. *Presented at the Maine Chapter of the Wildlife Society 41st Annual Meeting, Bangor, Maine, 2017.*

Peterson, T.S., S.K. Pelletier and M. Giovanni. Long-term bat monitoring on islands, offshore structures, and coastal Sites in the Gulf of Maine, mid-Atlantic, and Great Lakes - final report. *Prepared for the US Department of Energy, 2016.*

Peterson, T.S. Bats in the rotor zone...managing risk with acoustics. *Presented at the National Wind and Wildlife Coordinating Collaborative Wind and Wildlife Research Meeting XI, Broomfield, Colorado, 2016.*

Peterson, T.S. Bats offshore!. *WREN Webinar Presented Online, 2016.*

Peterson, T.S. Managing risk to bats at offshore wind projects: Applying Lessons Learned from Onshore. *Presented at the Northeast Bat Working Group, South Portland, Maine, 2015.*

Peterson, T.S., S. Pelletier. Bats Offshore...Results of a long-term regional acoustic study. *Poster Presentation at the American Wind Energy Association Offshore WindPower 2015, Baltimore, Maryland, 2015.*

Peterson, T.S., S. Pelletier, S. Boyden, L. Wight, and K. Watrous. Tracking bats on the Maine coast using nanotags. *Presented at the Northeast Natural History Conference, Springfield, Massachusetts, 2015.*

Peterson, T.S. Northern long-eared bats and potential impacts on wind projects in New England. *Marine Ocean & Wind Industry Initiative Webinar Presented Online, 2015.*

Peterson, T.S., S.K. Pelletier, S.A. Boyden, and K.S. Watrous. Offshore acoustic monitoring of bats in the Gulf of Maine. *Northeastern Naturalist 21(1): 86-107, 2014.*

Peterson, T.S., S. Pelletier, S. Boyden, L. Wight, and K. Watrous. Tracking bats offshore using nanotag technology - a pilot study in the Gulf of Maine. *Presented at the Energy Ocean International Conference, Atlantic City, New Jersey, 2014.*

Peterson, T.S., S. Pelletier, S. Boyden, L. Wight, and K. Watrous. Where, When and Why are Bats Offshore...and What are the Implications for Offshore Wind Energy?. *Presented at the Northeast Fish and Wildlife Conference, Portland, Maine, 2014.*

Peterson, T.S., S. Boucher, and L. Berube. The aerosphere as wildlife habitat - managing risk.. *Presented at the Northeastern Association of Fish and Wildlife Agencies, Portland, Maine, 2014.*

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Hildt, S. and T. Peterson. Surveying the damage: tools and techniques. *Invited Presentation at the NRDA Short Course, University of Massachusetts, 2014.*

Pelletier, S.K., K.S. Omland, K.S. Watrous and T.S. Peterson, Information synthesis on the potential for bat interactions with offshore wind facilities - final report. *US Department of the Interior, Bureau of Ocean Energy Management, Headquarters. Herndon, Virginia. OCS Study BOEM 2013-01163. 119 pp, 2013.*

Pelletier, S.K. and T.S. Peterson. Wind Power & Bats Offshore - What are the risks? A current understanding of offshore bat activity. *Presented at the American Wind Energy Association Offshore WindPower 2013, Providence, Rhode Island, 2013.*

Peterson, T.S., S. Boyden, and K. Watrous. Comparison of Automated and Manual Identification Methods for Acoustic Bat Survey Datasets: Implications for Future Protocols. *Poster Presentation at the Northeast Bat Working Group Meeting: Albany, New York, 2013.*

Pelletier, S.K., T. Peterson, S. Boyden, K. Watrous, and J. Perkins. Ongoing Offshore Acoustic Bat Research in the Atlantic and Great Lakes Regions. *Poster Presentation at the Northeast Bat Working Group Meeting: Albany, New York, 2013.*

Johnson, J.S., L.E. Dodd, J.D. Kiser, T.S. Peterson, and K.S. Watrous. Food Habits of *Myotis leibii* along a Forested Ridgetop in West Virginia. *Northeastern Naturalist 19(4): 665-672, 2012.*

Peterson, T.S. A New Look at Bat Activity and Wind Speed in the Rotor Zone. *Poster Presentation at the Northeast Bat Working Group Meeting: Carlisle, Pennsylvania, 2012.*

Peterson, T.S., J. Costa, K. Omland, and K. Watrous. Use of Pre-construction Acoustic Bat Data to Design and Forecast Site-specific Curtailment Plans. *Poster Presentation at the NWCC Wind Wildlife Research Meeting IX: Denver, Colorado, 2012.*

Johnson, J.S., K.S. Watrous, G.J. Giumarro, T.S. Peterson, S.A. Boyden, and M.J. Lacki. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Acta Chiropterologica, 13(1): 157-168, 2011.*

Johnson, J.S., J.D. Kiser, K.S. Watrous, and T.S. Peterson. Day-roosts of *Myotis leibii* in the Appalachian Ridge and Valley of West Virginia. *Northeastern Naturalist 18 (1): 95-106., 2011.*

Peterson, T.S., S.K. Pelletier, S.A. Boyden. Acoustic Survey of Offshore Bat Activity and Migration in the Gulf of Maine. *Presentation at the Maine Chapter of the Wildlife Society Wind and Wildlife Meeting, Orono, Maine, 2011.*

Peterson, T.S. A Discussion of a Suitable Framework and Scale for Modeling and Managing Impacts to Migratory Bats at Wind Projects. *Presented at the NWCC Wind Wildlife Research Meeting VIII; Lakewood, Colorado, 2010.*

Giumarro, G.J., K.S. Watrous, J.S. Johnson, T.S. Peterson, S.A. Boyden, and M.J. Lacki. Correlation of bat acoustic activity to bat mortality in the eastern United States: a broader understanding of seasonal and geographic trends in acoustic detection of tree-roosting bats. *Presented at the NWCC Wind Wildlife Research Meeting VIII, Lakewood, Colorado, 2010.*

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Project Manager, Senior Wildlife Biologist

Peterson, T.S., K.S. Watrous, and S.K. Pelletier. Combining technologies to assess potential impacts to Mexican free-tailed bats in central Texas. *Poster presentation at the NWCC Wind Wildlife Research Meeting VIII, Lakewood, Colorado, 2010.*

Pelletier, S.K., G.C. Kendrick, T.S. Peterson, and A.J. Gravel. Atlantic Offshore Bird & Bat Pilot Study: 2009 Results. *Poster Presentation at the AWEA Offshore Energy Conference, Atlantic City, New Jersey, 2010.*

Pelletier, S.K., T.S. Peterson, and G.C. Kendrick. Understanding of the Current Knowledge of Offshore Wind and Wildlife Issues. *Presented at the NWCC Wind Wildlife Research Meeting VIII; Lakewood, Colorado, 2010.*

Giumarro, G.J., K.S. Watrous, T.S. Peterson, S.A. Boyden, M.J. Lacki, and J.S. Johnson. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Presented at the Windpower Conference and Exhibition, Dallas, Texas, 2010.*

Giumarro, G., T.S. Peterson, C.W. Meinke, and S.K. Pelletier. Understanding Risk to Long-distance Migratory Bats in Canada using an Ecological Risk Framework. *Presented at the CanWEA Environmental Assessment Siting Workshop, Halifax, Nova Scotia, 2009.*

Pelletier, S., G. Kendrick, G. Giumarro, T. Peterson, and A. Gravel. Gulf of Maine Offshore Bat and Bird Project. *Poster Presentation at AWEA Offshore Energy Conference; Boston, Massachusetts, 2009.*

Giumarro, G., J.S. Johnson, T.S. Peterson, K.S. Watrous, and S. Boyden. Summary of Seasonal Distribution of Migratory Tree Bats in the Northeastern United States Using Passive Acoustic Sampling. *Presented at the 1st International Symposium on Bat Migration. Berlin, Germany, 2009.*

Giumarro, G., S. Pelletier, K. Watrous, T. Peterson, and J. Johnson. Seasonal Distribution of Tree Bats in the Northeast Using Passive Acoustic Sampling. *Poster Presentation at the Windpower Conference and Exhibition, Chicago, Illinois, 2009.*

Pelletier, S.K., C.W. Meinke, T.S. Peterson, and A.J. Gravel. Radar and acoustic bat surveys in pre and post-construction bird and bat mortality monitoring. *Poster Presentation at the AWEA Conference in Los Angeles, California, 2008.*

Pelletier, S.K., A.J. Gravel, and T.S. Peterson. Nocturnal avian flight heights relative to risk of collision with wind turbines. *Presented at the NWCC Wind Wildlife Research Meeting VII, Milwaukee, Wisconsin, 2008.*

Meinke, C.W., T.S. Peterson, J.P. Lortie, and S.K. Pelletier. Assessing risk to bats from wind facilities using the weight-of-evidence approach to ecological risk assessment. *Presentation at the joint meeting of the Northeast Bat Working Group and the Southeastern Bat Diversity Network. Blacksburg, Virginia, 2008.*

Lortie, J.P., G. Giumarro, R.D. Roy, and T.S. Peterson. Using ecological risk assessment to characterize risk to birds and bats at wind farms. *Presentation at the 14th Annual Conference of the Wildlife Society, Tucson, Arizona, 2007.*

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Peterson, T.S., A. Uesugi, and J. Lichter. Tree recruitment limitation by introduced snowshoe hares, *Lepus americanus*, on Kent Island, New Brunswick. *Canadian Field Naturalist* 119 (4). 569-572, 2005.