

## Section 4. TECHNICAL ABILITY

The Applicant has assembled a team with prior experience in the development, permitting, and construction of multiple grid-scale wind farms in Maine as well as the greater Northeast. Each consultant was selected based on their extensive experience and expertise in their respective disciplines.

### 4.1. PRIOR EXPERIENCE

Apex is an independent renewable energy company based in Charlottesville, Virginia. Since its founding in 2009, Apex has become one of the fastest-growing companies in the industry. More than a dozen Apex-originated wind and solar facilities are now operating around the country, totaling nearly 4 GW. Operating assets under management have grown to over 2 GW. Apex has signed contracts for the sale of 28 projects totaling over 6 GW of capacity. The company is currently developing projects capable of supporting over 18,000 MW of renewable energy facilities around the United States.

### 4.2. PERSONNEL

The local project development team includes: Stantec Consulting Services, Inc. (biology, natural resource assessment, and soil surveys); James W. Sewall Company (construction services, civil engineering, stormwater analysis); Epsilon Associates, Inc. (shadow flicker assessment); Terrence J. DeWan & Associates (TJD&A) Landscape Architects & Planners (visual impact analysis); Bodwell EnviroAcoustics, LLC (sound assessment); TRC Solutions (historic architectural resources, natural resource assessment, archaeological resources, aerial photography interpretation, and project management); and Verrill Dana (legal counsel). See Exhibit 4-1 for biographies of key team members.



**EXHIBIT 4-1: KEY TEAM MEMBER BIOGRAPHIES AND RESUMES**

## Apex Team

### Management Team

#### Sandy Reisky de Dubnic

##### Chairman and Chief Strategy Officer

Sandy is responsible for leading the growth and development of Apex Clean Energy, establishing corporate objectives, and developing long-term strategy. He began his career in the renewable energy industry in 2000 as president and founder of Greenlight Energy, Inc. By 2006, Greenlight was one of the largest independent wind energy companies in the country with a 6,000 MW development pipeline comprising large-scale wind energy projects in 15 states. Greenlight completed the development and sale of the 150 MW Elk River Wind farm in Kansas and the 300 MW Cedar Creek Wind farm in Colorado. In late 2006, the value created at Greenlight was realized by the sale of the company to BP Alternative Energy in a transaction valued at \$125 million. In 2007, Sandy founded Axio Power, a solar PV development company. Axio was purchased by SunEdison in 2011. Prior to founding Greenlight, Sandy served as the CFO of a software company and performed financial analysis for a multinational corporation specializing in materials and automation. Sandy holds a BS from the McIntire School of Commerce at the University of Virginia.

#### Mark Goodwin

##### President and Chief Executive Officer

Mark is entering the twentieth year of his career in the renewable energy sector. As CEO of Apex Clean Energy, Mark leads the execution of corporate strategy. Since Apex's founding, he has built a team of more than 200 professionals focused on creating customized clean energy solutions for businesses, government, utilities, and others. With Apex's core values as a driving force, Mark has overseen the implementation of more than 6 GW of wind and solar energy facilities representing more than \$8 billion of investment. He previously served as president and COO of Apex from 2009 to 2016. Mark serves on the board of the American Clean Power Association (ACPA). From 2005 to 2009, he was a director at Horizon Wind Energy/EDPR. Prior to Horizon, Mark worked for the North American sales subsidiary of Vestas Wind Systems. Mark is a former naval officer and helicopter pilot. He holds a BS in aerospace engineering from the U.S. Naval Academy and an MBA from the Kellogg Graduate School of Management.

#### Jim Trousdale

##### Chief Financial Officer

Jim is responsible for executing Apex's financial strategy. This includes company finance and investment activities; asset acquisitions; and structuring, executing, and closing project finance transactions. Jim brings more than 20 years of international and domestic finance experience, including in renewable energy and project development. Previously, he was director at Greenlight Energy. Jim was also an energy project finance and loan structuring banker at Fortis, CIT, and Citigroup, where he financed billions of dollars (thousands of megawatts) of utility-scale projects in wind, solar, and fossil fuel power generation. Jim also had a career in Latin American international development, including microenterprise lending and other community-based projects with Catholic Relief Services in Central and South America. Jim holds a BA and an MA/SFS from

Georgetown University and an MBA from Columbia Business School. He completed Citibank's Management Associate Credit Training Program and is fluent in Spanish.

## **Ken Young**

### **Chief Operating Officer**

Ken leads the Apex team in its execution of core business operations with the purpose of delivering world-class renewable energy projects. He holds responsibility for the development, engineering and construction, asset management, and direct support departments. Prior to joining Apex, Ken worked for Vestas Wind Systems as a chief program manager, overseeing technology support throughout the Americas. Ken is a former U.S. Army infantry officer; he served in Europe and as part of The Old Guard, the army's premier ceremonial unit, in Arlington, Virginia. He holds a bachelor of science in political science and systems engineering from the U.S. Military Academy at West Point and a master of business administration from the University of Notre Dame.

## **Development**

### **Karlis Povisils**

#### **Senior Vice President of Development**

Karlis is responsible for development for all Apex projects. This includes site selection, site acquisition, environmental studies and permitting, land use permitting, interconnection, installation of resource measurement assets, public outreach, and project budgeting and scheduling. Karlis brings nine years of development experience to Apex, having worked in development with Apex since March 2010 and before that in real estate development. Prior to joining Apex, Karlis worked for 10 years in state government, as a development manager for a public sector development agency and as a nonpartisan analyst for the New Jersey Legislature. Karlis holds an MBA from the Yale University School of Management, an MA from Syracuse University, and a BA from Rowan University.

### **John Arehart, PE**

#### **Director of Project Development**

John oversees project development and construction and engineering management for projects. He performs land acquisition, budgeting, and scheduling for various Apex projects. Prior to joining Apex, John served as director of planning and development for two real estate development firms, completing commercial, residential, and mixed-use projects across Virginia. Previously, John served as a project manager for private consultants, providing design and management services for developers, institutions, colleges, and universities. John is a licensed professional engineer and holds both a bachelor of science in civil engineering and a master of urban and environmental planning from the University of Virginia.

## Ryan Henning

### Senior Director of Environmental Permitting

Ryan is responsible for ensuring that Apex's portfolio of commercial-scale wind and solar projects are permitted and commercialized in compliance with local, state, and federal environmental laws and regulations. He also oversees and manages the environmental department, which supports both greenfield reviews and the entire development-stage project life cycle. Ryan and the environmental team provide subject matter expertise along with managing the implementation of the USFWS Wind Energy and Eagle Conservation Plan Guidelines, Section 10 Habitat Conservation Plans, Bald and Golden Eagle Act Eagle Conservation Plans and National Environmental Protect Act reviews, and required local, state, and federal environmental permits. Prior to joining Apex in 2017, Ryan got his start in the renewable industry by working on a large consulting team that was tasked with bringing 1,800 MW of renewable energy to the PacifiCorp generation platform. Ryan went on to work for RES Americas, where he provided regulatory permitting strategy, solutions, mitigation, implementation, and compliance on a 12,500 MW pipeline of solar and wind energy facilities and 800 MW of operational facilities. Over both his consulting and renewable career, he has worked on over 50 major projects that were permitted and constructed across 15 states resulting in operational projects totaling more than \$8 billion. He received his bachelor of science in wildlife biology degree from the University of North Dakota and his master of science in biological conservation degree from California State University–Sacramento.

## Juliet T. Browne

Partner

[jbrowne@verrill-law.com](mailto:jbrowne@verrill-law.com)



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Juliet excels in creative problem-solving and partnering with clients to develop and implement solutions to environmental challenges. Her holistic approach to energy and environmental law ensures that her clients not only have the legal answers to their questions, but are positioned to succeed in their overall business objectives.

Juliet's practice focuses on all aspects of environmental law, including public hearings, project permitting, and compliance under federal, state, and local laws. Juliet is especially known for her ability to manage large-scale, complex permitting and development matters involving areas with high natural resource values, a field that is becoming increasingly contentious with well-funded and organized opponents, with creative problem-solving. Juliet's approach to environmental permitting often involves connecting diverse interest groups to minimize opposition to projects, resulting in a smoother, more efficient process.

For companies requiring strategic and effective project management, Juliet manages large and midsize energy infrastructure projects, making sure that all regulatory and policy options are explored and pursued where appropriate. Her clients rely on her responsiveness, candor, and willingness to give honest advice.

Her representative matters include:

- The successful permitting of several of the largest wind power projects in the northeastern United States, often facing a number of complex contentious issues
- Supporting the expansion of interstate natural gas pipeline facilities
- The revolutionary proposal by a team of conservation groups and the Penobscot Indian Nation to remove several dams located on the Penobscot River in Maine
- Working with a leading provider of comprehensive waste and environmental services in North America on landfill permitting and compliance with state and federal regulations
- Successfully defending permits that are appealed to the Board of Environmental Protection, including a recent one by a broad group of opponents, including the town where the project was located

Juliet's years of experience have honed her judgment and deep understanding of the regulatory and political landscape. She joined Verrill in 1996 after practicing law at Skadden, Arps, Slate, Meagher & Flom in San Francisco and serving as Assistant Attorney General for the Republic of Palau, a former U.S. Trust Territory located in the Western Pacific. She has been called upon by regulators and stakeholder groups to develop,

revise, and update environmental laws and regulations, and she served on the groundbreaking Governor's Wind Power Task Force in Maine.

Juliet serves as the Chapter Chair for the Maine Chapter of the Women Presidents' Organization, an organization that helps women entrepreneurs tackle strategic issues and grow their businesses through monthly business roundtables.

When not solving her clients' legal problems and working with successful entrepreneurs, Juliet enjoys hiking, skiing, and all forms of outdoor activities with her husband, daughter, and, if willing, her dog.

## Education

- University of California, Boalt Hall School of Law (J.D.)
  - Articles Editor, California Law Review, 1989-1990
- University of Michigan (B.A.)

## Public Service

- Chair, Board of Trustees, Maine Chapter of The Nature Conservancy
- Advisory Board, Maine's Corporate Wetlands Restoration Partnership
- Governor's Wind Power Task Force
- Steering Committee for The Nature Conservancy's Corporate Conservation Council of Maine
- Board Member, Maine Ocean Wind Industry Initiative

## Bar Admissions

- Maine

## Memberships

- Maine State Bar Association

## Honors

- Recognized in *Chambers USA: America's Leading Lawyers for Business* under Environment (2005-Present)
- Named the *Best Lawyers*® 2020 Land Use and Zoning Law "Lawyer of the Year" in Portland, Maine
- Named the *Best Lawyers*® 2016 Environmental Law "Lawyer of the Year" in Portland, Maine
- Named the *Best Lawyers*® 2015 Litigation - Environmental "Lawyer of the Year" in Portland, Maine
- Listed in *The Best Lawyers in America*© for Energy Law, Environmental Law, Land Use and Zoning Law, Litigation - Environmental, Natural Resources Law in Portland, Maine
- Selected as one of the "Top 50 Women" by New England Super Lawyers©
- Selected by peers for inclusion in *New England Super Lawyers*© under Environmental, Energy & Natural Resources and Land Use/Zoning

## **MARK BERGERON, PE**

### **EDUCATION**

B.S., Civil Engineering, University of Vermont, 1989

Ongoing professional development seminars and workshops for continuing education required for professional engineering license

### **PROFESSIONAL REGISTRATIONS**

Professional Engineer, Civil - Maine (#9424), 2000; Massachusetts (#C41371), 1999; California (#51346), 1994.

### **AREAS OF EXPERTISE**

Mr. Mark R Bergeron, PE, has supervisory and program management, regulatory administration, and technical experience in the following general areas:

- Land Development
- Renewable Energy
- Environmental Program Regulation
- Civil/Site Design
- Highway Design Engineering
- Stormwater Management
- Erosion and Sedimentation Control
- Construction Management

### **REPRESENTATIVE EXPERIENCE**

Mr. Bergeron has over 30 years of private and public sector experience and progressive responsibility in civil engineering, consulting, and environmental program regulation. His qualifications include extensive design, permitting, project and program management. He is also skilled at strategy and policy development and implementation, collaborating on solutions among a wide variety of stakeholders. Mr. Bergeron has supervised staff of up to 40 scientists and engineers in diverse locations, striving for consistency throughout the organization. He currently serves as a Senior Project Manager in the Planning, Permitting and Licensing group with responsibility for project management, permitting, and business development.

#### **Maine Department of Environmental Protection – Augusta, ME (Director of the Bureau of Resources: 2012 – 2019)**

Mr. Bergeron served as the Director of the Bureau of Resources with responsibility to administer the Maine DEP's land use regulations, including stormwater management, wetlands and natural resources, hydropower, gravel pits, and shoreland zoning. He is skilled with the legislative process, including drafting proposed law changes, testifying at public hearings, and negotiating on bill language. Crafted and advocated for new regulations and law revisions. Mr. Bergeron maintained and nurtured relationships with stakeholder groups, including town officials, federal and state agencies, nonprofit organizations, developers, consultants, and attorneys. He facilitated resolutions to conflicts, seeking consensus where possible.



**Consulting Engineering – Southern Maine (Senior Project Engineer: 1999 – 2012)**

Mr. Bergeron served as a Senior Project Engineer for two local civil and environmental consulting firms, with responsibilities in design and construction management for small to large commercial and residential development projects throughout Maine. In addition to technical design tasks, he created scope, schedule, and budget documents, interacted directly with clients, and managed staff to meet project goals.

**Fay, Spofford and Thorndike – Boston, MA (Senior Engineer: 1996 – 1999)**

Mr. Bergeron served as a Senior Engineer, leading a large civil design group on a \$200 million roadway and bridge reconstruction at Boston's Logan International Airport as part of the Central Artery ("Big Dig") project. He coordinated with multiple other design, scheduling, and construction groups on high-profile, fast-paced, deadline-driven project in dense urban environment. Mr. Bergeron supervised multiple staff to develop plans, specifications, and cost estimates.

**Parsons Brinckerhoff – Bay Area, CA (Project Engineer: 1989 – 1995)**

Mr. Bergeron provided construction management services as a Project Engineer for the California Department of Transportation (Caltrans) on several new freeway construction projects through a dense suburban area. The \$70 million project included construction of a new 6-lane freeway with multiple bridge structures, pedestrian overpasses, and concrete soundwalls. He conducted field inspections and materials testing to ensure contractor was in compliance with the design plans and specifications, and negotiated contract change orders.

**PROFESSIONAL AFFILIATIONS**

Member, American Society of Adaptation Professionals, 2014-Present

Maine Real Estate and Development Association, Board of Directors and Legislative Committee 2006-2011.

Maine Engineering Promotional Council – 2008-2015

**LEGISLATIVE TESTIMONY**

On behalf of the Maine DEP, presented on scores of legislative bill proposals at the Environment and Natural Resources Committee, and the Energy, Utility, and Technology Committee of the Maine Legislature, 2012 through 2019. Negotiated bill language changes with multiple stakeholders, and educated legislators and others about the real-world impacts of the proposed legislation.



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## **DANA B. VALLEAU, J.D., CWB**

### **EDUCATION**

J.D., University of Maine School of Law, Portland, Maine, 1994

B.S., Wildlife Management, University of Maine, Orono, 1990

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

Certified Wildlife Biologist

Maine DEP Erosion and Sediment Control Practices Certified (#0129)

CPR/First Aid Certification

### **AREAS OF EXPERTISE**

Mr. Dana Valleau has project management and technical experience in the following general areas:

- Project Management
- State and Federal Permit Applications
- FERC Pipeline Environmental Studies and Permitting
- Wind Energy Environmental Studies and Permitting
- Hydroelectric Licensing & Compliance
- Database Management
- Agency Consultation
- Water / Soil Sampling
- Radio Telemetry
- Remote Sensing and Photo-interpretation
- Wetland Delineation
- Vernal Pool Identification and Documentation
- Fish / Wildlife Studies, including RTE Species

### **REPRESENTATIVE EXPERIENCE**

Mr. Dana Valleau has over twenty years of experience working in the environmental field in a wide variety of capacities, including reviewing state permit applications, enforcing state land use laws, database management, water, biota, and soil sampling, radio telemetry, wetland delineation, fishway operations, fish and wildlife habitat identification including vernal pools, eagle nest surveys, and fish and wildlife population studies. He has experience in local, state, and federal regulatory processes and permitting, a thorough understanding of environmental construction standards, and erosion control Best Management Practices. He is familiar with FERC permitting and compliance with pipeline and hydro-electric licensing as well as wind power environmental studies and permitting.

### **Walden Green Energy (formerly Eolian Renewable Energy, LLC), Antrim Wind Energy Project (2010 – present)**

Coordinated and managed all field studies related to preparing a New Hampshire Site Evaluation Committee permit application including a state Alteration of Terrain and Dredge and Fill permit applications. Consulted with federal and state agencies to scope field studies and assess potential impacts. Consultation with USFWS included developing a Bird and Bat Conservation Strategy (BBCS) and addressing Bald and Golden Eagle Act issues. Currently supporting construction environmental compliance.

**Exelon Corporation, Seneca Wind Farm, Seneca County, Ohio (2016)**

The Seneca Wind Farm is a wind farm proposed for Seneca County, Ohio. Mr. Valleau performed pre-construction eagle and raptor nest surveys in and adjacent to the project area.

**TransCanada Energy, Ltd., Kibby Wind Power Project (2004 – present)**

Coordinated and managed all field studies related to the successful permitting a 132-megawatt wind power generation facility and related facilities including substation and transmission line. Mr. Valleau performed breeding bird, Canada lynx, and eagle nest surveys for the project. He also led consultation with federal and state agencies and preparing federal, state, and local permit applications. During permitting he provided expert testimony at public hearings related to site natural resources and avian studies. During construction Mr. Valleau was the project manager for construction environmental compliance and owners engineer work for TransCanada. He is currently assisting TransCanada Operations with post-construction compliance and operations.

**Central Maine Power, Various Electric Transmission Line Construction Projects (2010 – present)**

Mr. Valleau consults with local, state and federal agencies and performs wetland delineations, vernal pool surveys, eagle nest surveys, and construction compliance inspections. He also prepares local, state, and federal applications and provides environmental training and inspection services for electric transmission line construction projects.

**TransCanada Energy, Ltd., Kibby Expansion Wind Power Project (2009 – 2011)**

Coordinated and managed all field studies related to permitting a 45-megawatt addition to an existing wind power generation facility and related facilities including substation and collector line. Performed raptor migration and eagle nest surveys. Consulted with federal and state agencies and prepared on permit applications for federal, state, and local permits.

**Other Experience****Maine Department of Environmental Protection, Enforcement Unit (1998 – 1999)**

Investigated complaints, conducted on-site investigation and inspection, provided technical advice and education to the public to ensure compliance with environmental laws, rules, and standards, reviewed Maine State Natural Resource Protection Act Permit-by-Rule Notifications and drafted, negotiated, and presented notices of violation and consent agreements.

**Maine Department of Environmental Protection, Enforcement Unit (1998 – 1999)**

Prepared educational presentations of State rules and regulations to construction and forestry professionals and municipal officials.

**Maine Department of Environmental Protection, Licensing Unit (1997 – 1998)**

Reviewed and evaluated Site Location of Development Permit Applications. Negotiated, drafted permits and performed compliance inspections of Site Projects.

**Maine Department of Environmental Protection, Geology Unit (1996 – 1997)**

Compiled and confirmed site data of potential groundwater threats and performed QA/QC on state-wide groundwater database (ORACLE) and GIS for the Maine Department of Environmental Protection (MDEP), Augusta, Maine.

**Maine Department of Environmental Protection, Biology Unit (1995)**

Provided assistance to MDEP biologists and engineers by collecting water, fish, and insect samples, observing field conditions, managing data, and writing reports for waste-load allocation studies, a state-wide toxin study, and a state-wide water quality survey.

**Atlantic Sea-Run Salmon Commission, Narraguagus River Project (1991 – 1993)**

Assisted State Atlantic salmon (*Salmo salar*) biologists in the development and implementation of a habitat survey of the Narraguagus River drainage, using standard surveying techniques and GIS as part of ongoing Atlantic salmon restoration program. Monitored adult populations through fishway trapping. Also assessed juvenile populations by electro-fishing and collected surface and ground water samples.

**Bangor Hydro Electric Company, Veazie and Milford Hydro Projects (1989)**

Assisted Bangor Hydro-Electric Company biologists in locating fish with radio telemetry, tending fishway traps, data management and entry, and fishway inspection, as part of hydroelectric licensing and relicensing on the Penobscot River, Maine. Funded by Buddy Lane Fellowship.

**Atlantic Sea-Run Salmon Commission, Salmon Restoration Project (1987 – 1988)**

Assisted State Atlantic salmon biologists in radio telemetry, electro-fishing, tending fishway traps, stocking, hatchery work, habitat survey, habitat maintenance, fishway inspection data management and entry, and water pH and DO sampling in ongoing Atlantic salmon restoration efforts and hydro-electric licensing and relicensing on all the Atlantic salmon rivers in Maine. Funded by Buddy Lane Fellowship.

**Downeast Peat LP, Denbo Heath Project, Downeast Peat LP Peat Mine and Electric Generation Facility (1988)**

Conducted breeding bird and mammal use survey in and adjacent to peat bogs.

**U.S. Fish and Wildlife Service, Fisher Project, Maine Coop Fish and Wildlife Unit, Orono, ME (1986)**

Assisted doctorate candidate in field study of fisher (*Martes pennanti*) utilizing radio telemetry to identify home range and habitat use in central Maine.



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## **KATHLEEN R. MILLER, CWS, LSE**

### **EDUCATION**

B.S., Natural Resource Management, University of Maine at Orono, 1985

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

New Hampshire Certified Wetland Scientist (CWS # 179, 2000)

Maine Licensed Site Evaluator (SE # 229, 1987)

Mediation and Alternate Dispute Resolution Certification (2001)

### **AREAS OF EXPERTISE**

- Energy Project Management
- Comprehensive Federal, State, and Local Regulatory Compliance
- National Environmental Policy Act (NEPA) Compliance and Environmental Studies
- Agency Consultations and Stakeholder Outreach
- Impact Avoidance and Minimization Evaluations
- Impact Compensation Strategies and Implementation

### **REPRESENTATIVE EXPERIENCE**

Ms. Miller has over 30 years of experience leading multi-disciplinary teams and successfully delivering comprehensive environmental regulatory compliance for large energy projects, on schedule, and within budget. She has the technical experience and capability to perform project siting evaluations, constraints analyses, impact assessments, and to identify project alternatives that support regulatory requirements. She also understands the importance of stakeholder engagement in the regulatory process and has successfully supported clients at regulatory agency meetings, public hearings, and informational meetings.

#### **Patriot Renewables, LLC, and Jay Cashman, Inc. – ME**

Project Manager responsible for implementation of environmental surveys, siting analyses, and comprehensive regulatory compliance for the following Maine wind energy projects:

- Canton Mountain Wind – Canton and Dixfield, ME
- Saddleback Ridge Wind Project – Carthage, Dixfield, and Canton, ME
- Spruce Mountain Wind Project – Woodstock, ME

#### **Dominion Resources Inc., Offshore Wind Technology Advancement Project – Offshore, Virginia Beach, VA**

Project Manager responsible for comprehensive local, state, and federal regulatory compliance for innovative offshore wind technology testing demonstration project proposed off the coast of Virginia Beach, VA. Project involved comprehensive marine surveys performed in accordance with new guidelines issued by the Department of Interior's Bureau of Ocean Energy Management (BOEM) and federal regulatory filings in accordance with a new federal regulatory program developed by BOEM, extensive agency coordination, and public outreach.

**Statoil North America, Hywind Maine Offshore Wind Project – Offshore, Boothbay Harbor, ME**

Project Manager responsible for comprehensive state and local regulatory compliance for offshore wind demonstration project proposed off the coast of Boothbay Harbor, Maine. Project involved coordination with client based in Norway and comprehensive coordination with local, state, and federal regulators and extensive stakeholder outreach program throughout Maine.

**Competitive Power Ventures Holdings, LLC – Braintree, MA**

Project Manager responsible for environmental surveys, natural resource assessments, and regulatory compliance support for the following CPV wind energy generation projects:

- 750-megawatt Titan Wind Farm – Kiowa County, CO
- 350-megawatt Rattlesnake Den Wind Farm – Glasscock County, TX
- 165-megawatt Cimarron Wind Energy Project – Gray County, KS

**EDP Renewables, Maple Ridge Wind Farm – Lowville, NY**

Project Manager responsible for performing a compliance audit for operation of the Maple Ridge Wind Farm. Assisted EDP with preparing Standard Operating Procedures assisting operations staff, not typically involved with development-phase regulatory compliance, with maintaining project facilities in compliance with applicable laws, regulations, and development-phase permit conditions.

**NextEra Energy Resources, Blackwell Wind Farm – Blackwell, OK**

Project Manager responsible for comprehensive regulatory compliance for 60-megawatt wind energy project located in Blackwell, Oklahoma.

**NextEra Energy Resources, Sanford Airport Solar Project – Sanford, Maine**

Project Manager for Sanford Airport Solar Project (Project), a 50-megawatt solar energy generation facility at the Sanford Seacoast Regional Airport in Sanford, Maine. Project required a Federal Environmental Assessment in accordance with the Federal Aviation Administration's NEPA implementing regulations, an aircraft glint and glare hazard analysis, Maine Site Location of Development Act (Site Law) and Natural Resources Protection Act (NRPA) permits from the Maine Department of Environmental Protection (MDEP) and local permits from the City of Sanford.

**NextEra Energy Resources, LLC, Farmington Solar Project – Central, Maine**

Senior Technical Advisor for the Farmington Solar Project (Project), a 77-megawatt solar energy generation facility in Farmington, Maine. The facility includes ground-mounted fixed-tilt photovoltaic panels within a chain-link security fence, primary and secondary access roads, electrical collector lines, transformers and inverters, temporary construction staging, and a Project Substation. Project required Maine Site Law and NRPA permits from the MDEP and local permits from the Town of Farmington.

**PROFESSIONAL AFFILIATIONS**

- Maine Association of Wetland Scientists, President, President Elect, Past President (2003 – 2007)
- Maine Association of Site Evaluators (former Executive Board member)
- Maine Association of Mediators

## **KAREN E. MACK**

### **EDUCATION**

BA Anthropology (Magna Cum Laude), University of New Hampshire, Durham, NH, 1991

MS Quaternary Science/Archaeology, University of Maine, Orono, ME, 1994

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

Register of Professional Archaeologists, 1999

Level I and 2 Approved Prehistoric Archaeologist, Maine State Historic Preservation Office

Approved Archaeologist, New Hampshire State Historic Preservation Office

### **AREAS OF EXPERTISE**

- Archaeological Inventory Survey
- Archaeological Site Testing
- Archaeological Data Recovery
- Topographical Survey and Mapping
- Project Management and Logistics
- Report Preparation
- Ceramic Analysis
- Public Education and Research

### **REPRESENTATIVE EXPERIENCE**

Ms. Mack has 25 years of experience in the field of Cultural Resource Management specializing in prehistoric archaeological resources. During that time, she has been involved in all levels of archaeological investigation from project planning to report preparation. Ms. Mack has worked throughout New England and New York with a focus on Maine; she has conducted projects ranging from initial resource identification survey to intensive data recovery, both at coastal and interior locations. In addition to development and licensing projects, Ms. Mack has extensive expertise in the identification and evaluation of prehistoric cultural resources within hydroelectric and water storage impoundment projects. Ms. Mack has successfully managed projects possessing challenging logistics in remote locations. Ms. Mack is currently employed as Senior Archaeologist with TRC Environmental and is working on numerous new and ongoing projects.

Ms. Mack serves as principle investigator and director of field investigations, data analysis and report writing for all levels of investigation: Phase I – III. Including developing sensitivity models for large and small scale development project such as natural gas pipe lines, transmission lines, wind farms, and residential developments.

#### **Phase I Archaeological Investigation of Hiram Hydroelectric Project (FERC No. 2530), Oxford and Cumberland Counties, ME (2020)**

This project involved the determination of presence or absence of archaeological resources within a 1,310-acre reservoir on the Kennebec River. As Principal investigator Ms. Mack directed all background research, walkover survey, field investigations, reporting and consultation with the Maine Historic Preservation Commission (MHPC).



**Phase I Archaeological Investigation of Shawmut Hydroelectric Project (FERC No. 2322), Somerset & Kennebec Counties, ME (2019)**

This project involved the determination of presence or absence of archaeological resources within a 30-mile run of river hydroelectric project located on the Saco River. As Principal investigator Ms. Mack directed all background research, walkover survey, field investigations, reporting and consultation with the Maine Historic Preservation Commission (MHPC).

**Intensive (Locational) Archaeological Survey of the Eversource Hopkinton Ashland Transfer Line Replacement Project, Hopkinton-Ashland, Middlesex County, MA (MHC# RC.63674) (USACE# NA E-2018-00117) (2019)**

This project involved the determination of presence or absence of archaeological resources within an existing gas pipeline owned Eversource Energy to facilitate the replacement of approximately 3.71 miles of existing 6-inch diameter pipe originally 1951 with new 12-inch diameter pipe. As Principal investigator Ms. Mack directed all background research, walkover survey, field investigations, reporting and consultation with the Tribal Historic Preservation Officers and the Massachusetts Historical Commission (MHC).

**Archaeological Site Avoidance and Protection Plan (SAPP) New England Shieldwire Replacement and Asset Condition Project 115 kV LINES X3/W4, X3/K15, X3/P11, P11/K15, Q10/P11, R9/P11, R9/Q10, AND R9/J16 Southeast MA and Eastern RI (2017)**

This project involved the development of a site avoidance and protection plan for cultural resources identified within National Grid's 29.5 miles of 115 kV transmission lines composing the New England Shieldwire Replacement and Asset Condition Project. As Principal investigator Ms. Mack consulted with the Tribal Historic Preservation Officers and the Massachusetts Historical Commission (MHC) to develop a site avoid plan and coordinate monitoring of construction near cultural resources within the Project boundaries.

**Phase IB Archaeological Resource Survey Proposed Cape Vincent Wind Farm Project, Cape Vincent and Lyme, Jefferson County, NY (2013).**

This project proposed the development of the Cape Vincent Wind Farm Project that included the construction of 124 turbines and associated facilities across 26,000 acres BP Wind Energy, NA Inc., Houston, Texas. Ms. Mack co-directed all field work, analysis and report writing for the project.

**Phase IA Archaeological Assessment of the Proposed Antrim Wind Park, Antrim, NH (2011).**

This project proposed the development of the Antrim Wind Park Project that included the construction of 8 turbines and access roads. Ms. Mack directed all field work, analysis and assisted with report writing for the project.

**Phase IA and Phase IB Archaeological Resource Survey Proposed St. Lawrence Wind Power Project, Western NY (2008).** This project proposed the development of the St. Lawrence Wind Power Project that included the construction of 84 turbines and 9 miles of 34.5 kV to 115 kV overhead transmission line Acciona Energy, NA. Ms. Mack co-directed all field work, analysis and report writing for the project.



## **DAVID L. PRICE, M.A.**

### **EDUCATION**

M.A., History with emphasis in Public History, Middle Tennessee State University, 2005 B.A., American Studies, University of the South, Sewanee, 1999

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

National Park Service, 36 CFR, Part 61 - Architectural Historian

### **AREAS OF EXPERTISE**

Mr. Price has technical experience in the following general areas:

- Historic Architectural Surveys
- Background History Research
- Historic property research and documentation
- Section 106 compliance
- National Register of Historic Places (NRHP) Evaluations and Nominations
- Assessments of Effect and mitigation strategies

### **SUMMARY EXPERIENCE**

David Price has 16 years of experience in the cultural resource management industry and serves as Senior Architectural Historian in the TRC Nashville office. He has conducted dozens of Section 106 review projects across the Tennessee Valley region and the nation, including several projects in Maine. He specializes in architectural history surveys, background history research, National Register of Historic Places (NRHP) evaluations and nominations, and effects assessments. David has also directed several Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation projects, historic properties management plans, effects mitigation plans, and public history interpretation projects. David has prepared project reports and other deliverables for a variety of clients, including the Tennessee Valley Authority, the State of Tennessee, city and county governments, private architecture and engineering firms, and numerous federal agencies. David prepares architectural history project proposals, cost estimates, and manages additional architectural history staff in the TRC Nashville office.

### **REPRESENTATIVE MAINE EXPERIENCE**

#### **York Farm Historical Documentation, Farmington, Franklin County, Maine (MHBR No. 99) (2020)**

Completed background research, field survey, large-format black-and-white archival photography, and reporting of the York Farm in Farmington for the Maine Historic Building Record (MHBR) before completion of the Farmington Solar Project. The York Farm is eligible for listing in the National Register of Historic Places (NRHP) under Criterion A in the area of Agriculture for its association with Farmington's agricultural history since the early nineteenth century. The York Farm is also eligible under Criterion C as a significant example of a Maine connected farm building constructed ca. 1820-1830 that retains integrity of location, design, setting, materials, workmanship, feeling, and association. The period of significance is ca. 1820 – 1969 to correspond with its date of construction through the NRHP 50-year age guideline.

**Historic Resources Survey, Brookfield Renewable, Hiram Hydroelectric Project, Saco River, Oxford and Cumberland Counties, Maine (2018)**

Conducted an architectural survey, NRHP evaluation, and Section 106 assessment of effect for the proposed FERC relicensing of the Hiram Hydroelectric Project in Oxford and Cumberland Counties, Maine. The project evaluated the eligibility of the Project facilities and two other resources aged 50 years or older in the APE. TRC recommended the proposed relicensing will have no effect on historic properties.

**Central Maine Power, Sections 241, 281, and 38, Kennebec and Somerset Counties, Maine (2018)**

Completed an architectural history survey of the Waterville Area Transmission Project, a seven-mile long transmission corridor in central Maine. The project includes the construction of a new 115 kilovolt (kV) transmission line named Section 241 alongside the existing 115 kV Section 241A, which will undergo upgrades and be renamed Section 281. The survey recorded 47 properties aged 50 years or older within the project's 0.5-mile APE, including farmsteads, landscape features, individual houses, a hydroelectric facility, and a NRHP-eligible rural historic district. This survey project included background research in the survey files of the Maine Historic Preservation Commission (MHPC) and local libraries, field survey, effects assessment, and reporting. TRC recommended the proposed project will have no adverse effect on historic properties and the MHPC concurred.

**Historic Resources Survey, Brookfield Renewable, Shawmut Hydroelectric Project, FERC Relicensing, Towns of Benton and Fairfield, Kennebec and Somerset Counties, Maine (2016)**

Conducted an architectural survey, NRHP evaluation, and Section 106 assessment of effect for the proposed FERC relicensing of the Shawmut Hydroelectric Project, which was constructed in 1913 on the Kennebec River in Somerset and Kennebec Counties, Maine. TRC recommended the proposed relicensing will have no effect on historic properties and the MHPC concurred.

**Central Maine Power, Lakes Region, Sections 94 and 98, Cumberland County, Maine (2016)**

Conducted an architectural history survey for a proposed 10-mile 34.5 kV electrical transmission line known as Section 98 alongside an existing transmission corridor in Cumberland County, Maine. Section 98 will run parallel to Section 94 (34.5 kV), which CMP is proposing to rebuilt along its existing centerline. The survey documented 58 architectural resources located within the project's 0.5-mile radius APE, including two substations. This survey project included background research in the survey files of the MHPC and local libraries, field survey, effects assessment, and reporting. TRC recommended the proposed project will have no adverse effect on historic properties and the MHPC concurred.

## **DIANE E. REILLY**

### **EDUCATION**

M.A., Economics, University of Georgia

B.A., Economics and Spanish, Furman University

### **AREAS OF EXPERTISE**

Ms. Diane E. Reilly has technical experience in the following general areas:

- Economic Impact Modeling for Solar, Wind, and Natural Gas Energy Projects
- Environmental Impact Statements and Environmental Assessments
- Economic/Socioeconomic and Environmental Justice Studies
- Recreation Use Studies

### **REPRESENTATIVE EXPERIENCE**

Ms. Reilly has 25 years of environmental consulting. Ms. Reilly provides analyses of socioeconomic, Environmental Justice, recreational, and land use impacts for Environmental Assessments (EAs) and Environmental Impact Statements (EISs). She is experienced in providing economic modeling and Environmental Justice analyses for the permitting of wind, solar, and natural gas power projects.

#### **Confidential Client, Solar Projects – New York and Maine (Economist: 2018 - present)**

Ms. Reilly is calculating economic impacts of multiple proposed solar power projects in New York and Maine during the projects' construction phases and the operation and maintenance phases using the JEDI solar model. For the projects, she evaluates direct, indirect, and induced effects in terms of jobs, earnings, and output. For the projects located in New York, Ms. Reilly also provides demographic, housing, and employment analyses for the project area and evaluates Environmental Justice issues. The analyses culminate in Exhibits for the Article 10 filing with New York State. For two previously filings, Ms. Reilly is providing expert testimony and ongoing support.

#### **CSX Transportation, Howard Street Tunnel—Maryland, Delaware, and Pennsylvania (Economist: 2020-present)**

In support of the Howard Street Tunnel Project federal review (NEPA), Ms. Reilly is preparing the Environmental Justice and socioeconomic analyses. Ms. Reilly is responsible for evaluating the direct, indirect, and cumulative impacts of the proposed track modifications and improvements at more than 20 sites along the I-95 track corridor. The Socioeconomic Analysis and Environmental Justice Technical Memorandums and the Project's Draft Environmental Assessment are being prepared for the Federal Railroad Administration.

#### **City of Chicago (IL), Municipal Development Projects Supporting the Obama Presidential Center—Chicago, IL (Economist: 2019-present)**

Ms. Reilly is preparing the Environmental Justice and socioeconomic analyses relating to the federal review (NEPA) of the municipal development projects supporting the Obama Presidential Center in Chicago, Illinois. The Social and Economic Analysis Technical Memorandum and the Project's Draft Environmental Impact Statement are being prepared for the National Park Service and the Federal Highway Administration. In support of this effort, Ms. Reilly has reviewed and evaluated various studies

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prepared by third parties. Ms. Reilly is drawing from these studies to evaluate the direct, indirect, and cumulative impacts of the proposed Federal Actions in Jackson Park. Ms. Reilly's evaluation includes impacts associated with the proposed Obama Presidential Center.

**Danskammer Energy, Danskammer Energy Center – Newburgh, NY (Economist: 2019)**

Ms. Reilly evaluated the potential economic impacts associated with the proposed repowering of the existing 532 MW Danskammer generating facility with a state-of-the-art natural gas-fired combined cycle power generation facility. The National Renewable Energy Laboratory's Jobs and Economic Development Impact (JEDI) natural gas model was used to analyze the Project's expected impacts on jobs, earnings, and output.

**Southern Natural Gas, Evangeline Pass Expansion Project—Louisiana and Mississippi (Economist: 2019-2020)**

Ms. Reilly prepared the Socioeconomics Resource Report supporting the filing of an application with the Federal Energy Regulatory Commission under Sections 7(b) and 7(c) of the Natural Gas Act and Part 157 of the Commission's regulations. Ms. Reilly's socioeconomic analysis also included Environmental Justice. Ms. Reilly was responsible for evaluating the direct, indirect, and cumulative impacts of the proposed modifications and improvements at 22 in Louisiana and Mississippi.

**Confidential Client, Eight Point Wind Energy Center – Greenwood and West Union, NY (Economist: 2017 – 2019)**

For the Eight Point Wind Energy Center, Ms. Reilly calculated the economic impacts of the proposed project's construction phase and the operation and maintenance phase using the JEDI wind model. She evaluated potential impacts effects in terms of jobs, earnings, and output. Ms. Reilly provided demographic, housing, and employment analyses for the project area. She also developed the Environmental Justice analysis. The analyses were presented as Exhibits for the Article 10 filing with New York State. Ms. Reilly provided expert testimony and ongoing support as part of the Rebuttal Panel.

**Tennessee Valley Authority (TVA), Rock Island State Park – RI and TN (Economist: 2018)**

For TVA, Ms. Reilly evaluated the anticipated socioeconomic effects of a proposed road construction project and the renovation of an historic mill into lodging and a restaurant. The project involved calculating direct impacts in terms of jobs, earnings, and output for the construction phase and the operation and maintenance phase. She addressed potential recreation-related spending associated with the proposed inn and restaurant. Ms. Reilly also analyzed area demographic, housing, and employment.

**New York Power Authority, Blenheim-Gilboa Pumped Storage Project – Blenheim and Gilboa, NY (Technical Lead, Economics: 2012 – 2017)**

Ms. Reilly served as technical lead for the socioeconomic issues related to the relicensing of NYPA's 1,160 MW Blenheim-Gilboa Pumped Storage Power Project. She authored the socioeconomic portion of the Pre-Application Document, the Socioeconomic Study, and portions of the Draft License Application submitted to the Federal Energy Regulatory Commission. As the technical lead, Ms. Reilly managed the REMI analysis and participated in public meetings, presenting the socioeconomic study findings. Her recreation efforts include analyzing recreation use, activity data, and recreation user survey data.

**New York Power Authority, Niagara Power Project – Niagara Falls, NY (Technical Lead,  
Economics: 2002 – 2005)**

Ms. Reilly assisted in the development of the Scope of Services, managed the REMI modeling, and authored sections of the socioeconomic report for the relicensing of the Niagara Power Project (2,755 MW). The project required the development of a new license application and a settlement structure to meet the needs of NYPA and the more than 100 interested parties.



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## **DUANE M. CHOQUETTE**

### **EDUCATION**

B.S., Biology, University of Massachusetts - College of Arts and Sciences, 2000

### **AREAS OF EXPERTISE**

Mr. Choquette is an Ecologist located in the Scarborough, Maine office. Mr. Choquette has 15 years of field experience encompassing:

- Biological Resource Assessment and Field Surveys
- Rare, Threatened, and Endangered Species Surveys and Permitting.
- Vernal Pool Surveys and Assessments
- Wetland Delineation and Regulatory Permitting
- GPS data collection, Remote sensing analysis, and data processing

### **SPECIALIZED TRAINING**

- PADCNR Wild Plant Management permit #12-511
- New York State Fish and Wildlife License: Endangered/Threatened Species General Handling Permit for Timber Rattlesnakes (*Crotalus horridus*) #212

### **REPRESENTATIVE EXPERIENCE**

At TRC, Mr. Choquette is responsible for a wide variety of biological field survey efforts ranging from wetland delineations and rare species surveys, to vegetation mapping and resource assessments. Mr. Choquette manages multiple project aspects, combining permitting expertise with organization of field crews, data collect and manipulation. His duties include impact studies for natural resources, such as water quality of streams and rivers, sensitive habitats such as vernal pools and wetlands, wildlife habitat evaluation, rare plant and animal surveys, construction monitoring, and preparation of wetland mitigation plans and permitting tasks on the local, State and Federal level. Mr. Choquette also provides construction inspection support for a variety of utility projects. In this role, he is responsible for permit compliance for rare, threatened, and endangered species related impacts, sediment and erosion control, dewatering, vegetation removal and overall compliance with permit conditions. He has worked on projects throughout the Northeast and Northcentral United states, from Maine to Maryland.

### **RARE, THREATENED & ENDANGERED SPECIES RELATED ACTIVITIES**

**Confidential Client – King Pine Wind, Smyrna Mills - ME** Mr. Choquette was part of a multidisciplinary team conducting environmental assessments for RTE species and wetland delineations on the King Pine Wind Project. Tasks included field coordination, resource delineation, migratory bird surveys and lynx tracking surveys.

#### **Central Maine Power Company - New England Clean Energy Connect – ME**

Mr. Choquette was responsible for management of the field crews and conducting environmental field surveys for rare and endangered plant species and along the proposed linear transmission line corridor ROW.

#### **Nextera, Sanford Wind Project: Threatened and Endangered Species Surveys –ME**

Mr. Choquette was the project lead responsible for conducting threatened and endangered species surveys for blanding's turtle (*Emydoidea blandingii*), wood turtles (*Glyptemys insculpta*), spotted turtles (*Clemmys guttata*), and assessing rare plant communities.

#### **Orange and Rockland Utilities, Inc. Transmission Project Line 28– Orange, Rockland & Sullivan County, NY**

Mr. Choquette conducted surveys to locate potential habitat for threatened and endangered species, specifically Timber Rattlesnakes (*Crotalus horridus*) and Bog Turtles (*Glyptemys muhlenbergii*).

**Spectra, Atlantic Bridge Project – NY, CT**

Mr. Choquette conducted resource assessments and preliminary habitat surveys for brook floater mussels (*Alasmidonta varicosa*), timber rattlesnakes (*Crotalus horridus*) and Phase 1 Bog turtle (*Glyptemys muhlenbergii*) surveys on Access Northeast pipeline facilities in New York. Mr. Choquette also conducted rare plant surveys for small whorled pogonia (*Isotria medeoloides*) in New York and hairy-fruited sedge (*Carex trichocarpa*) in Connecticut, along with the preparation and submittal of the resultant report.

**Spectra, Algonquin Incremental Project (AIM) – NY, CT**

Mr. Choquette conducted resource assessments and preliminary habitat surveys for timber rattlesnakes (*Crotalus horridus*) and bog turtles (*Glyptemys muhlenbergii*), on AIM pipeline facilities in New York. Mr. Choquette also conducted rare plant surveys for small whorled pogonia (*Isotria medeoloides*), Climbing fern (*Lygodium palmatum*), Collin's Sedge (*Carex collinsii*), Field Paspalum (*Paspalum laeve*), Three-leaved Solomon's Seal (*Maianthemum trifolium*), Twinflower (*Linnaea borealis* spp. *Americana*), Yellow Fringed Orchid (*Platanthera ciliaris*), Hard-stemmed Bulrush (*Scirpus acutus*) and Threadfoot (*Podostemum ceratophyllum*) on various pipeline facilities in New York and Connecticut.

**PPL Conastone-Otter Creek 230 kV Transmission Rebuild Project – York County, PA**

Mr. Choquette is serving as the field lead for the PPL Conastone-Otter Creek 230 kV Transmission Rebuild Project, which is proposing reconstruct an approximately 112 -mile portion of the existing Conastone-Otter Creek 230 kV transmission line located in York County, Pennsylvania. Mr. Choquette has been responsible for the implementation of wetland delineation surveys, surveys for the federally listed bog turtle (*Glyptemys muhlenbergii*), and surveys for the state listed dwarf azalea (*Rhododendron atlanticum*), and the preparation of environmental permitting reports. Mr. Choquette is also assisting in obtaining the required environmental permits.

**PPL Conastone-Otter Creek 230 kV Transmission Rebuild Project – York County, PA**

Mr. Choquette served as the field lead for the PPL Conastone-Otter Creek 230 kV Transmission Rebuild Project, which is proposing reconstruct an approximately 112 -mile portion of the existing Conastone-Otter Creek 230 kV transmission line located in York County, Pennsylvania. Mr. Choquette has been responsible for the implementation of wetland delineation surveys, surveys for the federally listed bog turtle (*Glyptemys muhlenbergii*), and surveys for the state listed dwarf azalea (*Rhododendron atlanticum*), and the preparation of environmental permitting reports. Mr. Choquette is also assisting in obtaining the required environmental permits.

**Spectra Energy, NJ-NY Expansion Project – NJ, NY, and CT**

Mr. Choquette was responsible for management of the field crews, conducting environmental field surveys, rare species surveys for timber rattlesnakes (*Crotalus horridus*), resource assessments, and coordinated with regulatory agencies for work at aboveground facilities and along linear pipeline ROWs throughout New York, Connecticut and New Jersey.

**National Grid, O15S Conversion Project: Threatened and Endangered Species Surveys –MA**

Mr. Choquette was the project lead responsible for conducting threatened and endangered species surveys for eastern box turtles (*Terrapene carolina*), wood turtles (*Glyptemys insculpta*) and Eastern Worm Snakes (*Carphophis amoenus*).

**VT Transco – VELCO Annual RTE Botanical System-wide surveys – VT**

Mr. Choquette is responsible for management, implementation, and conducts annual multi-year RTE botanical surveys, to assess and address known populations of RTE plants located within existing VELCO transmission corridors.



**VT Transco – VELCO Monitoring Blanket Service Agreement – VT**

Mr. Choquette is responsible for management of a multidisciplinary team to provide VT Transco with annual environmental compliance monitoring and reporting services on seven separate projects throughout Vermont. In this role Mr. Choquette conducts and manages RTE plant/animal surveys, herbicide monitoring, invasive species control, and wetland mitigation/restoration efforts in support of various project permits and environmental authorizations. Mr Choquette conducts yearly monitoring for black racers (*Coluber constrictor*), various rare plants, and vernal pools.

**VT Transco – VELCO Connecticut Valley River Project – VT**

Mr. Choquette is TRC's Project Manager providing environmental permitting services for VT Transco's Connecticut River Valley Project. Mr Choquette is responsible for the development of erosion prevention and sediment control plans and obtaining regulatory approvals from the Vermont Department of Environmental Conservation. Mr. Choquette is also responsible for directing resource area assessments for invasive/nuisance plants, multiple rare plant species and natural habitats of concern. Major project permitting and construction of is expected to occur in 2016.

**Vermont Electric Company (VT TRANSCO), Queen City Substation, – VT**

Mr. Choquette conducted RTE resource assessments at the Queen City Substation Project Area for the presence of the Hare Figwort (*Scrophularia lanceolata*), along with the preparation and submittal of the resultant report.

**Vermont Electric Company (VT TRANSCO), Southern Loop Project, – VT**

Mr. Choquette conducted rare plant surveys for the three-bird orchid (*Triphora trianthophora*) and northeastern bulrush (*Scirpus ancistrochaetus*) for VT TRANSCO's Southern Loop Project. Mr. Choquette was also responsible for preparation of the resultant reports for the Vermont Agency of Natural Resources.

**Vermont Electric Company (VT TRANSCO), VELCO NRP 115kV, – VT**

Mr. Choquette conducted rare plant surveys for the greene's rush (*Juncus greenei*) for VT TRANSCO's NRP 115kV Project. Mr. Choquette was also responsible for preparation of the resultant reports for the Vermont Agency of Natural Resources.

**Vermont Electric Company (VT TRANSCO), K31 Transmission Project, – VT**

Mr. Choquette conducted rare plant surveys for Fernald's sedge (*Carex merritt-fernaldii*), Macoun's cudweed, (*Pseudognaphalium macounii*), grassleaf rush (*Juncus marginatus*), and fall dropseed muhly (*Muhlenbergia uniflora*). Mr. Choquette was also responsible for the design and implementation of Invasive Plant survey and monitoring protocols, and resource assessments for removal of invasive plants for this project.

**Gorrill Palmer Consulting Engineers, Sabbathday Lake Outlet Bridge, – ME**

Mr. Choquette conducted resource assessments at the Sabbathday Lake Outlet Bridge Project Area for the presence of the small whorled pogonia (*Isotria medeoloides*), along with the preparation and submittal of the resultant report.

**PPL Electric Utilities, Peckville-Varden 138/69 kV Rebuild Project, Wayne and Lackawanna Counties, PA**

Mr. Choquette was the environmental team lead on wetland delineation survey efforts for the planned 19.5-mile Peckville-Varden 138/69 kV Transmission Line Rebuild Project which is being conducted under the Pocono/Northeast Reliability Project. This Project involves ecological studies, including the delineation of wetlands and suitable habitat for various plant species of special concern and protected wildlife species identified by the trustee agencies. Mr. Choquette was the project lead in charge of the RTE species surveys and assessment for the project. He conducted habitat assessments for the Small-footed Bat (*Myotis leibii*), and as a state-licensed botanist, also conducted rare plant surveys for the Project. Mr. Choquette prepared the survey reports to gain agency clearance for rare, threatened, and/or endangered species located along the existing transmission line corridor.



## **RANDI JACKSON, AWB**

### **EDUCATION**

B.S., Wildlife Ecology, Concentration in Conservation Biology, University of Maine, 2016

### **PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

Associate Wildlife Biologist

Maine DEP Erosion and Sediment Control Practices Certified

CPR/First Aid Certification

### **AREAS OF EXPERTISE**

Ms. Randi Jackson has technical experience in the following general areas:

- Wind Energy Environmental Studies
- Fisheries and Wildlife Studies, including RTE Species
- Environmental Inspections
- GPS Data Collection and Processing
- Data Management
- Permitting and Licensing

### **REPRESENTATIVE EXPERIENCE**

Ms. Jackson has four years of experience in the environmental consulting field. She has field experience across a broad range including point-count song bird surveys, post-wind construction mortality surveys, Canada lynx tracking surveys, raptor migration surveys, fish and wildlife habitat identification including vernal pools, eagle nest surveys, fish and wildlife population studies, and database management. She also has experience with erosion control practices and environmental inspections. Ms. Jackson has worked on recreation studies including recreational activity surveys. She is familiar with FERC permitting and compliance with hydro-electric licensing as well as wind power environmental studies and permitting.

#### **Confidential Client, Various Solar Projects – Various Locations, ME (2020)**

Ms. Jackson assisted with wetland and vernal pool surveys. Tasks included data management, data collection, basic plant ID, and QA/QC review. She also drafts and provides technical support for local permitting, Maine Department of Environmental Protection Natural Resource Protection Act permitting, and Army Corps of Engineers Maine General Permit permitting.

#### **Confidential Client, Bradley Solar Project – Bradley, ME (2020)**

Ms. Jackson helped conduct the Feasibility Study for a proposed 100 MW solar project in Bradley, Maine. Tasks included a desktop analysis of environmental constraints including: shoreland zoning, RTE species, Inland Waterfowl and Wading Bird Habitat, Deer Wintering Areas, Significant Vernal Pools, NWI mapped wetlands, and slopes. Ms. Jackson also helped conduct preliminary wetlands surveys tasks included preliminary wetland mapping, data collection, and data management.

#### **Confidential Client, North Side Solar Project – Massena, NY (2018 – 2019)**

Ms. Jackson conducted winter raptor point count and driving surveys on a potential solar site in New York. Her tasks included raptor identification, including sexing and ageing individuals when possible, and data entry and organization. Ms. Jackson also trained staff members to conduct surveys and ensured protocols were being followed.

**Confidential Client, King Pine Wind Project – Smyrna Mills, ME (2016 – 2018)**

Ms. Jackson conducted raptor surveys and eagle point count surveys in remote locations in multiple townships on the proposed 600 megawatt (MW), 174 turbine, and 345kV s/s wind project. Tasks included field coordination, raptor identification, and data management. She conducted breeding bird surveys during spring migration season that included point-count surveys, data collection, and data organization and management. She assisted staff in winter track surveys by snowmobile for Canada Lynx in the winters of 2017 and 2018. The tasks included developing survey protocol, track identification, and organizing and managing photos, GIS data, and data forms collected in the field. Ms. Jackson assisted with wetland and vernal pool surveys in 2017. Tasks included data management, data collection, basic plant ID, and QA/QC review. In addition, she assisted with gathering information and drafting the Site Law Application, specifically Wildlife and Fisheries Sections.

**Novatus, Bingham Wind Project – Bingham, ME (2018)**

Ms. Jackson assisted with data entry and organization for eagle surveys, post-construction mortality surveys, carcass persistence trials, and searcher efficiency trials. Ms. Jackson conducted post-construction mortality surveys along the existing 185 megawatt (MW), 56 turbine project. Her tasks included identification of migratory avian and bat species, and data collection.

**Novatus, Hancock Wind Project – Franklin, ME (2016 – 2018)**

Ms. Jackson assisted with data entry and organization for eagle surveys, post-construction mortality surveys, carcass persistence trials, and searcher efficiency trials. Ms. Jackson conducted post-construction mortality surveys, searcher efficiency trials and carcass persistence trials along the existing 51 MW, 17 turbine project. Her tasks included identification of migratory avian and bat species, data collection, and proper authorized collection, transport, and temporary storage of carcasses under USFWS Permit Number: MB29879C-0. In addition, Ms. Jackson conducted turbine pad vegetation mapping surveys with the use of Geode GPS unit and software.

**Novatus, Oakfield Wind Project – Oakfield, ME (2016 – 2018)**

Ms. Jackson conducted post construction eagle point count surveys for the operational Oakfield Wind Farm, a 148 MW, and 48 turbine project. Her tasks included raptor identification, data entry, and data organization. She also conducted post construction mortality surveys. Tasks included identification of migratory avian and bat species, data collection, and data management. Ms. Jackson assisted with data entry and organization for eagle surveys, post-construction mortality surveys, carcass persistence trials, and searcher efficiency trials. In addition, Ms. Jackson conducted turbine pad vegetation mapping surveys with the use of Geode GPS unit and software.

**SPECIALIZED TRAINING**

- MEDEP Basic Erosion Control Practices for Contractors, 2018
- American Heart Association CPR and First Aid Certification
- Microsoft Office Programs
- Proficient in use of Geode GPS units/software
- Proficient in use of iPhone technologies and software

**PROFESSIONAL AFFILIATIONS**

The Wildlife Society

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## **MEGAN E. STEVENSON, AWB**

### **EDUCATION**

B.S., Wildlife Ecology, Concentration in Wildlife Science and Management, University of Maine, 2015

### **AREAS OF EXPERTISE**

Ms. Megan E. Stevenson has technical experience in the following general areas:

- Raptor/Eagle Surveys
- Raptor/Eagle Identification, including sexing and aging when possible
- Wildlife Surveys
- Data Management

### **REPRESENTATIVE EXPERIENCE**

Ms. Stevenson has been working in the environmental consulting field for the last five years. During that time, she has developed, conducted, and lead several raptor and eagle survey field efforts. She has been involved with protocol development following both State and United States Fish and Wildlife Service Eagle Conservation Plan Guidance, agency consultation, survey location siting, training staff in raptor identification, and conducting raptor and eagle surveys. She is experienced in identification of raptor and eagle species found in the northeast. She currently provides field and technical support as an Environmental Scientist for TRC.

### **Environmental**

#### **Raptor and Eagle Surveys for proposed Wind Project – Franklin and Somerset Counties, ME (Field Staff/Field Lead: 2016, 2017)**

Ms. Stevenson conducted raptor surveys and eagle point count surveys in remote locations in multiple townships in western Maine. Tasks for studies included agency consultation, protocol development using state and USFWS Eagle Conservation Plan Guidance, field coordination, GIS mapping, survey site selection, hawk identification, and data management. Ms. Stevenson also trained staff members in raptor ID and ensured the protocol was being followed.

#### **Raptor and Eagle Surveys for proposed Wind Project – Aroostook County, ME (Field Staff/Field Lead: 2016, 2017)**

Ms. Stevenson conducted raptor survey and eagle point count surveys in remote locations in multiple townships in northern Maine. Tasks for studies included agency consultation, protocol development following state and USFWS Eagle Conservation Plan Guidance, field coordination, GIS mapping, hawk identification, and data management. Ms. Stevenson also trained staff members in raptor ID and ensured the protocol was being followed.

#### **Winter Raptor Surveys for Proposed Solar Developments – Various Locations, NY (Field Staff/Field Lead: 2018-2019)**

Ms. Stevenson drafted and prepared protocols following State guidance for winter raptor surveys at four potential solar sites in New York. She confirmed survey locations on the ground and worked with land agents to accommodate landowners. Ms. Stevenson trained staff members to conduct surveys and ensured protocols were being followed.

### **SPECIALIZED TRAINING**

- American Heart Association CPR and First Aid Certification
- Proficient in use of Garmin and Trimble GPS units/software



# TERRENCE J. DEWAN FASLA

## PRINCIPAL

Terry DeWan has over 45 years of professional experience in landscape architecture, visual resource assessment, site planning, design guidelines and community development. His experience includes work with communities, state agencies, private developers, utility companies, and the forest products industry in New England. He has written numerous studies on visual impacts, community planning, recreation planning, water access and highway corridor redevelopment.

## SELECTED PROJECT EXPERIENCE

### Visual Impact Assessments

**OCEAN WIND, Offshore Southern New Jersey.** Visual Impact Assessment for a 1,100 MW offshore wind project located 15-miles off the coast of New Jersey.

**NEW ENGLAND CLEAN ENERGY CONNECT** Visual Impact Assessment of 145 miles of new HVDC Transmission line and associated upgrades, 16 miles of rebuilt 115 kV transmission line, and 26 miles of co-located 345 kV transmission line proposed to deliver electric generation from the Canadian Border through Maine to the New England Control Area for Central Maine Power / Avangrid,

**NEW ENGLAND AQUA VENTUS, Off Monhegan Island, ME.** Visual Impact Assessment (VIA) for a 12 MW floating wind pilot project to produce renewable energy off Maine's shore. The project includes two 6 MW turbines on semi-submersible hulls designed by the University of Maine and partners.

**NORTHERN PASS TRANSMISSION PROJECT, Northern and Central NH.** VIA for a 192-mile transmission line to bring 1,090 MW of energy from Hydro-Quebec to NH and the rest of New England. Eversource.

**BULL HILL AND HANCOCK WIND PROJECTS, Hancock County, ME.** VIA for adjacent wind projects with a total of 37 turbines with a capacity of 89 MW. Blue Sky East LLC

**SPRUCE MOUNTAIN WIND PROJECT, Woodstock, ME.** VIA for a 10-turbine wind project with a capacity of 20 MW. Patriot Renewables.

**SADDLEBACK MOUNTAIN WIND PROJECT, Carthage, ME.** VIA for a 12-turbine wind project with a capacity of 34 MW. Patriot Renewables.

**MAINE POWER RELIABILITY PROGRAM.** VIA for 352 miles of new 115 kV and 345 kV transmission line corridor system upgrades in 82 Maine towns, for Central Maine Power.

**STETSON I & II WIND PROJECT, Washington County, ME.** VIAs for two adjacent projects with a total of 55 turbines with a capacity of 82 MW. Evergreen Wind V, LLC.

**PINNACLE WIND FARM AT NEWPAGE, Keyser, West Virginia.** Visual impact assessment in support of state permitting applications for a 23-turbine wind project with a capacity of 55 MW. US Wind Force / Edison Mission Energy.

**MAINE GOVERNOR'S TASK FORCE ON WIND POWER DEVELOPMENT.** Consultant on aesthetics and visual resources to the Governor's Task Force.

## PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #6

## EDUCATION

BSLA State University of New York  
Environmental Sciences and Forestry  
Cum Laude

## PROFESSIONAL EMPLOYMENT

- 1988 - present Terrence J DeWan & Associates  
Landscape Architects & Planners  
Yarmouth, ME
- 1977 - 1988 Mitchell-DeWan Associates  
Landscape Architects & Planners  
Portland, ME
- 1976 - 1977 Center for Natural Areas  
South Gardiner, Maine
- 1973 - 1976 Moriece and Gary of Maine  
Portland, ME
- 1971 - 1973 The Architects Workshop  
Philadelphia, PA
- 1970 - 1971 Peter G. Rolland and Associates  
Rye, NY

## PROFESSIONAL AFFILIATIONS

Maine State Board for Licensure of Architects,  
Landscape Architects and Interior Designers

American Society of Landscape Architects

Boston Society of Landscape Architects

American Planning Association

Maine Association of Planners

Council of Landscape Architects Registration  
Boards

Royal River Conservation Trust, Board of  
Directors

## AWARDS AND EXHIBITIONS

Fellow, American Society of Landscape Architects

Council of Landscape Architects Registration Boards. Presidents Awards.

Boston Society of Landscape Architects Excellence Award for Outstanding Professional Practitioner.

Boston Society of Landscape Architects Merit Award for Planning: From the River to the Bay: a Parks, Recreation and Open Space Plan for Brunswick, Maine.

American Society of Landscape Architects Merit Awards for Communications:  
Los Angeles River Greenway.  
Chattahoochee River Greenway, Atlanta GA

Maine Association of Planners  
Scenic Assessment Handbook  
Scenic Inventory of Penobscot Bay  
A Guide to Livable Design  
Portland Shoreway Access Plan

## SELECTED PUBLICATIONS

Design Guidelines, Salem, NH. Adopted by Planning Board March 2010.

Scenic Assessment Handbook. Maine State Planning Office. 2008.

Royal River Corridor Study. Town of Yarmouth, Maine. With Stantec. 2008.

A Vision for the Moosehead Lake Region. Natural Resources Council of Maine. 2006.

Kittery Design Handbook. Kittery Planning Board. 2004

The Great American Neighborhood, A Guide to Livable Design. ME SPO. 2004.

Scenic Inventory, Mainland Sites of Penobscot Bay. Maine State Planning Office. 1990.

Scenic Assessment, Lincolnville, Maine.

**MAINE DEP / VISUAL ASSESSMENT RULES.** Consultant to DEP in the formulation of Chapter 315 Regulations: Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses. Served on DEP Task Force for the development of the rules.

**HUDSON LANDING, Kingston, NY.** A review of the VIA and Development Guidelines for a 1,750-unit community on the Hudson River. Redesign of the site to incorporate sustainable development principles in recognition of its proximity to Scenic Areas of Statewide Significance. Hudson River Heritage.

**ST. LAWRENCE CEMENT, Hudson, NY.** Led a team of visual and cultural specialists to evaluate potential scenic impacts from a proposed cement plant for groups concerned about the future of nearby historic Hudson Valley communities. Project was ultimately rejected by the NY Department of State. Scenic Hudson and Friends of Olana.

**DOWNEAST LNG, Robbinston, ME.** VIA for LNG terminal on the shores of Passamaquoddy Bay. Project would have included an LNG storage tank, an import/export pier, and various shorefront facilities. Downeast LNG, Inc.

**BANGOR HYDRO-ELECTRIC. SECOND 345 KV TIE LINE.** VIA for a new 345 kV transmission line along the Stud Mill Road from Orrington, ME to New Brunswick, Canada.

## Scenic Inventories + Conservation Plans

**FISH RIVER LAKES CONCEPT PLAN, Northern Arrostook County, ME.** A long-range conservation and limited development plan for 50,000 Ac of woodlands in Northern Maine. Irving Woodlands.

**SCENIC INVENTORIES: MAINLAND SITES OF PENOBSCOT BAY, ISLESBORO, VINALHAVEN, NORTH HAVEN, Maine State Planning Office**

**ROUTE 27 SCENIC INVENTORY AND SCENIC BYWAY CORRIDOR MANAGEMENT PLAN.** Long-term plan for Route 27 between Kingfield and Canada. Maine Department of Transportation.

**PRELIMINARY FACILITIES AND INTERPRETIVE MEDIA PLAN, KANCAMAGUS SCENIC BYWAY, White Mountain National Forest, New Hampshire.** Demonstration forest, hiking trails, interpretive exhibits, overlooks, outdoor amphitheater.

## Peer Reviews

**ARGONNE NATIONAL LABORATORY**  
Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands  
National Park Service Visual Impact Assessment Guidance Document.

**CAPE WIND ENERGY PROJECT, Nantucket Sound, MA.** Peer review of DEIS prepared by Minerals Management Service.

## Selected Presentations

**THE MAINE WIND ENERGY ACT IN A TIME OF CHANGE.** Visual Resource Stewardship Conference, Argonne National Laboratory, Lemont IL November 2017

**THE MAINE WIND ENERGY ACT, VISUAL ASSESSMENT PROCEDURES FOR GRID SCALE WIND PROJECTS,** National Association of Environmental Professional Meeting, Portland, OR 2012





# JESSICA WAGNER KIMBALL

PLANNER | LANDSCAPE ARCHITECT

Jessica has a background in community planning, landscape architecture, and visual impact assessments. Her experience includes master planning, streetscape design, public outreach, recreational trail planning, residential site design, construction administration, and visualization studies. She is proficient in graphic rendering, written work, public presentations, and construction detailing. She uses AutoCAD, Adobe Creative Suite, SketchUp, Rhino, Arc GIS, and all Microsoft applications.

## PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #4375

## EDUCATION

MLA	University of Toronto Master of Landscape Architecture
BCD	Dalhousie University Bachelor of Community Design

## PROFESSIONAL EMPLOYMENT

2014 - present	Terrence J Dewan & Associates Landscape Architects & Planners Yarmouth, ME
2013 - 2014	Sasaki Associates Landscape Architects Watertown, MA
2007 - 2010	Town of Old Orchard Beach Town Planning Old Orchard Beach, ME
2007 - 2010	Member of Eastern Trail Management District Vice President (2009-2010)
Spring 2007	Ekistics Planning and Design Planning Intern Dartmouth, Nova Scotia

## AWARDS AND EXHIBITIONS

2013	Waterfront Visions 2050 Masters thesis on sea level rise adaptation exhibit at Portland Society for Architecture Symposium, Portland, ME
2013	American Society of Landscape Architects Merit Award
2012	Site models published in work: Amoroso, Nadia ed. Representing Landscapes: A Visual Collection of Landscape Architectural Drawings. New York: Routledge, 2012.

## SELECTED PROJECT EXPERIENCE

**OCEAN WIND, Offshore Southern New Jersey.** Visual Impact Assessment for a 1,100 MW offshore wind project located 15-miles off the coast of New Jersey. Work included extensive fieldwork, coordination of nearly sixty photosimulations, mapping and analysis, and an extensive VIA Report. Served as project manager and co-author.

**NEW ENGLAND AQUA VENTUS, Offshore Monhegan Island, ME.** Visual Impact Assessment for a 12 MW floating wind pilot project to produce renewable energy off Maine's coastline. The turbines included semi-submersible hulls designed by the University of Maine. Work included photosimulations, viewshed analysis mapping, and VIA report discussing the effects on Monhegan Island. Served as project manager and co-author.

**ARGONAUT TALC MINE, Ludlow, VT** A Visual Impact Assessment of quarry development was conducted to determine the aesthetic impacts on the surrounding landscape as the quarry evolved over time. The work modeled build out scenarios and graphically represented the build out in site specific photosimulations.

**NORTHERN PASS TRANSMISSION PROJECT, Northern and Central NH.** A Visual Impact Assessment for a 192-mile transmission line from Pittsburg NH to Deerfield NH. Work included over 70 photosimulations, viewshed analysis mapping, extensive written analysis of the transmission line's visual impact on the surrounding landscape. Served as project manager and as an expert witness in support of this project.

**OPEN SPACE PLAN, South Portland, ME.** A municipal open space plan designed to strengthen the network of open space in the City. The plan identifies and prioritizes areas worthy of conservation and includes strategies for expanding and preserving open space within the City. Served as project manager, plan author, and coordination of volunteer municipal committee.

**RIVERSIDE CEMETERY CREMATION GARDEN, Yarmouth, ME.** A cremation garden in an existing cemetery designed includes a variety in-ground burial styles and a stone columbarium wall with integrated niche system. Garden includes a loop trail, integrated seating, planting design, and boulder placement. Work included concept design, construction documentation, permitting, and construction administration.

**UT AUSTIN LANDSCAPE MASTER PLAN, Austin, TX\*** A Landscape Master Plan and Design Guidelines document was developed for the University at Austin Campus. This work evaluated the opportunities and issues relating to landscape on the historic campus. The report guided various approaches to planting, circulation, security, and open space, furnishings, and sustainability across campus.

\*denotes projects completed while at Sasaki Associates



# STEPHEN P. THOMPSON

## LANDSCAPE ARCHITECT

Steve's work experience includes scenic resource and visual impact assessments, downtown master planning, conservation land planning, and site planning for residential and commercial properties. Steve is a lead staff member for photographing and collecting data in the field, and assists in the production of visualizations renderings, construction documents, and ArcGIS mapping.

### SELECTED PROJECT EXPERIENCE

**OCEAN WIND, Offshore Southern New Jersey.** Visual Impact Assessment for a 1,100 MW offshore wind project locate 15-miles off the coast of New Jersey. *Tasks included fieldwork planning and the production of maps and visualizations.*

**NEW ENGLAND CLEAN ENERGY CONNECT,** Visual Impact Assessment of 145 miles of new HVDC Transmission line and associated upgrades, 16 miles of rebuilt 115 kV transmission line, and 26 miles of co-located 345 kV transmission line proposed to deliver electric generation from the Canadian Border through Maine to the New England Grid for Central Maine Power / Avangrid. *Tasks included leading fieldwork, and the production of maps and visualizations.*

**WEAVER WIND, WEAVER WIND, LLC, Eastbrook & Osborn, ME.** Visual Impact Assessment for a 22-turbine, 72.6 MW wind project. *Tasks included leading fieldwork, and the production of maps and visualizations.*

**ROXWIND, ROXWIND LLC, Roxbury, ME.** Visual Impact Assessment for a four turbine wind project south of Record Hill. *Tasks included leading fieldwork, and the production of maps and visualizations.*

**NORTHERN PASS TRANSMISSION PROJECT, NH.** A Visual Impact Assessment for a 192-mile transmission line from Pittsburg NH to Deerfield NH. Work included over 70 photosimulations, viewshed mapping, and extensive written analysis of the transmission line's visual impact on the surrounding landscape. *Tasks included fieldwork, and the production of maps and visualizations.*

**ROUTE ONE CORRIDOR ENHANCEMENTS, Falmouth, ME .** Site plan and construction documents for streetscape improvements to Falmouth's Route One business district. *Tasks included production of planting plans and other construction documents.*

**NUMBER NINE WIND FARM, EDP RENEWABLES, Aroostook County, ME.** Visual Impact Assessment for 129 turbine wind farm and 50 mile generator lead line. *Tasks included fieldwork, and the production of maps and visualizations.*

**FISH RIVER LAKES CONCEPT PLAN IRVING WOODLANDS, Aroostook County, ME.** ArcGIS mapping and graphics for a proposed Concept Plan on 51,000 acres of woodland surrounding the Fish River Chain of Lakes (Long, Mud, Cross and Square Lakes) in northern Aroostook County. Over 40 maps and other various graphics were prepared as part of the application to the Land Use Planning Commission. *Tasks included fieldwork and mapping.*

**ARGONAUT TALC MINE, Ludlow, VT.** A Visual Impact Assessment of the quarry development & expansion. *Tasks included developing 3-D build out scenarios in SketchUp, as well as graphically representing proposed development in visualizations..*

**NATIONAL GRID SOLAR PROJECTS, Massachusetts.** Acted as 'Owner's Landscape Architect' peer reviewer. *Tasks included developing screening plans for installations for four community solar installations.*

### PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #4773

FAA Licensed Drone Pilot

CLARB Certified

### EDUCATION

BLA University of Rhode Island  
Bachelor of Landscape Architecture  
Summa Cum Laude

### PROFESSIONAL EMPLOYMENT

2013 - present TJD&A (formerly Terrence J. Dewan & Associates)  
Landscape Architects & Planners  
Yarmouth, ME

Summer 2013 Parterre Garden Services  
Fine Gardening  
Cambridge, MA

### AWARDS

2013 American Planning Association  
Award for Outstanding  
Student Project

# Robert D. O’Neal, CCM, INCE Board Certified

## Managing Principal

### EDUCATION

M.S., Atmospheric Science, Colorado State University

B.A., Engineering Science, Dartmouth College

### PROFESSIONAL REGISTRATION

Certified Consulting Meteorologist, #578

Institute of Noise Control Engineering, Board Certified

### PROFESSIONAL MEMBERSHIPS

American Meteorological Society

Institute of Noise Control Engineers (INCE), Board Certified Member, Board of Directors (2020-2023; 2014-2016)

Acoustical Society of America

A Managing Principal of the firm, Mr. O’Neal is a Certified Consulting Meteorologist and INCE Board Certified with over 30 years of experience in the areas of community noise impact assessments, meteorological data collection and analyses, and air quality modeling. Mr. O’Neal’s noise impact evaluation experience includes design and implementation of sound level measurement programs, modeling of future impacts, conceptual mitigation analyses, compliance testing, and expert witness testimony.

His expert witness testimony experience includes state and local boards, courts of law, and adjudicatory hearings. Specifically, Rob has testified before the MA Energy Facilities Siting Board, Maine Board of Environmental Protection, Vermont Superior Court, NH Site Evaluation Committee, NY DEC Administrative Law Judge, SD Public Utilities Commission, 42nd District Court of Texas, MA Land Court, Environmental Review Tribunals (Ontario, Canada), and Boards of County Commissioners.

Rob is a nationally recognized acoustics expert in the wind energy field having performed noise impact assessments in over 25 states across the U.S. and Canada. He also has extensive experience conducting noise studies for fossil fuel power generation facilities, substations and electric transmission lines, gas pipelines, hard rock quarries, aggregate handling, asphalt and concrete plants, C&D processing facilities, landfills, real estate development, and mobile sources.

Mr. O’Neal is active on siting and environmental committees associated with the wind and materials handling industries. He has presented the results of wind turbine low frequency noise and infrasound research at major conferences and peer-reviewed scientific journals. He was invited by the Commissioner of the Massachusetts Department of Environmental Protection to serve as a technical expert on the Wind Noise Technical Advisory Group (WNTAG) for the period 2013-2016. In addition, Rob has been an invited speaker at conferences on a variety of noise and meteorological topics.



**SELECTED PROFESSIONAL EXPERIENCE**

- ◆ *NextEra Energy Resources – East Point Energy Center, Schoharie County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 50-megawatt (MW) solar farm. In addition to the noise study, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process. An Article 10 certificate of approval was granted by the NY Siting Board in 2021.
- ◆ *EDF Renewables – Columbia Solar Energy Center, Herkimer County, NY.* Mr. O'Neal developed an extensive sound level measurement program for a proposed 350-megawatt (MW) solar farm. This work was done in support of the Article 10 permitting process.
- ◆ *Hecate Energy – Cider Solar Project, Genesee County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 500-megawatt (MW) solar farm. In addition to the noise study, Epsilon provided technical support and expert testimony as part of NY State's Section 94-c permitting process.
- ◆ *Open Road Renewables – Clearview Solar I, Champaign County, OH.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 144-megawatt (MW) solar farm. In addition to the noise study, Epsilon provided technical support and expert testimony as part of the Ohio Power Siting Board's permitting process.
- ◆ *NextEra Energy Resources – Garnet Energy Center, Cayuga County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 200-megawatt (MW) solar farm and battery energy storage system project. In addition to the noise study, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process.
- ◆ *NextEra Energy Resources – Eight Point Wind, Steuben County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 102-megawatt (MW) wind farm in the southern tier of NY. In addition to the noise studies, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process. An Article 10 certificate of approval was granted by the NY Siting Board in 2019.
- ◆ *Tradewind Energy (Enel Green Power Company) – Alta Farms Wind II, DeWitt County, IL.* Mr. O'Neal oversaw a sound level and shadow flicker modeling program for a proposed wind turbine project in central Illinois. 67 wind turbine generators were analyzed for the project. In addition to the technical studies, Mr. O'Neal provided expert testimony before the DeWitt County Zoning Board of Appeals.
- ◆ *Tradewind Energy (Enel Green Power Company) – Gratiot Farms Wind Project, Gratiot County, MI.* Mr. O'Neal oversaw a sound level and shadow flicker modeling program for a proposed wind turbine project in Michigan. 69 wind turbine generators were analyzed for the project. In addition to the technical studies, Mr. O'Neal provided expert testimony before the North Shade and New Haven Township Planning Commissions as part of Site Plan Review and Special Land Use Permit hearings.
- ◆ *Calpine – Bluestone Wind, Broome County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 124-megawatt (MW) wind farm and battery

storage project in the southern tier of NY. In addition to the noise studies, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process. An Article 10 certificate of approval was granted by the NY Siting Board in 2019.

◆ *Calpine – High Bridge Wind, Chenango County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 100-megawatt (MW) wind farm and battery storage project in the southern tier of NY. In addition to the noise studies, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process.

◆ *Avangrid Renewables– Deer River Wind, Lewis & Jefferson County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 100-megawatt (MW) wind farm in the Tug Hill Plateau region of NY. In addition to the noise studies, Epsilon provided technical support and expert testimony as part of the Article 10 permitting process.

◆ *Terra-Gen – Prattsburgh Wind, Steuben County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 150-megawatt (MW) wind farm in the southern tier of NY. In addition to the technical noise studies, Epsilon provided input and response to comments for the Preliminary Scoping Statement, Stipulations, and expert testimony as part of the Article 10 permitting process.

◆ *Apex Clean Energy – Heritage Wind, Orleans County, NY.* Mr. O'Neal developed an extensive sound level measurement and modeling program for a proposed 185-megawatt (MW) wind farm in western NY. In addition to the technical noise studies, Epsilon provided input and response to comments for the Preliminary Scoping Statement, Stipulations, and expert testimony as part of the Article 10 permitting process.

◆ *Apex Clean Energy – Dakota Range I & II & III, Codington & Grant & Roberts Counties, SD.* Mr. O'Neal oversaw a sound level and shadow flicker modeling program for a proposed wind turbine project in South Dakota. 108 wind turbine generators were analyzed and permitted. In addition to the technical studies, Mr. O'Neal provided expert testimony before the Grant County Board Adjustment, the Roberts County Board Adjustment and the South Dakota Public Utilities Commission.

◆ *Iberdrola Renewables – Groton Wind, Groton, NH.* Developed an extensive sound level measurement and modeling program for a proposed 48 MW wind farm near Plymouth, NH. Concurrent sound level data and meteorological data were collected and analyzed. The results were presented as expert witness testimony at community open houses and during the Site Evaluation Committee public hearings. Post-construction sound monitoring was conducted to confirm compliance with the permit conditions.

◆ *Massachusetts Clean Energy Center – Research Study on Wind Turbine Acoustics.* The study includes measuring sound emissions from a variety of operating wind turbines in the Commonwealth of Massachusetts. Fieldwork includes measuring both the level and quality of sound emissions from operating wind turbines under various wind regimes and topography. To better understand how wind speed and wind direction vary over the turbine height, meteorological data are collected using on-site meteorological towers and LiDAR systems. Acoustical data are measured at various distances from the

wind turbines and include broadband, one-third octave band, low frequency and infrasound, and interior/exterior sound levels.

- ◆ *Confidential Client – Wind Energy Project, VT.* Reviewed materials prepared by an opposing expert in anticipation of litigation due to noise from a wind energy project. Provided expert noise testimony before the Vermont Public Service Board on behalf of wind energy's legal counsel as part of a Technical Hearing.
- ◆ *NextEra Energy Resources – Lee-DeKalb Wind Farm, Lee & DeKalb County, IL.* Developed and executed a sound level compliance measurement program for a 218 MW wind farm in Illinois. Concurrent sound level data and meteorological data were collected and analyzed.
- ◆ *FPL Energy – Horse Hollow Wind Energy Center, Taylor County, TX.* Developed and executed an extensive sound level measurement program for a 735 MW wind farm in Taylor County, TX. Concurrent sound level data, meteorological data, and wind turbine power output data were collected and analyzed. The results were used in legal proceedings as part of expert witness testimony in the case.
- ◆ *John Deere Renewables –Michigan Thumb I Wind Farm, Huron County, MI.* Developed and executed a long-term sound level measurement program for an existing 69 MW wind farm in Michigan to determine compliance with the local noise ordinance. Concurrent sound level data and meteorological data were collected and analyzed.
- ◆ *NextEra Energy Resources (formerly FPL Energy) – Low Frequency & Infrasound Study, TX.* Developed and executed a sound level measurement program as part of a scientific study to determine low frequency and infrasound levels from two types of wind turbines. Both interior and exterior data were compared to independent impact criteria for audibility, vibration, rattle, and annoyance. The study results were published in the peer-reviewed Noise Control Engineering Journal.
- ◆ *Gamesa Energy – Barton Chapel Wind Farm, Jack County, TX.* Developed an extensive sound level measurement and modeling program for a proposed 120 MW wind farm in Jack County, TX. Concurrent sound level data and meteorological data were collected and analyzed. The results were used in legal proceedings as part of expert witness testimony in the case.
- ◆ *State of New Hampshire, Office of the Attorney General -- Lempster Mountain Wind Power Project, Lempster, NH.* Performed an independent review of a proposed 24 MW wind turbine farm. The applicant's noise impact analysis was evaluated and comments provided to the State of NH.

#### **EXPERT TESTIMONY EXPERIENCE**

Expert witness before NY DPS & DEC Administrative Law Judges on noise issues for a 100 MW wind energy facility (2019). Case #16-F-0267.

Expert witness before NY DPS & DEC Administrative Law Judges on noise issues for a 125 MW wind energy facility (2019). Case #16-F-0559.

Expert witness before the South Dakota Public Utilities Commission, on noise and shadow flicker for Dakota Range I and Dakota Range II Energy Facility Permit, Pierre, SD (2018). Case #EL18-003.

Expert witness before the North Dakota Senate Subcommittee of Energy and Natural Resources, Draft law on Sound Levels from Wind Energy Facilities, Bismarck, ND, NextEra Energy Resources, LLC (2017).

Expert witness before the Maine Board of Environmental Protection, on noise issues for the Juniper Ridge Landfill expansion, Old Town, ME (2016). Case #S-020700-WD-BI-N and #L-19015-TG-D-N.

Expert witness before the Board of Commissioners, Chowan and Perquimans Counties, NC, on blade and ice drop for Timbermill Wind Conditional Use Permit (2016).

Expert witness before the Environmental Review Tribunal (via skype), Ontario, Canada on noise issues for wpd White Pines Wind, Prince Edward County, Ontario [Case ERT 15-071, Alliance to Protect Prince Edward Co. v. Director, Ministry of the Environment] (2015).

Expert witness before the Jackson Township Board of Supervisors, Cambria County, PA on noise issues for a 980 MW natural gas-fired combined-cycle power generation plant (2015).

Expert witness before the Environmental Review Tribunal, Ontario, Canada on noise issues for Grey Highlands Clean Energy GP Corp., Grey Highlands, Ontario [Case ERT 15-026, Fohr v. Director, Ministry of the Environment] (2015).

Expert witness in Vermont Superior Court, Environmental Division, Docket No. 179-10-10; on noise issues for an aggregate extraction and crushing operation, McCullough Crushing, Calais, VT (2015).

Expert witness before the Environmental Review Tribunal, Ontario, Canada on noise issues for Grey Highlands Zero Emission People Wind Farm, Grey Highlands, Ontario [Case ERT 15-011, Dingeldein v. Director, Ministry of the Environment] (2015).

Prepared witness statement for the Environmental Review Tribunal, Ontario, Canada on noise issues for Niagara Region Wind Corporation, Haldimand County, Ontario [Case ERT 14-096, Mothers Against Wind Turbines, Inc. v. Director, Ministry of the Environment] (2015).

Expert witness before the Environmental Review Tribunal, Ontario, Canada on noise issues for SP Armow Wind Ontario GP Inc., Kincardine, Ontario [Case ERT 13-124 to 13-125, Kroeplin v. Director, Ministry of the Environment] (2014).

Expert witness before the Environmental Review Tribunal, Ontario, Canada on noise issues for K2 Wind Ontario, Inc., Ashfield-Colbourne-Wawanosh, Ontario [Case ERT 13-097 to 13-098, Drennan v. Director, Ministry of the Environment] (2013).

Expert witness before the Environmental Review Tribunal, Ontario, Canada on noise issues for Dufferin Wind Power, Melancthon, Ontario [Case ERT 13-070 to 13-075, Bovaird v. Director, Ministry of the Environment] (2013).

Expert witness before the NH Site Evaluation Committee on noise and shadow flicker issues for the 30 MW Antrim Wind Project (2012; 2016) Docket No. 2015-02 and Docket No. 2012-01; 48 MW Groton Wind project (2010) Docket No. 2010-01.

Expert witness before the MA Energy Facilities Siting Board on noise issues for: 18-mile underground electric transmission line and substation project in the Boston Metropolitan area (2004-2005); Billerica Energy Center power plant (2007); Brockton Clean Energy (2008-2009), West Medway II power plant (2015), Woburn-Wakefield electric transmission line (2016), National Grid gas pipeline—Lowell/Tewksbury (2018), Vineyard Wind (2018), Eversource Mid-Cape Reliability Project electric transmission line (2020).

Expert witness in Vermont Act 250 Land Use proceedings on noise issues for a proposed sand and gravel excavation site at Okemo Mountain (2007). Permit No. 2S1122.

Expert witness in the 42<sup>nd</sup> District Court of Texas on noise issues for a 735 MW wind turbine farm (2006).

Expert witness before NY DEC Administrative Law Judge on noise issues for a hard rock quarry facility (1997), two sand and gravel excavation sites (2001; 2003), and a cogeneration power plant (2003).

Expert witness for site assignment hearings on noise issues from solid waste transfer stations in Lowell, MA (1998); Marshfield, MA (1999); Holliston, MA (2004); Oxford, MA (2006).

Expert witness in Massachusetts Land Court on noise issues for a proposed sand and gravel pit (1991), a proposed cross-dock distribution center (2002), and an existing concrete batch plant (2005).

Expert witness in Vermont Act 250 Land Use process for air quality impacts at ski areas (1991; 1992; 1997).

Expert witness before MA DEP Administrative Law Judge for an asphalt plant in Boston (1996).

Expert witness before municipal boards on issues of air pollution and noise impacts from local industries (many years).

Invited specialty speaker on noise impact assessments for Boston University's Masters of Urban Planning degree program (1994; 1996).

#### **PUBLICATIONS**

O'Neal, R.D., Hellweg, Jr., R.D. and R. M. Lampeter, 2011. Low frequency sound and infrasound from wind turbines. *Noise Control Engineering Journal*, 59 (2), 135-157.

O'Neal, R.D., and R.M. Lampeter, 2007: Sound Defense for a Wind Turbine Farm. *North American Windpower*, Zackin Publications, Volume 4, Number 4, May 2007.

O'Neal, R.D., 1991: Predicting potential sound levels: A case study in an urban area. *Journal of the Air & Waste Management Association*, 41, 1355-1359.

McKee, T.B. and R.D. O'Neal, 1989: The role of valley geometry and energy budget in the formation of nocturnal valley winds. *Journal of Applied Meteorology*, 28, 445-456.

#### **CONFERENCE PRESENTATIONS**

O'Neal, R.D., 2019. Environmental Aspects of Renewables Workshop. Electric Power Research Institute, Chicago, IL.

Kaliski, K., Bastasch, M., O'Neal R.D., 2018. Regulating and predicting wind turbine sound in the U.S. Presented at INTER-NOISE 2018, Chicago, IL

O'Neal, R.D., 2017. Sound level impact studies for wind energy in NY State. Acoustical Society of America Fall Meeting, New Orleans, LA.

Kaliski, K., O'Neal, R.D., et al 2016. Massachusetts Research Study on Wind Turbine Acoustics: Overview and Conclusions. NOISE-CON 2016, Providence, RI.

O'Neal, R.D., 2014. Wind Energy Sound Monitoring Under High Wind Shear Conditions. NOISE-CON 2014, Fort Lauderdale, FL.

O'Neal, R.D. Lampeter, R.M., Emil, C.B. and B.A. Gallant, 2012. Evaluating and controlling noise from a metal shredder system. Presented at INTER-NOISE 2012, NY, NY.

O'Neal, R.D., 2011. Wind Turbine sound Levels: The Michigan I, Huron County, MI Study. Presented at Great Lakes Wind Collaborative 4<sup>th</sup> Annual Meeting, Ypsilanti, MI.

O'Neal, R.D., Hellweg, Jr., R.D. and R. M. Lampeter, 2011. Low frequency sound and infrasound from wind turbines. Presented at WINDPOWER 2011, Anaheim, CA.

O'Neal, R.D., Hellweg, Jr., R.D. and R. M. Lampeter, 2010. Low frequency sound and infrasound from wind turbines – a status update. NOISE-CON 2010, Baltimore, MD.

O'Neal, R.D., 2010. Noise control evaluation for a concrete batch plant. NOISE-CON 2010, Baltimore, MD.

O'Neal, R.D., and R.M. Lampeter, 2009: Nuisance noise and the defense of a wind farm. INTER-NOISE 2009, Ottawa, Canada, August 23-26, 2009.

O'Neal, R.D., and R.M. Lampeter, 2009: Sound from Wind Turbines: A Key Factor in Siting a Wind Farm. 12<sup>th</sup> Annual Energy & Environment Conference – EUEC 2009, Phoenix, AZ, February 2, 2009.

# Christopher Hoyt

## Project Scientist, Acoustics

### EDUCATION

B.S. Meteorology, Valparaiso University

M.S. Environmental Studies: Atmospheric  
Science, University of Massachusetts-Lowell

### PROFESSIONAL MEMBERSHIP

Institute of Noise Control Engineering (INCE)

Acoustical Society of America (ASA)

American Meteorological Society (AMS)

National Weather Association (NWA)

Mr. Hoyt is an acoustical project scientist at Epsilon Associates, Inc. with over seven years of experience in the areas of environmental impact assessment relating to air quality and noise control. He has displayed his skills in performing project feasibility studies and conducting on-site measurement programs across a broad range of industries throughout the United States. These industries include small to large scale wind farms, solar farms, construction noise, quarry and mining operations, commercial developments, power plants, and other industrial facilities.

Mr. Hoyt has garnered a breadth of knowledge relating to the instrumentation used for sound level measurement and meteorological data collection during field monitoring programs. These include Brüel & Kjaer, Larson Davis, and Norsonic sound level meters, as well as Onset's HOB0®, Davis Instruments' Vantage Pro2 and The Meter Group's ATMOS 41 portable weather stations. Mr. Hoyt also has developed numerous sound propagation models using DataKustik's Cadna/A® software and has extensive experience with shadow flicker effects using WindPRO, a wind turbine shadow flicker analysis software. He also has familiarity with the Federal Highway Administration Traffic Noise Model (TNM) and sound insulation software, INSUL. As a meteorologist, Mr. Hoyt also has experience with the meteorological software package of BUFKIT. BUFKIT is a forecast profile visualization and analysis tool kit created by the National Weather Service, that allows very high vertical and temporal resolution model output for specific point locations, that are often key for sound level measurement programs.



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**SELECTED PROFESSIONAL EXPERIENCE****Noise Impact Assessment – Power Projects – Renewable Energy**

- ◆ *Point Beach Solar Energy Center, WI – NextEra Energy Resources, LLC.* Performed an ambient sound level monitoring program and a sound modeling analysis of a proposed 100 MW solar project in Manitowoc County, Wisconsin. This was to evaluate potential impacts from the project on the surrounding community, as part of the requirements of the Public Service Commission of Wisconsin's sound evaluation criteria for power plants.
- ◆ *East Point Solar Energy Center, NY – NextEra Energy Resources, LLC.* Performed a comprehensive, two-season, ambient sound level monitoring program and a sound modeling analysis of a proposed 50 MW solar project in the Town of Sharon, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *High River Solar Energy Center, NY – NextEra Energy Resources, LLC.* Performed a comprehensive, two-season, ambient sound level monitoring program and a sound modeling analysis of a proposed 90 MW solar project in the Town of Florida, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *Watkins Glen Solar Energy Center, NY – NextEra Energy Resources, LLC.* Performed a comprehensive, two-season, ambient sound level monitoring program and a sound modeling analysis of a proposed 50 MW solar project in the Town of Dix, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *Flint Mine Solar Energy Center, NY – Hudson Energy Development, LLC.* Performed a comprehensive, two-season, ambient sound level monitoring program and a sound modeling analysis of a proposed 100 MW solar project in the Towns of Athens and Coxsackie, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *Heritage Wind, NY – Apex Clean Energy, Inc.* Mr. Hoyt performed a comprehensive, two-season, ambient sound level monitoring program and a sound modeling analysis of a proposed 147 MW wind project in the Town of Barre, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *Beaver Creek I Wind, IA – MidAmerican Energy.* Performed a detailed long-term post-construction sound level monitoring program of a constructed 170 MW wind project in Boone and Greene Counties, Iowa. This was to compare the actual measured sound levels at the selected locations, to the pre-construction modeled sound levels.

**Noise Impact Assessment – Power Projects**

- ◆ *Veolia Kendall Station, Cambridge, MA.* Performed a sound level measurement program for the natural gas power generation facility in support of a new air-cooled condenser unit (ACHX) with multiple fans, and fin-fan coolers on the station rooftop. Results were presented to demonstrate compliance with the City of Cambridge sound level limits.



◆ *National Grid Wakefield Junction Substation, Wakefield, MA* – Performed an intensive, multi-faceted sound level monitoring program for the operating substation along Montrose Avenue in Wakefield, MA. The program involved long-term and short-term monitoring, along with complex data processing to characterize the existing sound environment, to address concerns over noise that had been made by nearby residents. Results have assisted in design plans for mitigation measures at the facility.

#### **Noise Impact Assessment -- Commercial/Residential**

◆ *Alexandra Hotel, Boston, MA.* Managed a sound level impact assessment of a proposed mixed-use development in Boston's South End neighborhood, involving an ambient sound survey and complex sound level modeling in support of the Project Notification Form. The measurements were used to establish the existing ambient background sound level to test compliance with the Massachusetts DEP noise policy and the City of Boston noise regulations for the exterior mechanical equipment at the proposed building.

◆ *Kenmore Square Hotel, Boston, MA.* Managed a sound level impact assessment of a proposed mixed-use development in Boston's Fenway neighborhood, involving an ambient sound survey and complex sound level modeling in support of the Project Notification Form. The measurements were used to establish the existing ambient background sound level to test compliance with the Massachusetts DEP noise policy and the City of Boston noise regulations for the exterior mechanical equipment at the proposed building.

#### **Noise Impact Assessment -- Industrial**

◆ *Parallel Products of New England, New Bedford, MA.* Performed a sound level impact assessment of a proposed solid waste facility with waste handling and processing in New Bedford, Massachusetts. This involved an ambient sound survey and complex sound level modeling in support of the Air Plan Application, which entails compliance with the Massachusetts DEP noise policy.

◆ *Beth Israel Deaconess Medical Center, Boston, MA.* Mr. Hoyt has performed ambient acoustic monitoring and acoustic modeling to support their development of a new inpatient medical building. The objective is to display compliance in an IMPNF-PNF for submittal to the Boston Planning and Development Agency (BPDA).

#### **Wind Turbine Shadow Flicker Assessment**

◆ *Bluestone Wind, NY – Calpine Corporation.* Mr. Hoyt has performed extensive shadow flicker modeling analysis for a proposed 124 MW wind project in the Towns of Windsor and Sanford, NY. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.

◆ *Alta Farms Wind, IL – Tradewind Energy.* Performed a shadow flicker modeling analysis of a proposed 71 wind turbine project in DeWitt County, Illinois to evaluate potential impacts from the project on the surrounding community and evaluated the project with respect to local shadow flicker limits.

- ◆ *High Bridge Wind, NY – Calpine Corporation.* Mr. Hoyt has performed an extensive shadow flicker modeling analysis for a proposed 100 MW wind project in the Town of Guilford, New York. This was to evaluate potential impacts from the project on the surrounding community in support of the Article 10 permitting process.
- ◆ *Gratiot Farms Wind, MI – Tradewind Energy.* Performed a shadow flicker modeling analysis for a proposed 150 MW wind turbine project in Gratiot County, Michigan to evaluate potential impacts from the project on the surrounding community and evaluated the project with respect to local shadow flicker limits.
- ◆ *Dakota Range Wind I/II & III, SD – Apex Clean Energy, Inc.* Mr. Hoyt performed a shadow flicker modeling analysis for a proposed two-phase wind project in Codington, Grant, and Roberts Counties, South Dakota to evaluate potential impacts from the project on the surrounding community. Impacts in the three counties were evaluated separately, based on individual county regulations regarding shadow flicker.
- ◆ *Sweetland Wind, SD – Scout Clean Energy.* Mr. Hoyt conducted a shadow flicker modeling analysis for a proposed 200 MW wind turbine project in Hand County, South Dakota to evaluate potential impacts from the project on the surrounding community and evaluated the project with respect to local shadow flicker limits.
- ◆ *Eight Point Wind, NY – NextEra Energy Resources, LLC.* Performed a shadow flicker modeling analysis using windPRO software of a proposed 102 MW project in Steuben County, New York to evaluate potential impacts from the project on the surrounding community and evaluated as a part of the Article 10 permitting process. An Article 10 certificate of approval was granted by the NY Siting Board in 2019.
- ◆ *Soldier Creek Wind, KS – NextEra Energy Resources, LLC.* Mr. Hoyt conducted a shadow flicker modeling analysis using windPRO software of a proposed 120 wind turbine and 300 MW project in Nemaha County, Kansas to evaluate potential impacts from the project on the surrounding community and evaluated the project with respect to Nemaha County shadow flicker commitments.
- ◆ *Endeavor I and II Wind Energy Center, IA – NextEra Energy Resources, LLC.* Performed a shadow flicker modeling analysis of two adjacent wind turbine sites with a proposed repower to occur. Each of these project sites are in Osceola County, Iowa. This was to evaluate the potential impacts on the surrounding community, due to the repower.
- ◆ *Story County Wind Energy Center, IA – NextEra Energy Resources, LLC.* Performed a shadow flicker modeling analysis of a 100-wind turbine project with a proposed repower to occur. This project site is in Story County, Iowa. This was to evaluate the potential impacts on the surrounding community, due to the repower.
- ◆ *Burke Wind Energy Center, ND – NextEra Energy Resources, LLC.* Performed a shadow flicker modeling analysis using windPRO software of a proposed 200 MW project in Burke County, North Dakota to evaluate potential impacts from the project on the surrounding community and evaluated the project with respect to local shadow flicker limits.

## Rodney Kelshaw Managing Partner & Senior Scientist

### PROFILE

- Over 22 years of experience in the environmental field, working in both the public and private sectors.
- Worked on an array of project types across the country, with a focus in the northeast.
- Experienced in project development, and permitting at the local, state and federal levels.
- Wetland/Waterbody/Vernal Pool Mapping and Assessment
- Wildlife Surveys and Habitat Assessments
- Wetland and Wildlife Habitat Creation and Restoration
- Soil Mapping and Assessment
- Construction Inspection Focused on Erosion and Sedimentation Control Planning and Permit Compliance
- Invasive Species Identification, Mapping and Management

### EDUCATION

- Bachelor of Science, Wildlife Management, University of Maine at Orono (1997)
- Federal Reg. IV Wetland Identification, Delineation & Classification, Humboldt Field Research Institute, Steuben, Maine, 2000

### PREVIOUS CAREER EXPERIENCE

- *Stantec Consulting Services*: Project Scientist/Project Manager; Topsham, Maine (2013 - 2020)
- *Boyle Associates*: Project Scientist; Westbrook, Maine (2007 - 2013)
- *Moyse Environmental Services*; Project Scientist; Bangor, Maine (1998 & 2000 - 2007)
- *State of New Jersey Division of Fish and Wildlife*: Fisheries Field Technician Lebanon, New Jersey (1999)

### PROFESSIONAL CERTIFICATIONS/AFFILIATIONS

- Certified Wildlife Biologist #102308 (CWB), The Wildlife Society
- Certified Professional Soil Scientist #353740 (CPSS), Soil Science Society of America
- Professional Wetland Scientist #1518 (PWS), Society of Wetland Scientists
- Certified Professional in Erosion and Sediment Control #4625 (CPESC), EnviroCert International, Inc.
- Licensed Soil Scientist #SS552 (CSS), State of Maine
- Licensed Site Evaluator #S371 (LSE), State of Maine
- President and Member, The Wildlife Society, Maine
- Member, Society of Wetland Scientists
- Member, Maine Association of Site Evaluators
- Member, Maine Association of Professional Soil Scientists
- Member, Maine Association of Wetland Scientists

#### Maine Power Reliability Program (MPRP), Southern & Western Maine (Project Scientist & Third Party Inspector)\*

Worked as a project scientist performing vernal pool surveys and wetland delineations at a 320-mile transmission line and 13 substation construction site; subsequently walked the lines planning construction access while avoiding natural resources; member of the team that wrote the environmental permit application and developed the compensatory mitigation plan. Once the project was permitted, performed construction oversight for permit compliance as a Department of Environmental Protection (DEP) Third Party Inspector (3PI).

#### Northeast Reliability Interconnect (NRI), Downeast Maine (Project Scientist & Third Party Inspector)\*

Worked as a project scientist performing vernal pool surveys and wetland delineations for a 90-mile transmission line construction project from Orrington to the Canadian border in Baileyville, Maine. Once the project was permitted, performed construction oversight for permit compliance as the MDEP 3PI.

Rodney Kelshaw; [rodney@flycatcherllc.com](mailto:rodney@flycatcherllc.com)

**Hancock County Reliability Project (HCRP), Downeast Maine (Third Party Inspector)\***

Performed construction oversight on a 14-mile transmission line project for permit compliance as the MDEP 3PI from Ellsworth to Trenton, Maine.

**Bull Hill Wind Project, T16 MD, Maine (Company Environmental Inspector)\***

Worked as the company inspector during clearing and construction of the wind project. The overall goal was to help the client remain in compliance with the local, State and Federal project permits. This was accomplished by review and understanding of project permits and permit requirements and daily communication of these requirements with the client and subcontractors. This position was focused on environmental protection, centering on control of stormwater, minimizing erosion and avoiding sedimentation of natural resources. This included daily meetings with contractors to plan for installation of stormwater and erosion controls and then daily inspection of installed stormwater controls and erosion control devices. Developed an environmental orientation training and administered the training to all site contractors.

**Oakfield Wind Project, Oakfield, Maine (Company Environmental Inspector)\***

Worked as the company inspector during clearing and construction of the wind farm. The overall goal was to help the client remain in compliance with the local, State and Federal project permits. This was accomplished by review and understanding of project permits and permit requirements and daily communication of these requirements with the client and subcontractors. This position was focused on environmental protection, centering on control of stormwater, minimizing erosion and avoiding sedimentation of natural resources.

**Bingham Wind Project, Somerset County, Maine (Company Environmental Inspector)\***

Worked as the company inspector during clearing and construction of the wind project. The overall goal was to help the client remain in compliance with the local, State and Federal project permits. This was accomplished by review and understanding of project permits and permit requirements and daily communication of these requirements with the client and subcontractors. This position was focused on environmental protection, centering on control of stormwater, minimizing erosion and avoiding sedimentation of natural resources. Also, performed water quality sampling in on-site streams deploying rock bags.

**Federal Emergency Management Agency (FEMA) Environmental and Historic Preservation (EHP) Work for the Central Office for Recovery, Reconstruction and Resiliency (COR3) Hurricane Maria Emergency Response, Puerto Rico (Project Scientist)\***

Worked as a supervisor for a multi-state team that deployed to the island of Puerto Rico and interviewed Puerto Rico Electric Power Authority (PREPA) engineers to compiling data that was provided to FEMA for their EHP review of the Hurricane Maria emergency response to rebuild the grid. This work was for both distribution and transmission lines. Reporting focused on applying an understanding of where work was performed in relation to protected natural resource mapping and making determinations of potential resource impacts. Also participated in FEMA on-site investigations with a focus on identification of environmental concerns. Then returned to the island to act as an environmental inspector working with environmental scientists from Puerto Rico to map wetlands, watercourses, inspect access road construction and implementation of erosion and sediment control best management practices to determine site stability and the extent of existing resource impacts. This process occurred along transmission lines across the island of Puerto Rico.

**Vermont Electrical Power Co. (Velco) and Green Mountain Power (GMP), Utility Line Upgrade Project, Various Sites Across Vermont (Wetland Scientist)\***

Worked as a field lead for a project with sites spread across Vermont performing vernal pool surveys, wetland delineation, invasive species identification, rare, threatened and endangered species identification, and construction access planning for approximately 55-miles of transmission line and 100 acres of substations.

Rodney Kelshaw; [rodney@flycatcherllc.com](mailto:rodney@flycatcherllc.com)

**Hancock Wind Project, T22 MD, Maine (Company Environmental Inspector & Soil Scientist)\***

Worked as a soil scientist to help develop the soil survey for the proposed project. Worked as the company inspector during the geotechnical survey by planning access to avoid protected natural resources and avoid erosion.

**Eversource Energy, Utility Line Maintenance Project, Granby and East Granby, Connecticut (Wetland and Soil Scientist)\***

Worked as a soil and wetland scientist performing vernal pool surveys, wetland delineation and construction access planning for a proposed approximately 5-mile transmission line rebuild project.

**Eversource Energy, Utility Line Maintenance Project, Haddam and Durham, Connecticut (Wetland and Soil Scientist)\***

Worked as a soil and wetland scientist performing vernal pool surveys, wetland delineation and construction access planning for a proposed approximately 7-mile transmission line rebuild project.

**Eversource Energy, Utility Line Maintenance Project, New Milford, Connecticut (Wetland and Soil Scientist)\***

Worked as a soil and wetland scientist performing vernal pool surveys, wetland delineation and construction access planning for a proposed approximately 7-mile transmission line rebuild project.

**Eversource Energy, Utility Line Maintenance Project, South Windsor to Vernon, Connecticut (Field Lead)\***

Worked as a soil and wetland scientist performing wetland delineations and access planning for a 4-mile transmission line rebuild from South Windsor to Vernon.

**Eversource Energy, Utility Line Maintenance Project, Sherburn to Framingham, Massachusetts (Wetland and Soil Scientist)\***

Worked as a soil and wetland scientist performing vernal pool surveys, wetland delineation and construction access planning for a proposed 5.7-mile transmission line rebuild project.

**Confidential Wind Project, Southern Aroostook County, Maine (Field Lead & Project Scientist)\***

Served as a field lead performing wetland and stream delineations and vernal pool surveys and assessments of over 1,000 acres. Also, served as a field lead and co-developer of the work plan to study Canada lynx (*Lynx canadensis*) at the site; including performing snow tracking surveys and deployment and inspection of DNA snare and camera sites.

**Confidential Wind Project, Allegany & Steuben Counties, New York (Wildlife Biologist)\***

Served as a field lead performing pre-construction aerial bald eagle (*Haliaeetus leucocephalus*) nest surveys in accordance with the Eagle Conservation Plan Guidance.

**Confidential Wind Project, Washington and Hancock Counties, Maine (Wildlife Biologist)**

Served as a field lead performing pre-construction aerial bald eagle nest surveys in accordance with the Eagle Conservation Plan Guidance.

**Rollins Wind Project, Penobscot County, Maine (Wildlife Biologist)\*\***

Served as a field lead performing post-construction aerial bald eagle nest surveys in accordance with the Eagle Conservation Plan Guidance.

**Clear Sky Wind Project, Kay and Osage County, Oklahoma (Wildlife Biologist)\***

Served as a field lead performing Greater Prairie-Chicken (*Tympanuchus cupido*) surveys and bald eagle point count surveys.

**Mustang Run Wind Project, Osage County, Oklahoma (Wildlife Biologist)**

Served as a field lead performing Greater Prairie-Chicken surveys and bald eagle point count surveys.

Rodney Kelshaw; [rodney@flycatcherllc.com](mailto:rodney@flycatcherllc.com)

**Confidential Wind Project, Washington County, Maine (Wildlife Biologist and Wetland Scientist)\***

Served as a field lead performing pre-construction aerial bald eagle nest surveys in accordance with the Eagle Conservation Plan Guidance. Performed spring breeding bird surveys. Also performed a wetland survey to aid the client site and permit meteorological (MET) towers.

**Oakfield Wind Project, Aroostook County, Maine (Wildlife Biologist)\***

Served as a field lead performing post-construction aerial bald eagle nest surveys in accordance with the Eagle Conservation Plan Guidance.

**Confidential Wind Project, Lewis County, New York (Wildlife Biologist)\***

Served as a field lead performing spring breeding bird surveys, fall migratory bird surveys and fall raptor surveys.

**Confidential Wind Project, Somerset County, Maine (Soil Scientist & Wildlife Biologist)\***

Served as a field lead performing a 1,500-acre soil survey including the turbine array, access roads and transmission lines. Served as a wildlife biologist and performed migratory breeding bird surveys. Also performed site assessments to site MET towers to avoid natural resource impacts.

**Confidential Wind Project, Washington County, Maine (Soil Scientist & Wildlife Biologist)\***

Served as a field lead performing a 2,200-acre soil survey including the turbine array, access roads and transmission lines.

**Confidential Wind Project, Oxford County, Maine (Soil Scientist & Wildlife Biologist)\***

Served as a field lead performing an 89-acre soil survey including the turbine array, access roads and transmission lines.

**Confidential Wind Project, Somerset County, Maine (Field Lead & Project Scientist)\***

Served as a field lead performing wetland and stream delineations and potential vernal pool surveys and assessments of over 1,000 acres.

**Weaver Wind Project, Hancock County, Maine (Field Lead & Project Scientist)\***

Served as a field lead performing wetland and stream delineations and vernal pool surveys and assessments. Also, performed pre-construction eagle point counts.

**Northern Maine Interconnect (NMI), Oakfield to Houlton, Maine (Soil Scientist)\***

Performed a Class A Soil Survey for a proposed substation in Houlton and a Class D Soil Survey for the transmission line from Oakfield to Houlton.

**Canton Mountain Wind Project, Canton, Maine (Field Lead & Project Scientist)\***

Served as a field lead performing wetland and stream delineations, vernal pool surveys and assessments, and Spring Salamander (*Gyrinophilus porphyriticus*) surveys.

**Stetson II Wind Project, Washington County, Maine (Project Scientist)\***

Worked on a team for project environmental oversight; tasks included demarcating natural resources and working with construction crews on implementation of erosion and sediment controls and development of techniques to avoid resource alteration during construction.

**Transmission Line Rebuild, Northern Aroostook County, Maine (Field Lead & Project Scientist)\***

Worked as a project scientist performing wetland delineations for an approximately 10-mile transmission line from Easton to Presque Isle.



Rodney Kelshaw; [rodney@flycatcherllc.com](mailto:rodney@flycatcherllc.com)

Granite Wind Project, Coos County, New Hampshire (Project Scientist)\*  
Served on a field team performing wetland and stream delineations.

Transmission Line Rebuild, Northern Aroostook County, Maine (Field Lead & Project Scientist)\*  
Worked as a project scientist performing wetland delineations for an approximately 10-mile transmission line from Caswell to Hamlin.

Transmission Line Rebuild, Oxford County, Maine (Field Lead & Project Scientist)\*  
Worked as a project scientist performing wetland delineations and vernal pool surveys for a 14-mile transmission line from Woodstock to Rumford.





## **Brett Hart, PE**

### **Senior Vice President of Engineering**

Brett Hart joined Sewall in 1999 and brings to Sewall over 20 years' experience in site development and permitting, roadway and intersection design, surveying, and construction administration. He works with private developers, municipalities, and regulatory agencies to ensure successful completion to client endeavors. He has successfully managed numerous projects throughout New England including master plan development, site design, roadway/utility design, state and local permitting, and transportation planning.

#### **EDUCATION**

- B.S., Bio-Resource Engineering Technology, University of Maine
- Traffic and Transportation Engineering Seminar, Northwestern University

#### **PROFESSIONAL AFFILIATIONS & LICENSES**

- Licensed Professional Engineer, Maine #10658, Vermont #122931, Georgia PE041988
- Former Treasurer, American Council of Engineering Companies (ACEC) of Maine

#### **RELEVANT EXPERIENCE**

*Weaver Wind LLC, Osborn, Eastbrook, Maine.* Project Manager for civil road and site design for a 72.6-megawatt (MW) wind farm including 22 Vestas V126 wind turbine generators. Responsible for oversight and development of permit and construction level civil design plans and associated Maine Department of Environmental Protection (MaineDEP) permitting submittals. This project is currently under construction.

*Passadumkeag Wind Project, Grand Falls TWP, Maine.* Project Manager for civil road and site design for a 42-megawatt (MW) wind farm including 14 Vestas V112 3.0-MW wind turbine generators. Responsible for oversight and development of permit and construction level civil design plans and Maine Department of Environmental Protection (MaineDEP) permitting submittals.

*Oakfield Wind Project, Oakfield, Maine.* Project Manager for civil road and site design for a 144-megawatt (MW) wind farm including 48 Vestas V112 3.0-MW wind turbine generators. Responsible for value-engineering permit design to improve project constructability and reduce overall construction costs as well as oversight and development of final construction plans.

*Blue Sky East LLC/Bull Hill, T16 MD, Maine.* Project Manager for civil road and site design for a 34.2-megawatt (MW) wind farm including 19 Vestas V100 1.8-MW wind turbine generators. Responsible for oversight and development of permit and construction level civil design plans and associated Land Use Regulation Commission (LURC) permitting submittals. Review required by LURC and MaineDEP.

*Antrim Wind Project, Antrim, New Hampshire.* Senior Review Engineer for civil road and site design for a 28.8-megawatt (MW) wind farm including 9 Siemens SWT 3.2-113 wind turbine generators. Responsible for value-engineering permit design to improve project constructability and reduce overall construction costs, oversight and development of final construction plans, and obtaining required environmental permit modifications from the New Hampshire Department of Environmental Services (NHDES).

*Rollins Wind Project, Lincoln, Lee, & Burlington, Maine.* Project Manager for civil road and site design for a 60-megawatt (MW) wind farm including 40 General Electric 1.5-MW wind turbine generators. Responsible for value-engineering existing permit-level design to improve project constructability and reduce overall construction costs as well as oversight and development of final construction plans.

*Hancock Wind LLC/T 22 MD, T16 MD, Maine.* Project Manager for civil road and site design for a 51-megawatt (MW) wind farm including 17 Vestas V117 3.0-MW wind turbine generators. Responsible for oversight and development of permit and construction level civil design plans and associated Maine Department of Environmental Protection (MaineDEP) permitting submittals. Review required by MaineDEP and LUPC.

*Kibby Wind Power Project, Kibby & Skinner Townships, Maine.* Project Manager for civil road and site design for the 132-megawatt (MW) wind farm including 44 Vestas V90 3.0-MW wind turbine generators. Initially responsible for value-engineering existing design to improve project constructability and reduce overall construction costs. Ultimately responsible for oversight and development of new design plans and Land Use Regulation Commission (LURC) permitting submittals for the Owner's revised turbine layout.

*Record Hill Wind Project, Roxbury, Maine.* Project Manager for civil road and site design for a 50.6-megawatt (MW) wind farm including 22 Siemens SWT 2.3-MW wind turbine generators. Responsible for oversight and development of permit and construction level design plans and Maine Department of Environmental Protection (MaineDEP) permitting submittals.

*Highland Wind Project, Highland Plantation, Maine.* Project Manager for civil road and site design for a proposed 128.6-megawatt (MW) wind farm including 48 wind turbine generators. Responsible for oversight and development of project design plans and Land Use Regulation Commission (LURC) permitting submittals. Review required by LURC and MaineDEP.

*Wind Component Transportation Route Study & Design.* Project Manager responsible for identifying the transportation route and the civil design of the roadway/intersection improvements necessary for wind turbine component delivery for numerous wind projects located in Maine. Projects included route analysis, civil design of roadway and intersection improvements for dozens of individual locations, obtaining appropriate MaineDOT permits, and obtaining all required municipal approvals.

## Adam Gravel CWB

Principal, Certified Wildlife Biologist  
17 years of experience

Adam is a principal at Stantec for Stantec's Topsham, Maine office responsible for discipline-specific professional and technical standards, quality assurance practices, health and safety, best practices, research and development, and innovation. He is a Certified Wildlife Biologist and Project Manager and has spent the last 17 years on the leading edge of ecological surveys related to potential risk to wildlife at renewable energy projects. He has provided permitting and expert testimonial support to several New England wind projects, navigating the state and federal regulatory processes to successful permits. His field biology experience conducting and managing field surveys—avian radar, breeding-bird, winter track, bat, raptor, and natural community surveys in the Northeast and Mid-Atlantic states—allows Adam to take an innovative, solution oriented approach to survey design and implementation, which strongly helps with agency negotiations and regulatory permitting at renewable energy projects and associated transmission infrastructure.

### EDUCATION

BS, Wildlife Management, University of New Hampshire, Durham, New Hampshire, 2003

40-hour HAZWOPER Certified, OSHA, Topsham, Maine, 2012

### REGISTRATIONS

Certified Wildlife Biologist, The Wildlife Society

### PROJECT EXPERIENCE

### NATURAL RESOURCE SERVICES

Wind Farm Development Bird and Bat Surveys and Impact Studies | Mid-Atlantic, New England, Pennsylvania, Ohio, and New York

Adam has managed and conducted pre-construction wildlife impact assessments at proposed wind energy projects in the Mid-Atlantic, New England, Pennsylvania, Ohio, West Virginia and New York. These assessments include habitat analyses, critical issues analyses, nocturnal migration surveys using marine radar, acoustic bat surveys, breeding bird surveys, raptor migration surveys, and ecological community characterizations. Adam has effectively served as liaison between clients and regulatory agencies to ensure that studies and monitoring plans are in accordance with federal and state guidelines. Study results and determinations of risk have been provided to clients to assist with their project planning and permit applications in compliance with applicable local, state, and federal natural resource regulations. Adam has also provided expert witness testimony for projects in Vermont and New Hampshire.

### Deerfield Wind Project | Readsboro, Vermont

Adam served as technical lead for Avangrid's Deerfield Wind Project. He conducted and coordinated numerous studies to address wildlife-related issues present in the vicinity of the project, including avian radar studies, acoustic bat surveys, and raptor migration surveys in accordance with agency approved methods. Adam worked with the Vermont Agency of Natural Resources prior to initiating studies. He also supported the expert witness testimony process as part of the evidentiary hearings before the Vermont Public Service Board. Since the Project received its permit and became operational, Adam has managed the post construction bird and bat fatality monitoring for the project to maintain compliance, this included completing the application and receiving a state takings permit for bats and successfully negotiating an agency approved work plan for the 3 years of required studies.

### **Groton Wind Project | Grafton County, New Hampshire**

Adam served as wildlife biologist and Project Manager for the Avangrid's Groton Wind Project, which consists of 25 2.0 MW turbines on the forested ridges of Tenney and Fletcher Mountains in the Sunapee Uplands of New Hampshire. He coordinated numerous studies to address wildlife-related issues present in the vicinity of the project, including avian radar studies, acoustic bat surveys, and Breeding Bird Surveys (BBS) using the United States Fish and Wildlife Service BBS methods. Adam worked with the New Hampshire Fish and Game Department to develop protocol and perform spring and fall raptor surveys, and collaborated with New Hampshire Audubon to conduct monitoring of peregrine falcons near the project area. He was involved in the drafting of an avian risk assessment that evaluated the potential impacts to birds and bats as a result of the project and provided expert witness testimony and support during the New Hampshire Site Evaluation Committee process. The project received its certificate of site and facility and is currently operational. Adam also coordinated and managed the 3-year requirement for post-construction studies, which included the replication of pre-construction studies as well as a first of its kind telemetry project on breeding peregrine falcons nesting in the vicinity of the project.

### **Lempster Wind Project | New Hampshire**

As the Project Manager, Adam was responsible for coordinating and conducting environmental surveys and providing permitting support for Avangrid's 24 MW Lempster Wind project, the first in New Hampshire. Tasks included developing and negotiating work plans with agencies; performing avian and bat studies, rare species investigations, and vernal pool surveys; and providing testimonial support. Adam was also involved in the initial development of post-construction bird and bat monitoring protocols for the project.

### **Kingdom Community Wind Project | Lowell, Vermont**

As Technical Lead for the Kingdom Community Wind Project, Adam coordinated a nocturnal migration study using X-band radar, an acoustic bat study, breeding bird surveys, and raptor migration studies. He also provided support for the Section 248 process, including participation in meetings with Vermont Agency of Natural Resources biologists and development of a work scope avian and bat surveys. Adam prepared and submitted pre-filed testimony and responses to discovery requests, and he provided expert witness testimony during subsequent evidentiary hearings before the Vermont Public Service Board. The project is now operational.

### **Sheffield Wind Project | Sheffield, Vermont**

Adam served as technical lead for the Sheffield Wind Project. He conducted and coordinated numerous studies to address wildlife-related issues present in the vicinity of the project, including avian radar studies, acoustic bat surveys, acoustic bird surveys, and raptor migration surveys in accordance with agency approved methods. Adam worked with the Vermont Agency of Natural Resources prior to initiating studies. The information collected from these studies was used to develop a comprehensive wildlife impact evaluation. He also supported the expert witness testimony process as part of the evidentiary hearings before the Vermont Public Service Board. The project is now operational.

### **Stetson Mountain Wind Farm | Washington County, Maine**

Stetson is a 57 MW generation facility consisting of 38 turbines on a 6.5-mile, low-elevation ridge in Washington County, Maine. Adam acted as Technical Lead responsible for avian and bat studies during the planning process and assisted in the design of a post-construction avian and bat monitoring program.

### **Georgia Mountain Community Wind Project | Milton, Vermont**

As Project Manager for this proposed 4.5 MW wind project, Adam coordinated a nocturnal migration study using X-band radar. He also provided support for the Section 248 process, including participation in meetings with Vermont Agency of Natural Resources biologists and development of a work scope for nocturnal radar surveys. Adam prepared and submitted pre-filed testimony and responses to discovery requests, and he provided expert witness testimony during subsequent evidentiary hearings before the Vermont Public Service Board. This project was granted its permit and is currently operational.

### **Highland Wind Project | Somerset County, Maine**

Highland is a proposed wind energy facility consisting of 48 turbines. Adam acted as Technical Lead during the planning process and was responsible for wildlife studies, including nocturnal radar migration surveys, acoustic bat surveys, raptor migration surveys, and rare, threatened or endangered species surveys. He acted a liaison between the client and state and federal resource agencies to develop work plans and avoidance and minimization measures during the planning phase of the project. Adam also assisted in generating permit application materials for the project.

### **Mars Hill Wind Farm | Aroostook County, Maine**

Mars Hill is a 28-turbine wind energy facility situated on a low-elevation ridge in Aroostook County, Maine. Adam acted as Technical Lead during the planning process and was responsible for avian and bat studies, including nocturnal radar migration surveys, acoustic bat surveys, raptor migration surveys, and morning bird stopover surveys. He also assisted in the design of a post-construction avian and bat monitoring program.



# Matt Arsenault

Certified Ecologist, Botanist, Senior Project Manager

Matt is a Certified Ecologist and expert Botanist responsible for performing ecological and botanical assessments and characterizations; natural resource inventories including rare, threatened, and endangered species surveys; wetland delineations and function and value assessments; wildlife population surveys; long-term biological monitoring; and water quality monitoring surveys. For over 15 years, Matt has worked on a multitude of ecological projects, including natural community and rare plant and wildlife survey projects throughout the northeastern, northcentral, mid-Atlantic, and southern United States. These projects have ranged from general reconnaissance observations to quantitative, community- and species-specific surveys. These projects have involved detailed natural community mapping and analysis. He has also provided expert witness testimony regarding the findings of various ecological field studies. Matt has taught many workshops, led field trips, and published manuscripts on plant identification and ecology.

## EDUCATION

BS, Botany, summa cum laude honors, University of Maine, Orono, Maine, 2003

Wetland Delineation Methods, University of New Hampshire, Durham, New Hampshire, 2005

10-Hour Construction Safety & Health Certified, OSHA, Topsham, Maine, 2009

40-hour HAZWOPER Certified, OSHA, Topsham, Maine, 2010

CPR Certified, Heartsaver, Topsham, Maine, 2018

OSHA 8-Hour HAZWOPER Refresher Certification, Topsham, Maine, 2018

## REGISTRATIONS

Certified Wetland Scientist #278, New Hampshire Joint Board

Ecologist, Ecological Society of America, 6-1-09 through 6-30-20

## MEMBERSHIPS

Survey-approved Botanist, Massachusetts Division of Fisheries & Wildlife, Natural Heritage and Endangered Species Program

Member, Maine Natural Areas Program (Botanical Advisory Group)

Member, New England Plant Conservation Program Task Force, Native Plant Trust

Member, New England Botanical Club

Member, Friends of the Maine Herbarium, The University of Maine Herbaria

Member, Josselyn Botanical Society of Maine

Member, Ecological Society of America

Member, Maine Association of Wetland Scientists

## SELECT PROJECT EXPERIENCE

Rare Plant Surveys and Baseline Water Quality Monitoring, Downeast Wind Project | Washington County, Maine | Field Scientist

Field Scientist responsible for establishing baseline water quality conditions of several streams associated with a proposed wind energy development facility in eastern Maine. Streams were monitored by conducting an inventory and analysis of benthic macroinvertebrate species through systematic sampling and analytical methods. Also conducted extensive rare plant surveys throughout the proposed project area. Field efforts identified numerous new locations for a state listed species: Canada mountain-rice grass (*Piptatherum canadense*) as well as a new location for bog Jacob's-ladder (*Polemonium vanburntiae*).

Ecological Characterizations | Windham and Westbrook, Maine | 2008 | Field Manager and Lead Project Scientist

Field Manager and Lead Project Scientist responsible for leading field surveys including surveys for rare, threatened, and endangered species of plants and wildlife; assessments of existing wildlife habitat values; and mapping of wetland and stream resources. Provided detailed reports of the findings as well as an analysis on the overall landscape value of each parcel and mitigation potential.

Proposed Transmission Line Natural Resource Identification | Penobscot and Aroostook Counties, Maine | Project Scientist

Project Scientist responsible for completing vernal pool surveys, wetland delineations, and rare plant surveys along over 40 miles of a proposed transmission line corridor in northern Maine. Coordinated with the State agencies regarding potential impacts to several species of rare plants that were identified within the project corridor.

Saddleback Maine Ski Area Expansion | Rangeley and Dallas Plantation, Maine | Field Manager and Lead Project Scientist

Field Manager and Lead Project Scientist responsible for completing landscape analyses and field surveys to identify and characterize the existing natural resources present on Saddleback Mountain in western Maine prior to construction of a proposed development. Provided detailed analyses and expert witness testimony relative to the potential effects of the proposed development on significant natural resources including plants and wildlife and their associated habitats.

**Stetson Mountain Wind Power Project | Washington and Penobscot Counties, Maine | Project Scientist**

Project Scientist responsible for completing wetland delineations and rare, threatened, and endangered plant surveys of a low elevation ridgeline and over 30 miles of a proposed transmission line associated with a proposed wind power facility.

**Significant Ecological Resource Evaluations | Moosehead Lake Region, Piscataquis and Somerset Counties, Maine | Field Manager and Lead Project Scientist**

Field Manager and Lead Project Scientist responsible for coordinating and conducting field efforts on over 300,000 acres of forest land in northern Maine. Efforts included completing a landscape analysis focused on identifying areas likely to support significant natural resources including large wetland systems, exemplary natural communities, and rare, threatened, and endangered species of plants and wildlife and their associated habitats. Subsequent field surveys targeted areas to identify and characterize the existing natural resources and their overall landscape significance. Species-specific targeted surveys were conducted for several species of sensitive wildlife including rusty blackbird, Bicknell's thrush, and Clayton's copper butterfly. Conducted detailed analyses and provided expert witness testimony relative to the potential effects of a proposed development and conservation easements on the significant natural resources present within the project area.

**New England Floristic Quality Assessment Index Development Project | Expert Botanist**

Selected as an Expert Botanist to participate in the development of a Floristic Quality Assessment Index (FQAI) for New England. Duties included reviewing comprehensive vascular plant species lists for Maine and assigning a Coefficient of Conservatism value to each species based on direct knowledge of species tolerance for disturbances and affinities for particular habitats.

**Rare Plant Surveys, Number Nine Wind Project | Aroostook County, Maine | Lead Botanist**

Lead Botanist responsible for completing de novo rare plant surveys at a proposed wind project site in Aroostook County, Maine. Tasks included the completion of a landscape analysis to identify areas within the project area with potential habitat for rare plants. Follow-up field surveys were conducted to identify rare plants and natural communities within the project area. Several new locations of rare plants were located as a result of the field surveys including Goldie's fern (*Dryopteris goldiana*), male fern (*Dryopteris filix-mas*), showy lady's-slipper (*Cypripedium reginae*), northern bog sedge (*Carex gynocrates*), marsh valerian (*Valeriana uliginosa*), lesser yellow water crowfoot (*Ranunculus gmelinii*), and swamp honeysuckle (*Lonicera oblongifolia*). A detailed report of the field results was prepared and included with permit applications.

**ForSAFE-Veg Model Setup and Evaluation Project: Northern Hardwood Forest Ecosystem | Expert Botanist**

Selected as an Expert Botanist to participate in the setup of the ForSAFE-Veg model (an integrated forest ecosystem model) to simulate ecosystem biogeochemistry and ground vegetation composition in Northern Hardwood Forest ecosystems in the Northeastern U.S. relative to climate change and air pollution. Duties included participating in meetings with other regional botanists to review vegetation characteristics of northern hardwood forests in order to assign values to each species relative to their colonization ability, rooting depths, shading heights, palatability, temperature ranges, shade tolerance, water requirements, nitrogen needs, and pH tolerance for model calibration.

**Rare Plant Surveys, Private Wind Energy Development | Oxford County, Maine | Lead Botanist**

Lead Botanist responsible for conducting surveys for rare plants associated with a proposed wind energy development project in western Maine. Conducted a landscape analysis to identify potentially suitable rare plant habitats based on landscape position followed by meander-based field surveys to characterize the existing conditions and locate rare plants. Prepared detailed report of findings.

**Rare Species Survey and Habitat Characterization, Private Client | Auburn, Maine | Lead Scientist**

Field Scientist responsible for completing a characterization of existing ecological conditions of a proposed development site in central Maine. Efforts consisted of a desktop review of available information followed by field surveys to document existing conditions. Efforts focused on evaluating potential habitats for rare, threatened, and endangered species. Documented several occurrences of swamp white oak (*Quercus bicolor*), a state-listed species. Prepared a detailed report of the findings.

**SELECT PUBLICATIONS**

Mittelhauser, G.H, **M. Arsenault**, D. Cameron, E. Doucette. Grasses and Rushes of Maine. *University of Maine Press, Orono, Maine*, 2019.

**Arsenault, M.** Discovery of *Saxifraga cespitosa* in Maine. *Rhodora*, 2018, pp. 120: 254–256.

Samorajczyk, C., M. Ranslow, **M. Arsenault**, and J. Simmons. Mitigation strategies for a proposed bridge crossing in a suburban floodplain environment. *Poster presented at the Northeastern Transportation and Wildlife Conference, Amherst Massachusetts*, 2018.

**Arsenault, M.**, K. Carifa, C. Samorajczyk, S. Hildt, and J. Simmons. Adaptive management for balancing safety and a rare plant at a regional airport. *Poster presented at the International Conference on Ecology and Transportation, Raleigh, North Carolina*, 2015.

**Arsenault, M.**, G.H. Mittelhauser, D. Cameron, A. Dibble, A. Haines, S. Rooney, and J. Weber. The Sedges of Maine - A Field Guide to Cyperaceae. *University of Maine Press, Orono, Maine*, 2013.

# Thomas Tetreau

Project Manager, Environmental Scientist

Tom is a Project Manager and Environmental Scientist responsible for leading and coordinating a variety of natural resource projects, including wetland delineations, vernal pool surveys, functional assessments, wildlife monitoring, construction and compliance monitoring, and invasive species management. He also assists in the preparation of federal and state permit applications and GIS map production. Tom is a Certified Professional in Erosion and Sediment Control (CPESC) and often provides environmental compliance monitoring and erosion control inspections on large-scale construction projects.

Tom has worked on a variety of natural community and rare plant survey projects ranging from general reconnaissance-level surveys to quantitative, community- and species-specific surveys involving natural community mapping and analysis for transportation projects, utility corridors, and development sites.

## EDUCATION

Heartsaver First Aid and CPR Certified, American Heart Association, Brunswick, Maine, 2017

OSHA 10-Hour Construction Certification, Topsham, Maine, 2012

OSHA 8-Hour HAZWOPER Refresher Certification, Topsham, Maine, 2014

40-hour HAZWOPER Certified, OSHA, Topsham, Maine, 2008

United States Army Corp of Engineers Wetland Delineator Methods, University of New Hampshire, Durham, New Hampshire, 2007

BA, Environmental Planning and Policy, University of Maine, Farmington, Maine, 2005

## REGISTRATIONS

Professional Wetland Scientist #2884, Society of Wetland Scientists

Commercial Operator #COA44344/5, 6A, 6B, Maine Board of Pesticides Control

Certified Professional in Erosion and Sediment Control #5826, Certified Professional in Erosion and Sediment Control, Inc., 2013

Certified Wetland Scientist #283, State of New Hampshire Board of Natural Scientists

## MEMBERSHIPS

Member, Society of Wetland Scientists

Member, Association of State Wetland Managers

Member, Maine Association of Wetland Scientists

## PROJECT EXPERIENCE

### NATURAL RESOURCE SERVICES

Bingham Wind Project | Somerset and Piscataquis County, Maine | Project Scientist and Field Lead, Environmental Monitor

Led field crews and conducted wetland delineations and vernal pool surveys on over 10,000 acres of ridgeline and over 30 miles of transmission line corridor. Conducted data analysis and quality review of field data. Assisted with the completion of MDEP and Corps permit applications including wetland, wildlife, and fisheries reports and alternatives analysis. Provided environmental compliance monitoring for the entire duration of construction of 56 wind turbines and associated 17-mile transmission line. Provided environmental training orientation to new contractors, inspected erosion controls, interpreted strict permit conditions, met with DEP personnel onsite, and helped the client and contractors maintain permit compliance.

Oakfield Wind Project | Aroostook County, Maine | Project Scientist and Field Lead, Environmental Monitor

Conducted wetland delineations, vernal pool surveys, and Global Positioning System surveys on the proposed wind farm and transmission line routes. Prepared study plans and conducted deer wintering area surveys at several locations along the 60-mile transmission line. Provided construction and environmental compliance monitoring for the installation of six open-bottom culverts designed to enhance fish passage under an existing gravel road. Marked wetlands, streams, vernal pools, significant wildlife habitat and associated buffers along the 60-mile transmission line prior to clearing activities and again prior to construction activities.

Number Nine Wind Project | Aroostook County, Maine | Project Scientist and Field Lead

Led crews of up to 12 people to conducted wetland delineations and vernal pool surveys on over 6,000 acres of remote forest land and over 150 miles of potential transmission line routes. Consulted with Maine regulatory agencies and prepared MDEP and Corps permit applications.



**Northern Maine Regional Airport | Presque Isle, Maine | Lead Wetland Scientist**

Conducted natural resource delineations on the approximately 675-acre airport property for use in future development of the site. Worked with project and airport management to gain safe access to areas adjacent to active runways. Prepared wetland delineation report documenting the resources and conditions within the project area.

**MB Bark Recycling Facility | Androscoggin County, Maine | Project Manager, Lead Wetland Scientist**

Conducted wetland delineations and vernal pool surveys on approximately 150-acre site for a proposed expansion of the solid waste recycling facility. Worked closely with client and project engineers to design expansion areas to minimize wetland impacts and avoid impacts to vernal pools. Completed Maine Natural Resource Protection Act and US Army Corps of Engineers permit applications. Permits were granted by both agencies with minimal requests for supplemental information.

**S136 Transmission Line Storm Hardening Project | Coos County, New Hampshire | Environmental Monitor**

Provided environmental monitoring and permitting support for structure replacement construction activities on an approximately 27-mile transmission line. Prepared maintenance notification permitting for New Hampshire Department of Environmental Services, conducted weekly monitoring and post-storm visits to check for adequate erosion controls and environmental compliance related to access route creation, resource matting, and pole setting. Prepared weekly monitoring reports to client and provided maintenance recommendations to contractors.

**Wetland Delineation, Mt. Carberry Landfill | Berlin, New Hampshire | Project Manager, Wetland Scientist**

Performed wetland delineations on approximately 100 acres of proposed landfill expansion areas over several consecutive years. Assisted in NHDES permit applications.

**Downeast Wind Project | Washington County, Maine**

Led field crews and conducted wetland delineations and vernal pool surveys on several thousand acres of potential turbine areas and transmission line corridor.

**Gas Pipeline Wetland Delineation and Monitoring | West Virginia, Pennsylvania, and Ohio**

Conducted wetland delineation and monitoring work along existing and proposed natural gas pipelines in West Virginia, Ohio, and Pennsylvania. Determined wetland boundaries using the technical criteria described in the Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual Northcentral and Northeast Region, Version 2.0. Wetland monitoring work included invasive species surveys.

**Record Hill Wind | Roxbury, Maine | Project Scientist**

Assisted with MDEP and Corps requirements subsequent to permit issuance by marking wetlands, streams and vernal pools prior to clearing of the wind farm. Also assisted with identification and impact evaluation of access points, provided field support for initial clearing and subsequent construction of the project, and responded to special situations of emergency or critical nature.

**Rollins Wind Project | Lincoln, Maine | Project Technician**

Conducted wetland delineations, vernal pool surveys, and Global Positioning System surveys of the wind farm. Participated in preparation of state and federal permits.

**Grand Manan Wind Project | Grand Manan Island, New Brunswick, Canada | Project Scientist and Field Lead**

Participated in the ecological characterization of the site of the proposed wind farm. Conducted and supervised wetland delineations and Global Positioning System surveys of the project area. Participated in preparation of provincial and federal permits.

**Stetson Wind Project | Washington County, Maine | Project Technician**

Assisted with MDEP and Corps requirements subsequent to permit issuance by marking wetlands, streams and vernal pools prior to clearing for the transmission line; assisting with identification and impact evaluation of access points; providing field support for initial clearing and subsequent construction of the transmission line; and responding to special situations of emergency or critical nature. Participated in on-going vernal pool research project related to the effects of transmission line development on amphibian breeding.