Work Plan
for Pre-Construction Avian and Bat Surveys

Proposed Cassadaga Project,
Chautauqua County, New York

Prepared For:

EverPower Wind Holdings, Inc.
1251 Waterfront Place, 3rd Floor
Pittsburgh, PA 15222

Prepared By:

Stantec Consulting
30 Park Drive
Topsham, ME 04086

June 2013 REV July 2013

Table of Contents

1.0 Introduction

EverPower Wind Holdings, Inc. (EverPower) is considering the construction of the Cassadaga Wind Project (Project) located in Chautauqua County, New York. The proposed Project would include wind turbines located west of Route 83 in the towns of Stockton, Charlotte, and Cherry Creek and the villages of Cassadaga and Sinclairville (Figure 1). The Project is in the early phase of development and the approximate size of the area of interest is 24,000 acres. The number and locations of turbines, access roads, and electrical corridors are preliminary.

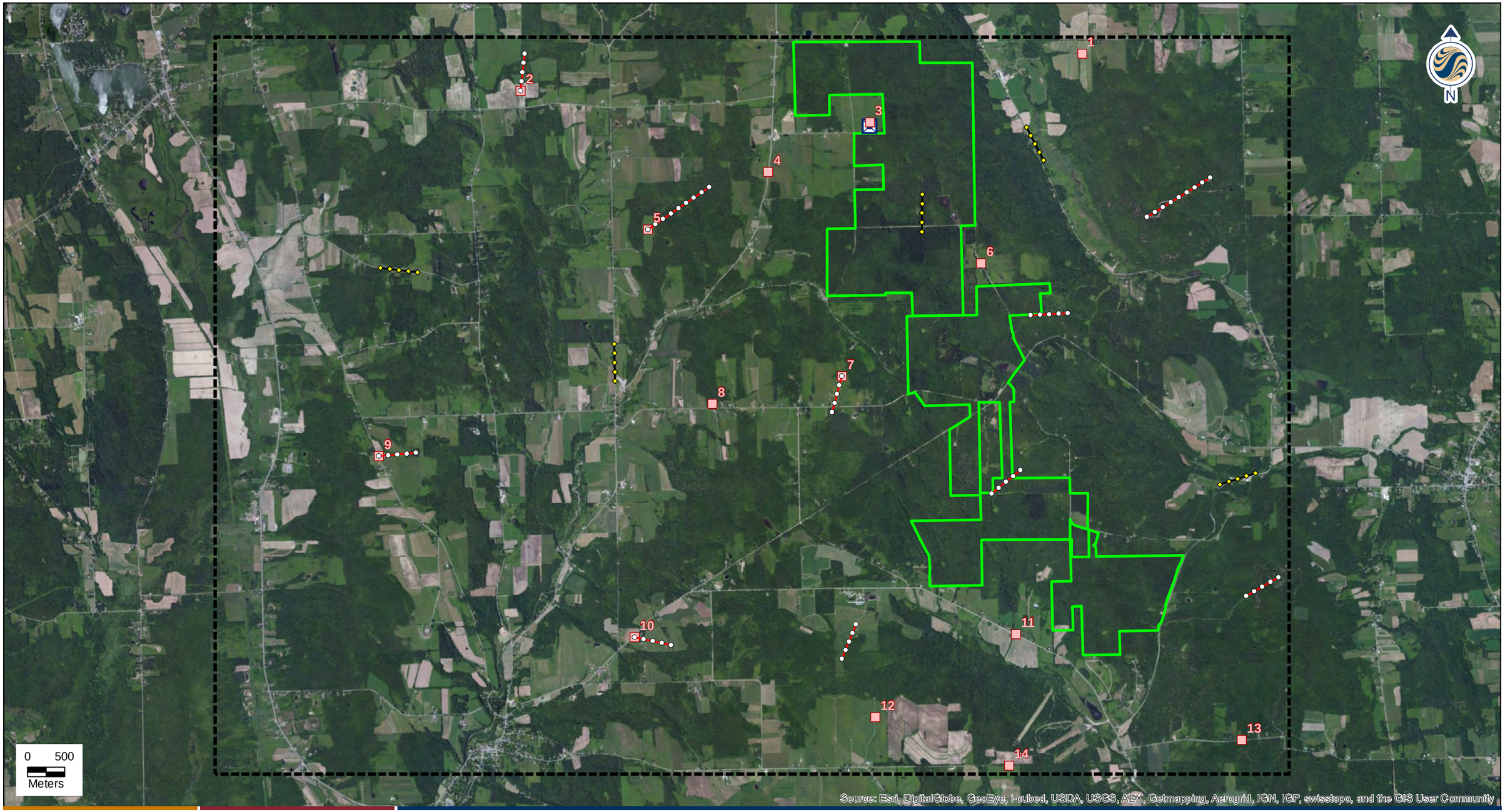
As part of the planning phases of this Project, EverPower contracted Stantec Consulting Services Inc. (Stantec) to prepare a work plan for pre-construction bird and bat studies. The survey methodologies and level of effort identified in this proposed work plan are based on Standard Pre-Construction Studies detailed in NYSDEC's Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects (NYSDEC Guidelines; NYSDEC 2009) as well as the US Fish and Wildlife Service's (USFWS) Land-based Wind Energy Guidelines (2012) and Eagle Conservation Plan Guidance (ECP Guidance, 2013). A draft version of this work plan (June 2013) was presented to biologists at the New York Regional Field Office of the USFWS in Cortland, NY on June 18, 2013 and to NYSDEC via conference call on June 27, 2013. This work plan has been revised based on recommendations made by USFWS and NYSDEC during those meetings.

2.0 Bird and Bat Surveys

2.1 EAGLE POINT COUNT SURVEYS

Stantec will conduct point count surveys for eagles for one full year consistent with the ECP Guidance. Point count surveys will consist of 1-hour visual surveys at plots within the Project area, each with an 800-meter radius and covering an area of 2 square kilometers. Stantec will survey 14 points[1] each cycle (once approximately every 3 weeks) totaling 18 point count surveys in 1 year; point count locations will be searched within a 2 to 3-day period. Point count locations will be distributed throughout the Project area where the observer has a view of the sky; points will not be conducted in forested areas unless suitable vantage points exist. Proposed point count locations based on consultation with USFWS and NYSDEC are shown in Figure 1; the final locations will be determined after the first site visit and will consider viewsheds and access. Point count locations will be mapped using a Global Positioning Systems (GPS) unit. Surveys will occur in all weather conditions except when visibility is poor. Survey efforts will target the hours of 10 am to 4 pm, the midday hours in which eagles tend to be more active. The starting point count location will change each survey cycle to enable sampling of each plot during a range of daylight hours. Though the species targeted during point count surveys is bald eagle, all raptors observed will be recorded. In addition, Stantec will record incidental observations of other species (i.e., waterbirds and songbirds) observed during surveys.

[1] Per the April 2013 ECP Guidelines, the number of proposed point count locations was determined by calculating the entire turbine area including a 1-km buffer around turbines, calculating 30% of the area, and dividing by 2 (to account for the 2 square-kilometer plots).



Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME USA
04086
Phone (207) 729-1199
Fax: (207) 729-2715
www.stantec.com

00883_001_Proposed_Bird_and_Bat_Survey_Locations.mxd

Legend

- Proposed Eagle Point Count Location
- Existing MET Tower and Acoustic Bat Survey Location
- Cassadaga General Project Area
- New York State Forest
- Proposed Breeding Bird Survey Transect
- Proposed Breeding Bird Survey Location Point
- Proposed Breeding Bird Survey Control Transect
- Proposed Breeding Bird Survey Control Point

195600883

Client/Project
EverPower Wind Holdings, Inc.
Cassadaga Wind Project
Chautauqua County, New York

Figure No.
1

Title
Proposed Bird and Bat Survey Locations
7/17/2013

After completion of the eagle point counts, data collected will be summarized and included in a memo report. The memo report will include the eagle exposure rate calculation, expressed as exposure minutes per daylight hour within the Project area, averaged over daylight hours.

2.2 HABITAT ASSESSMENT

Stantec will conduct a habitat assessment during the first round of eagle point count surveys. Habitat data obtained at each point will include cover type, percent canopy cover, and notes of any current or previous disturbance. The habitat assessment will inform the Project of the presence of any habitat with potential to support state or federally listed species (i.e. grassland species such as Henslow's sparrow (*Ammodramus henslowii*), sedge wren (*Cistothorus platensis*), and northern harrier (*Circus cyaneus*)). Habitat of state or federally listed wildlife species known or expected to occur in the area will be compared to the habitats identified in the Project area. If such habitat is found in the Project area, we will contact the appropriate agencies (NYSDEC if habitat known to support a state-listed species if found, USFWS if habitat known to support a federally listed species is found) to assess the need for additional field surveys. According to the rare species records database by county maintained by the USFWS, no federally listed bird or bat species are known to occur in Chautauqua County[2].

2.3 ACOUSTIC BAT SURVEYS

Stantec will conduct acoustic bat surveys consistent with the NYSDEC Guidelines to characterize activity, timing of activity, and when possible, species composition of bats in the area. Passive acoustic echolocation monitoring surveys will be conducted during the late summer emergence and fall migration periods (mid-August to mid-October in 2013) and the spring migration and activity period for bats (mid-April to mid-August in 2014).

At the Project site, 2 Anabat SD1 detectors (Titley Electronics Pty Ltd.) will be deployed in the on-site meteorological (met) tower at approximately 45 meters (m) and 3 m in height, as recommended by NYSDEC Guidelines. To sample bat activity at a second location within the Project area, Stantec will deploy a third detector where bat activity may be expected (i.e., on the forest edge of a linear corridor or near standing water). This detector will be affixed to a tree at approximately 3 m in height. If a second met tower is installed, Stantec will deploy 2 acoustic detectors on the second met tower as soon as it is installed and will remove the tree detector. Recording at the detectors will occur daily from one half hour prior to sunset until one half hour after sunrise during the survey period. Periodic visits will be conducted to download data and maintain the detectors.

Following completion of the acoustic survey, data will be compiled and evaluated. Once downloaded, each data file will be either visually inspected or filtered using appropriate filtering program software to screen out bat calls. Each call file will be qualitatively identified to guild and when possible, to species. A second biologist will visually inspect each call to ensure accuracy.

The final report will summarize calls from each detector for each night (i.e., number of calls by species or guild per hour) during the survey period. Wind speed, wind direction, and temperature data from the met tower will be compiled to assess if these weather variables are correlated with bat activity levels. Weather data from the met tower for each survey period will be used in the analysis. Results will be incorporated into a comprehensive report to be drafted following completion of the bird and bat surveys.

[2] Note that bald eagle has been delisted. http://www.fws.gov/northeast/nyfo/es/colistcurrent.pdf. REV. July 16, 2012. Accessed June 10, 2013.)

2.4 RAPTOR MIGRATION SURVEYS

Stantec will conduct between 13 days of surveys between March 1 and May 31 (one survey approximately every 7 days) from a centrally located point providing a good view of the Project area. The exact location of the raptor observation site will be determined during the first round of eagle point count surveys. Since there is no specific migratory pathway for raptors near the southern shore of Lake Erie in the fall and based on the Project's location near the south shore of Lake Erie, fall raptor migration surveys will not conducted at the Project. Since migrating raptors are reluctant to cross broad stretches of water such as the Great Lakes, raptors migrating northward through the region are known to concentrate and move northeast along the edge of the Great Lakes' southern shores (Dunne 1984)[3]. Analogous to migration behavior in the spring, instead of crossing the Great Lakes, raptors moving south from Canada are known to concentrate and fly southwesterly along the Great Lakes' northern shores (Dunne 1984) resulting in less migratory activity along the southern shorelines of Lake Erie in fall. Likely due to this reason, most of the Hawk Migration Association of North America (HMANA) observation sites on the northern Great Lakes shores only conduct counts in fall. Though fixed-location raptor migration surveys will not be conducted in fall, observers will record any raptors seen during the fall eagle point count surveys conducted once every 3 weeks in fall.

Surveys would occur between 9 am and to 5 pm and will target days with suitable migration conditions (following wind, no precipitation). For each observation, information recorded will include the species, number of individuals, sex and age class (if possible), behavior, flight height and direction, time of sighting, and location of each bird relative to the Project area. Incidental observations of other bird species also will be recorded. Results in terms of species composition and passage rate will be compared to hawk migration data from the nearest HMANA sites, the Ripley Hawk Watch and Hamburg Hawk Watch, at which surveys are conducted only in spring. Spring surveys at these locations are known for documenting raptors as they concentrate along a topographical "funnel" between the lakeshore and a steep escarpment, located approximately 3 miles inland.

The level of raptor migration activity will be described as the number of observations of raptors recorded. Mean flight height of observations and percent below turbine height will be calculated. Results will be incorporated into a comprehensive report to be drafted following completion of the bird and bat surveys.

2.5 BREEDING AND MIGRATORY BIRD SURVEYS

Breeding and migratory bird surveys will be conducted once each week in May and June (for migratory and breeding birds) and September (for migratory birds), consistent with the NYSDEC recommendations made during the call with NYSDEC, EverPower, and Stantec on June 27, 2013. As suggested in the ECP Guidance, as possible, point count surveys for migratory and breeding birds will be accomplished in conjunction with the eagle point counts during the months of May, June, and September prior to or following the 1-hour eagle point count survey.

Locations of the September migratory bird survey points will be the same as the eagle point count locations (Figure 1). Breeding bird surveys in May and June will be conducted at a total of 83 points distributed along 15 separate transects. Fifty-eight of the points will be distributed evenly across 10 linear transects perpendicular to approximate turbine locations and 25 control points will be distributed across 5 transects in control sites where no impacts are expected to occur (Figure 1). Survey points will be spaced at 125-m intervals along transects to help reduce the likelihood of double-counting individuals, and transects will range from 500 to 1000 meters long. Stantec will survey each transect once in May and again in June, with a different set of transects searched during each week in May and June. If landowner

[3] Dunne, P, D. Keller, and R. Kochenberger. 1984. Hawk Watch: A Guide for Beginners. Cape May Bird Observatory, Cape May, NJ. 2002 reprint.

permissions or site conditions prevent access to any points or transects as currently mapped, or if proposed points are not within representative habitat types, survey locations may be shifted slightly during the first site visit. The final location of each survey point will be recorded with a Global Positioning System.

Surveys will be conducted from sunrise until no later than approximately 10:00 a.m., in weather conditions conducive to hearing birdsong and seeing birds move about in vegetation and in flight. All birds identified by sight or sound, including soaring raptors, waterfowl and other fly-overs, will be recorded at each survey point. Weather information will be recorded at each survey location. At each survey point, all birds seen and heard during a 5-minute session will be recorded.

Species richness, relative abundance, species frequency, and community diversity will be determined. Results will be incorporated into a comprehensive report to be drafted following completion of the bird and bat surveys.

3.0 Reporting

Stantec will draft a single comprehensive report discussing results of the bird and bat surveys described above (acoustic bat, raptors, and migratory and breeding bird surveys). Stantec will draft a separate memo report providing results of the eagle point count surveys. Reports will follow typical scientific reporting standards and will include Introduction, Methods, Results, and Discussion sections. Reports will include appropriate photographs, tables, and figures. Draft reports will be submitted to EverPower and to NYSDEC and USFWS for review and comment.

Memo

Stantec

To:	USFWS, EverPower, and Stantec	From:	Stantec
File:	Job #195600883	Date:	July 17, 2013

Reference: June 18, 2013 Meeting to Discuss EverPower's Proposed Cassadaga Wind Project[1]

This memo summarizes the meeting on June 18, 2013 between the U.S. Fish and Wildlife Service (USFWS), EverPower Wind Holdings, Inc. (EverPower), and Stantec Consulting (Stantec) at the USFWS New York Field Office in Cortland, New York. The purpose of the meeting was to discuss the proposed work plan for the Cassadaga Wind Project which was based on USFWS's Land-based Wind Energy Guidelines (2012) and Eagle Conservation Plan Guidance (2013), and protocol for Standard Surveys detailed in the New York State Department of Environmental Conservation (NYSDEC) Guidelines for Conducting Bird and Bat Studies at Commerical Wind Energy Projects (2009). The Draft work plan was provided to USFWS by EverPower on June 18, 2013. The meeting commenced at 9:30. Attendees included:

Tim Sullivan, USFWS
Sandy Doran, USFWS
John Wiley, USFWS
Sarah Nystrom, USFWS
Seth Wilmore, EverPower
Mike Speerschneider, EverPower
Jessica Costa, Stantec; and
Sarah Boucher, Stantec.

Seth introduced the project, presenting a large map of the project with preliminary turbine locations. He noted that this meeting was in accordance with Tiers 1 and 2 of the USFWS's Final Land-based Wind Energy Guidelines (2012) and that a Critical Issues Analysis was completed for the project. Tim asked which transmission line would be utilized and Seth responded that he would find out this information; Mike added that initial project screening efforts identified that the existing line has enough transmission capacity for the project. Seth conveyed that part of the project is on Boutwell State Forest land which is a multi-use forest with existing hiking and snowmobile trails and gas wells. USFWS suggested consulting with NYSDEC regarding development in the State Forest. USFWS asked where the project stood in the SEQR permitting process and if the project was following SEQR. Seth responded that the project was following the recently enacted Article 10, as it has superseded the SEQR process.

USFWS asked if Stantec had conducted a search of the IPaC (Initial Project Screening) database to see if any federally listed species were known to occur in Chautauqua County. Stantec responded that they had, and found no records of federally listed birds or bats however

[1] Meeting participants also discussed the proposed Baron Winds Project; meeting minutes related to Baron Winds are included in a separate memo dated July 17, 2013.

found records of 2 listed mussels, rayed bean (*Villosa fabalis*) and clubshell (*Pleurobema clava*). USFWS noted that these mussels are known to occur in creeks outside the project area.

S. Boucher presented each bird and bat survey proposed at the project from the project work plan, beginning with eagle point count surveys. USFWS noted that there may be a bald eagle (*Haliaeetus leucocephalus*) nest in Sinclairville and that the project should consult with NYSDEC regarding any new nests found in 2013. Stantec noted that the nearest nest is approximately 5 miles northwest of the northwestern project boundary. Sandy suggested adding or moving one of the point count locations to the northwestern part of the project to try to capture any eagle activity south of Cassadaga Lake. Stantec responded that they had considered that and had placed points near preliminarily-proposed turbine strings; however would consider moving a survey point to the northwest portion of the project area.

<u>Eagles</u>

- Sarah Nystrom initially commented that she would be more comfortable with 2 visits per month rather than the proposed single visit per month. S. Boucher indicated that the new Eagle Conservation Plan Guidance (2013) specified one visit per month (1 hr of survey at each point as opposed to the 30-minute surveys specified in the Draft Guidance) for projects with expected low use. S. Nystrom responded that if eagle activity is expected to be relatively consistent between months, the single visit might be sufficient but that she would check with the modelers to see if the level of effort should be adjusted for more accurate model results.
- Jess asked if increasing effort to 2 visits during times of known high activity (i.e., territory establishment, post-fledging, and migration) and S. Nystrom and John Wiley responded that this may be a possibility; however this may make the model ultra-conservative as extra sampling would occur when activity was higher, resulting in more passes; in addition, S. Nystrom indicated that because of annual variation it may be hard to predict when activity may be highest.
- S. Nystrom asked how many points were being sampled and for what time period and Stantec responded that 14 points would be sampled for 12 months.
- Jess asked if data from other sites could be incorporated and S. Nystrom responded that this may be problematic as other sites are different and may not easily be an input to the model.
- S. Nystrom noted that the collision risk model may not be the best tool for all projects, and that calculating half the inter-nest distance might give the project a better idea of likelihood for activity.
- John Wiley added that USFWS's current model is a collision model that does not easily take into account "zero" data, or hours without activity, and that running a "power sample" as a test may help one assess appropriate level of effort.
- S. Nystrom mentioned that supplemental surveys could be done near waterbodies with nesting eagles, for example, to assess the direction eagles are moving when they leave the nest (i.e., are they flying toward the project); if there is eagle absence in the project area, this can be compared to possible presence at other locations. Stantec said that adding a point count location or a fixed raptor location in the northwestern part of the project area may assess this activity.
- Mike expressed concern that it was counterintuitive that projects suspected to be low risk sites may have to conduct more field effort to increase chances of documenting an eagle for purposes of running the model, and sites suspected to be higher use would require less field effort. Mike and S. Nystrom talked about the process of the modeling

efforts, what the results say about risk, and the apparent categorization of most projects in the Moderate category.
- Mike expressed concern that the model is sensitive to few observations of eagles at low heights; S. Nystrom indicated that high flying migrant eagles are not inputted into the model so they would not increase risk.
- USFWS recommended consulting with NYSDEC in terms of timing and points.

Sandy Doran expressed concern for occurrence of Myotis species that may soon become listed: little brown bat (*Myotis lucifugus*), eastern small-footed bat (*Myotis leibii*), and northern long-eared bat (*Myotis septentrionalis*). Jess indicated that the habitat and potential occurrence of these species can be addressed in the habitat assessment.

Regarding acoustic bat surveys, USFWS recommended that the project consult Carl Herzog of the NYSDEC to confirm the level of effort and sampling locations of acoustic surveys.

Regarding the spring raptor migration surveys proposed for the project, USFWS recommended that the project confirm the rationale for spring sampling only with NYSDEC.

Seth indicated that EverPower will plan to follow up with USFWS after a call to discuss the work plans with NYSDEC on Thursday, June 27.

The meeting ended at approximately 11:30.

Memo

Stantec

To:	NYSDEC, EverPower, and Stantec	From:	Stantec
File:	Job #195600883	Date:	July 17, 2013

Reference: June 27, 2013 Teleconference with NYSDEC to Discuss EverPower's Proposed Cassadaga Wind Project[1]

This memo summarizes the teleconference on June 27, 2013 between the New York State Department of Environmental Conservation (NYSDEC), EverPower Wind Holdings, Inc. (EverPower), and Stantec Consulting (Stantec). The purpose of the meeting was to discuss the proposed work plan for the Cassadaga Wind Project which was developed based on the US Fish and Wildlife Service's (USFWS or the Service) Land-based Wind Energy Guidelines (2012) and Eagle Conservation Plan Guidance (2013), and protocol for Standard Surveys detailed in the NYSDEC Guidelines for Conducting Bird and Bat Studies at Commerical Wind Energy Projects (2009). The Draft work plan was provided to NYSDEC by EverPower via email on June 18, 2013. The meeting commenced at 12:30 pm. Attendees included:

Rudyard Edick, NYSDEC
Brianna Gary, NYSDEC
Chris Hogan, NYSDEC
Seth Wilmore, EverPower
Mike Speerschneider, EverPower
Jessica Costa, Stantec
Sarah Boucher, Stantec
Trevor Peterson, Stantec.

SW introduced the Cassadaga Wind Project, describing the location and size of the project. He noted that project has been following Tiers 1 and 2 of the USFWS's Final Land-based Wind Energy Guidelines and that a Critical Issues Analysis was completed for the project. SW indicated EverPower and Stantec had met with USFWS regarding both projects.

SW indicated that part of the project is proposed within the Boutwell Hill State Forest, and that representatives from the Forest Service (FS) had been contacted. RE and CH indicated that project crossings and development of state forest are difficult, and that there have been few or no other project proposals in state forest except for an instance where a road in a state forest needed to be widened. RE reiterated that state forest crossings are difficult and such projects would need to demonstrate their benefit to the state. RE and CH asked whom EverPower had contacted from the FS. MS indicated he had spoken with Mark Gertzman and the Albany representative from the FS. MS acknowledged that EverPower was working with the FS to figure out if and how the state forest could be used. RE and CH said they could do some

[1] Meeting participants also discussed the proposed Baron Winds Project; meeting minutes related to Baron Winds are included in a separate memo dated July 17, 2013.

research and provide EverPower information regarding any hurdles they may encounter in state forest land.

SW covered results of Natural Heritage Database query which identified species including bald eagle, Henslow's sparrow, and sedge wren. SB indicated that an IPaC information request was submitted and there were no federal species indicated in the project area. SB described the proposed surveys in the draft work plan, starting with the eagle point count surveys.

RE asked if the Service indicated they may ask for an ITP for bald eagles. SW explained that the eagle point count survey methodology was discussed with the Service and that the results of those surveys would inform next steps for assessing eagle impacts. BG indicated DEC is ok with EverPower following the proposed eagle survey methods as they follow the federal guidance. Stantec indicated that the nearest nest is approximately 5 miles from the project and USFWS had recommended following up with DEC regarding any additional eagle nests[2].

SB indicated there would be 2 Anabat acoustic detector arrays located on 2 met towers in the project area. BG said it would be acceptable if acoustic surveys were split between 2 years, for example fall surveys could occur in 2013 and spring surveys could occur in 2014. BG indicated that conducting a second fall season of acoustic surveys in 2014 in conjunction with planned eagle point count surveys would be appropriate and efficient. EverPower responded that eagle point count surveys are planned to begin in July 2013 and will occur for one full year (until June of 2014), therefore biologists are not expected to be on site in fall 2014. MS wanted to address the objectives of acoustic surveys and how data are used to assess risk considering the lack of a relationship between pre-construction acoustic surveys and post-construction fatality. BG indicated that there is no better metric than acoustic bat surveys at this time, and that any turbine built in NY has a 100% likelihood of killing at least one bat. She also stated that this project is not within the Indiana bat range so this species is not an issue for this project. However, there likely will be more bat species listed in the future that would occur in the area. DEC indicated they are still developing the best way to detect bats and while they recommend acoustic surveys, they are continuing to evaluate their need and application. TP asked if it was appropriate to drop active acoustic surveys due to the lack of calls they detect and the inability to identify Myotis calls to species. BG said they were not opposed to dropping active surveys since they don't appear to add much value and particularly since the project is not in Indiana bat territory. TP asked which software is recommended for acoustic analysis and BG deferred to Carl Herzog for preferred software, but suggested that Stantec could choose the method they are most comfortable with. Carl suggested that manually identifying call files was preferable to any of the detection software out there, but that ultimately it was up to Stantec to analyze the data as appropriate[3].

In regard to raptor migration surveys, BG indicated it was appropriate to survey the spring season only as high activity in the fall is not expected in this region. However if higher numbers than expected of raptors are detected in fall during the eagle point count surveys, she asked that DEC be notified.

In regard to breeding bird/migratory bird surveys, BG recommended surveys once per week in May, June, and September (as opposed to the USGS protocol of 1 visit in May, 2 visits in June).

[2] BG provided via email on July 1, 2013 the latest eagle nest location information for the project. The nearest nest was 2.6 miles from the project based on a preliminary project boundary; Stantec estimated that the nearest nest is approximately 5 miles from the project based on a revised project boundary.
[3] As stated in an email from BG on July 1, 2013.

Reference: **June 27, 2013 NYSDEC Meeting to Discuss EverPower's Cassadaga Wind Project**

BG indicated that other projects are conducting weekly visits during these months. Also, BG suggested using transect survey methods instead of point counts, which conflicts with the current DEC Guidelines. BG suggested establishing 300-500 m long transects in support of a potential Before After Control Impact (BACI) study. Transects should be positioned near proposed turbine locations and outward from the turbines, with control transects outside the area of impact for comparison. Each transect would have multiple points spaced 50 - 150. The number of control transects would depend on the number of proposed turbines (BG will also get back to Stantec about the number of control transects that other recent studies have used) [4]. TP indicated the BACI study design was intended for studying impacts on forest species and was not particularly useful for assessing impacts to grassland birds. TP asked if transects were appropriate for the fall migration surveys. BG indicated that Stantec could choose to do transect surveys in May and June, and regular point counts in September for migrants.

BG indicated that DEC will be updating their guidelines in the next couple of years, specifically to better capture how to detect/study bats.

The teleconference ended at approximately 1:45 pm.

[4] BG emailed call participants on July 1, 2013 with example scopes for breeding bird surveys at other projects in New York.