Exhibit 18
Shadow Flicker Report

Memo

Stantec

To:	Joy Prescott Stantec Consulting Ltd. Topsham, ME	From:	Theo Kindermans Stantec Planning and Landscape Architecture, PC Boston, MA
File:	Bowers Wind Project	Date:	August 24, 2010

Reference: **Shadow-Flicker Modeling**
Bowers Wind Project, Carroll Plantation and Kossuth Township, Maine
Turbine layout dated June 27, 2010

Introduction

This memorandum provides a brief explanation of the shadow-flicker phenomenon, the modeling approach employed for the site in Carroll Plantation and Kossuth Township, ME and relevant explanations and results. The site layout was provided by Stantec Consulting Ltd., located in Topsham, ME, showing 27 turbines, Siemens 2.3 MW, with an 80 meters high hub and a 101 meter diameter rotor.

Shadow-Flicker Background

Shadow-flicker from wind turbines is defined as alternating changes in light intensity caused by rotating blades casting shadows on receptors on the ground and stationary objects such as a window at a dwelling. When the sun is obscured by clouds or heavy fog, or when the turbine is not operating, no shadows will be cast.

Shadow-flicker can occur on project area receptors when the wind turbine is located near the receptor and when the turbine blades interfere with the angle of the sunlight. The most typical effect is the visibility of an intermittent light reduction on the receptor facing the wind turbine and subject to the shadow-flicker. Obstacles such as terrain, trees, or buildings between the wind turbine and a potential shadow-flicker receptor significantly reduce or eliminate shadow-flicker effects. No shadow flicker is present when the rotor of the turbine is parallel to the line from the sun to the receptor.

The spatial relationship between a wind turbine and a receptor, as well as wind direction are key factors related to shadow-flicker time. Shadow-flicker time is most commonly expressed in hours per year. At a distance of 1000 feet, shadow flicker usually only occurs at sunrise or sunset when the shadows cast are sufficiently long.

Shadow flicker intensity is defined as the difference in brightness at a given location in the presence and absence of a shadow. Shadow flicker intensities diminish with increased distance from turbine to receptor and with lower visibility weather conditions such as haze or fog. Closer to a turbine the shadow will appear to be darker and wider as the rotors will block out a larger portion of sunrays. The shadow on receptors that are located further away will appear fainter, lighter and less distinct.

The analysis provided in this report does not evaluate the flicker intensity, but rather focuses on the total amount of time (hours and minutes per year) that shadow flicker can potentially occur at receptors regardless if the shadow flicker is barely noticeable or clearly distinct. As a result, it is likely that receptors will experience less shadow-flicker impact than modeled and reported, especially those that are further away from the turbines. It is very likely that marginally affected receptors may not be able to identify shadow-flicker at all.

The speed of the rotor and the number of blades determine the frequency of the flicker of the shadow. The shadow-flicker results in this memo are based on Siemens 2.3 MW 3-blade model with a turbine height of 80 meters. The diameter of the rotors is 101 meters. The nominal rotor speed of 16 RPM translates to a blade frequency of .8 Hz (less than 1 alternation per second).

Modeling Approach

For the shadow flicker modeling a module of the WindPRO software was used. The computer model simulates the path of the sun over the course of the year and assesses at regular intervals the potential shadow flicker across a receptor. The color coded map produced by the computer model is a conservative estimate of the number of hours per year that shadows could be cast by the rotation of the turbine blades. This report presents a flicker analysis for both worst case and meteorologically adjusted conditions.

The worst case analysis assumes that:

-the sun is always shining from sunrise to sunset;

-the rotor plane is always perpendicular to the line from the turbine to the sun;

-the turbine is always operating; and

-there is no topographic or vegetative buffer between the receptor and the turbine.

Furthermore, the analysis assumes windows are situated in direct alignment with the turbine-to-sun line of sight. Even when windows are so aligned, the analysis does not account for the difference between windows in rooms with primary use and enjoyment (e.g. living rooms) and other less frequently occupied or un-occupied rooms or garages.

The worst case shadow-flicker model uses the following inputs:

- Turbine locations
- Shadow flicker receptor (residence or camp) locations (coordinates)
- USGS 1:24,000 topographic and USGS DEM (height contours)
- Turbine rotor diameter
- Turbine hub height

The model calculates detailed shadow flicker results at each assessed receptor location and the amount of shadow-flicker (hours and minutes per year) everywhere surrounding the project. A receptor in the model is defined as a 1 square meter area that is 1 meter above ground level, approximating a window. This omni-directional approach produces shadow-flicker results at a receptor regardless of the direction of windows and provides similar results as a model with windows on various sides of the receptor.

The sun's path with respect to each turbine location is calculated by the software to determine the cast shadow paths every minute, daily over one full year.

Reference: Shadow-Flicker Modeling

Output from the model includes the following information:

- Calculated shadow-flicker time at selected receptors,
- Tabulated and plotted time of day with shadow flicker at receptors,
- Tabulated time of impact from each turbine at a receptor, and
- Map showing turbine locations, selected shadow-flicker receptors and color-coded contour lines indicating projected shadow-flicker time (hours per year).

Conclusion

As previously stated, the shadow-flicker model assumptions applied to this project are very conservative and as such, the analysis is expected to over-predict the impacts. Additionally, many of the modeled shadow flicker hours are expected to be of very low intensity.

Of the modeled 54 receptors, only two receptors, other than the primary parcel, potentially receive shadow flicker. All other modeled receptors do not show any impact of shadow flicker.

The worst case statistics of the potentially impacted receptors are outlined below:

Receptor name	Property ID	Shadow hours per year, hours:minutes / year	Shadow days per year	Maximum shadow hours per day	Distance to nearest WTG with impact (feet)
AQ	63	258:10	323	1:26	1250’
AW	73	19:22	50	0:28	3000’
AX	74	25:17	80	0:26	3100’

There are no regulatory standards in the State of Maine, or federal limits, for acceptable shadow flicker impacts. In previous regulatory decisions, including the original Oakfield Wind Project approval, a general standard of 30 hours of real expected shadow flicker per year has been cited (see also the Rollins Wind Project; Record Hill Wind Project).

Given the conservative nature of the model, and taking into effect the dense vegetation in the area and the distance of the receptors from the turbines, receptors AW and AX will fall well below commonly accepted standards for real shadow flicker hours per year. There will not be any significant shadow flicker impact on these receptors.

For clarifications and more detailed analysis of expected influence at selected receptors please do not hesitate to contact me.

Bowers Wind Project
Carroll Plantation, Maine

Created by: ZYY
Filename: V:\1956\active\195600522\flicker Shadow Study\24x36.mxd

Stantec
Planning and Landscape Architecture, PC
141 Portland Street
Boston, MA 02114

Shadow Flicker Study
August, 2010

N
0 500 1,000 2,000 Feet