07-E-0138
Testimony
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STATE OF NEW YORK

PUBLIC SERVICE COMMISSION

Case 07-E-0138 - Petition of Canandaigua Power Partners, LLC for an Original Certificate of Public Convenience and Necessity Pursuant to Section 68 of the Public Service Law, Approving Financing Pursuant to Section 69 of the Public Service Law and Approving a Lightened Regulatory Regime.

Testimony and Exhibits of

Cohocton Wind Watch, LLC and Advocates for Prattsburgh

For Evidentiary Hearing

Dated: May 21, 2007

Introduction

CWW-AFP (Cohocton Wind Watch and Advocates for Prattsburgh, jointly),having party status and having submitted correspondence from Germanischer-Lloyd Industrial Services GmbH (Exhibit 1), (an internationally-operating certification body for wind turbines), which appears to indicate that Clipper Liberty 2.5 MW C-96 turbines, proposed for the Cohocton Wind Project(Canandaigua Power Partners), LLC(CPP) are still in the prototype stage and have not been fully tested..

For clarity, when referencing the Project/sponsor and its affiliates, as stated in the Revised Response of CPP to the NYS PSC, CPP is an affiliate of Canandaigua Power Partners II; the parent company of CPP and CPP II is UPC Wind, LLC.

Additionally, for clarity, Revised Response of CPP/UPC states:

1. "For the Cohocton Project, CPP is utilizing a Clipper Turbine, not a GE."
   page 13
2. "All of the analysis in the SDEIS was based upon the Clipper Liberty 2.5 MW Turbine." page 15
3. "Clipper has not provided any recommended setbacks. Therefore, CPP is following best practices, studying the icing potential of the site, and will

take implement risk measures such as posting signs or curtailing operation if there are unusually high icing conditions. Section 3.10.2.2.1 of the SDEIS for the Cohocton Project, as well as Appendix M to the SDEIS exhaustively analyzed the risk of ice shedding and ice throw, and concluded that for moderate ice locations such as Cohocton, the maximum achievable distance for ice to be thrown was approximately 1,150 feet. The SDEIS further concluded that if a person were always present in the proximity of the turbine during icing conditions, *and* there is no control method incorporated into the wind turbine to prevent ice throw, that the risk of being struck by an ice fragment was estimated to be approximately one in 1 million, or less than the risk of a person being struck by lightning. *See* SDEIS, p. 90, (Exhibit 2) and Appendix M.

The Town of Cohocton's local law requires setbacks of 1,500 feet from residences, and a setback of "the overall height of the turbine plus one hundred feet (which translates to 520 feet for the Cohocton project) from public rights of way and property boundaries." page 13 Local Law #2, Cohocton windmill Law.

The following is the testimony and Exhibits submitted for the evidentiary hearing.

As to substantive comments on the project turbine, the Clipper Liberty 2.5 MW C96 is not commercially available and the prototype and turbines at Steel Winds are a model C93.

Q. What turbine will be utilized in the Cohocton Project by CPP?

A. CWW-AFP believes the proposed turbine is the Clipper Liberty 2.5 MW C96 from the following Exhibits:

Exhibit 3. Page 11 of the SEIS Cohocton Wind Power Project

2.2.1 Wind Turbines

"The wind turbine proposed for this project are the 2.5 MW Liberty C96 turbine manufactured by Clipper Windpower Technology."

Exhibit 4. Special Use Permit Application Cohocton Wind

The Project

"The wind turbine currently proposed is the Clipper Liberty C96, with a minimum cut-in wind speed of approximately 4 meters per second ("m/s") (or 9 mph) required to generate electricity."

Exhibit 5. Germanischer Lloyd (GL) GL Wind Statement No.: WT 00-008A-2006

"This statement of Compliance for the Design Assessment of the Wind Turbine"

Exhibit 6. Email from Chris Swartley confirming the use of and purchase of 50 Clipper turbines.

Q. What is involved in GL certification and what types of turbine certifications are there?

A. GL response to a member of CWW and AFP included " Perhaps some of your questions are also answered on our homepage http://www.gl-group.com/industrial/glwind/3780.htm. Please have also a look on it." **(Exhibit 1).**

Exhibit 7. GL Wind Turbine Certification and Type Certification

Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004

Exhibit 8. GL Type certification for wind turbines- Project Certification for wind farms

Q. What type of Certification does the Liberty 2.5 MW appear to have?

A. The most CWW-AFP can document is a Design Assessment.

Q. What type of Design Assessment?

A. There are three types of Design Assessments as described by GL in Exhibit 7.

2.2.1 C-Design Assessment

"The design Assessment can be divided into three parts: A-, B-, C-Design Assessment (for prototypes of wind turbines), a plausibility check of the prototype will be performed on the basis of the design documentation. This type of Design assessment can be used to erect the

prototype of a wind turbine. It is based on a load assessment and a complete plausibility check of the rotor blades, the machinery components as well as of the tower and foundation might be necessary. The final step of the assessment will be the issue of a Statement of Compliance for the C-Design Assessment which is valid for test operation comprising a maximum of 2 years or 4000 equivalent hours at full load. After this period the B-Design Assessment shall be obtained at latest."

It is not clear from the record available to CWW-AFP what Design Certification the Clipper Liberty 2.5 MW C96 has.

According to the email by Axel Dombrowski (Exhibit 1)...

"You are right, the fabrication surveillance is not part of the Design Assessment which is successful finished for Clipper wind turbines C-89 (WT-00-012A-2006), C-93 (WT-00-009A-2006) and C-96 (WT-00-008A-2006)."

"The lightening protection is also a part of design assessment and was included in our assessment of the electrical equipment."

"The Statement of Compliance for the Design Assessment of the Clipper wind turbine C-96 (WT-00-008A-2006) is still valid."

Q. Is the actual Design Assessment Type Certification affidavit available?

A .The Design Assessment Characteristics and Statement of Compliance dated March 7, 2006, are part of the SEIS and the Special Use Application, but the TYPE Certification as the example appears in **Exhibit 7**, is missing from the SEIS and the Special Use Application.

Q. Has a Type or Project Certification been completed?

A. No, to the best to our knowledge as of March 27, 2007, one year after the Statement of Compliance was issued, according to the email from Axel Dombrowski. of GL in

Exhibit 1:

"The manufacturing evaluation (or Implementation of design related-requirements in Production and Erection - IPE) is part of the Type Certification, which is not started for the Clipper wind turbines yet.

Herein the manufacturing all turbines can be surveyed for one wind turbine (from blade tip to the bottom of the tower). Fabrication surveillance will be done in so called Project Certification. That means especially for one site."

"Also a part of the Type Certification is the measurement of noise according to international standards. At the moment these measurements are not started."

"Risk analysis regarding the distances between wind turbines and gas pipelines can be done by GL Wind, but are not ordered in this case up to now."

"Regarding the blades you are right. They have been changed from the first Statement of Compliance for the Design Assessment of Clipper wind turbine C-93 (WT 00-006A-2005) which is basis of the prototype to the above mentioned statement.

All of these a.m. Statements are still valid for four different Clipper wind turbines.

Our Statements of Compliance are collecting all parts (Certification Reports) of the wind

turbines in one document. That means that GL Wind confirms the compliance according to international standards like IEC 61400-1 or our GL Guideline."

Q. What stage of design certification is used to erect a prototype?

A. Ideally, a C Design Certification. It appears that the Clipper Liberty 2.5 MW C96 has an IEC (1999) Design Certification, not a GL or IEC A, B, or C (2003) Design Certification.

Exhibit 7 2.2.1 C-Design Assessment (see above response)

Q. Is the Clipper Liberty 2.5 MW C96 a prototype?

A. CWW-AFP believes this maybe or may not be true. The actual prototype is the C93, and not C96.

Exhibit 9. US DOE Low Wind Speed Technology Phase I: Clipper Turbine Development Project dated March 2006.

Exhibit 10. DOE letter to Mr. Bill Wichers dated 1/19/2005.

Exhibit 11. The C-93 at Medicine Bow, Wyoming email from Paul Davis and photographs.

"The Clipper Liberty turbine at our Medicine Bow wind site is a C93. It went operational in April of 2005. It is still being tested."

Exhibit 12. Platte River Power Authority, NEWS

Exhibit 13. Platte River Power Authority, Wind Turbine Specifications

Exhibit 14. Town of Estes Park, Record of Proceedings

Q. Have noise studies been performed on prototypes of the Clipper C96?

A. No, see **Exhibits 15 and 16** Hessler Associates mentions a prototype which is actually the C93.

Q. Have bird and bat studies been evaluated for the Liberty C96 turbine?

A. This is unknown, but CWW/AFP know that DOE requested studies for Medicine Bow, Wyoming on the prototype which we now know to be a C93.

Exhibit 10 DOE letter.

Q. What wind turbines were proposed in the UPC Steel Winds Project, Lackawanna, NY?

A. Clipper C96.

Exhibit 15. Hessler Associates, Inc.

1.0 Introduction

"Current plans call for the erection of 36 wind turbines, each with a nominal output of 2.5 MW. It is anticipated that Model C96 wind turbine generators manufactured by Clipper Windpower Technology, Inc. will be used. This model has a 96 m diameter, three-bladed rotor mount on 80m tubular steel towers. As is currently the case with most turbine models in the 2.5 MW size class, the C96 is not yet in commercial production but rather is still in the development phase. The first commercial models are being installed by UPC Wind at the :Steelwinds" project near Lackawanna, NY. Installation is expected to be completed in December of 2007. A prototype of the C96 has been built for testing and design refinement purposes at a site in the Western United States and preliminary sound power level measurements have been taken of this unit."

Exhibit 16. Hessler Associates, Inc. , Addendum 1.0 Introduction

"At that time the only noise emission information available for the Clipper C96 wind turbine

planned for the project was preliminary in nature and was developed from measurements of a prototype that did not have certain noise abatement features that will be present of the production model."

Q. What wind turbines were actually used in Steel Wind?

A. Clipper Liberty 2.5 MW C93

Exhibit 1. Email from Axel Dombrowski

"Regarding the blades you are right. They have been changed from the statement of compliance for the Design Assessment of Clipper wind turbine C-93 (WT 00-006A-2005) which is basis of the prototype to the above mentioned statement."

Q. What is the difference between C93 and C96?

A. Wind Class.

Q. What is Wind Class?

A. See Exhibit 17. Basic Principles of Wind Resource Evaluation

Q. What is the ranking of available wind at Steel Winds Lackawanna?

A. Class 4 **Exhibit 18**. New York annual average wind power

Q. What is the ranking or class of available wind at Cohocton Project?

A. Class 2-3, but the actual measured wind (class) information from CPP/UPC is confidential.

Exhibit 18 New York annual average wind power and **Exhibit 19**. Email from Chris Swartley,

respectively.

Q. Does wind (class) change safety distances for ice throw?

A. Yes, there are many variables. **Exhibit 25** NYSERDA Power naturally pp5-6 Ice Shedding. "During operable wind speeds and when the turbine has not yet shut down automatically or manually, ice can break off the blades and be thrown from the turbine (instead of dropping straight down). The distance traveled by a piece of ice depends on the position of the blade when the ice freaks off, the location of the ice on the blade, the mass of the ice, the shape of the ice (e.g., spherical, flat, smooth), and the prevailing wind speed."

Q. What is a safe distance for ice throw for the Clipper C96 turbine?

A. 1150 feet. **Exhibit 2.** SEIS Cohocton Wind p 90

"For a moderate icing location, such as Cohocton, the maximum achievable distance (I.e. worst case scenario) for ice to be thrown was conservatively estimated to approximately 350 m (1,150 ft.).

Q. How will Cohocton protect the health and safety of its residents?

A. Local Law # 2 of 2006, Cohocton Windmill Law was written to protect the citizens.

Q. When was local law # 2 written and filed with the State of New York?

A. The law was sent to NYS on 12/04/06.

Q. When was the DEIS and the SDEIS accepted containing local law #2 and applying it to

the project?

A. The DEIS was accepted for the project on 4/20/06 and the SDEIS was accepted on 12/20/06.

Q. Does local law #2 require the certification of the turbines and adherence to manufacturers recommendations?

A. Yes. **Exhibit 20**. Local Law #2 section (e) certifications (ii) National and State Standards "The applicant shall show that all applicable manufacturers, New York state and U.S. standards for the construction operation and maintenance of the proposed windmill have been met or are being complied with. Windmills shall be built, operated and maintained to applicable industry standards of the Institute of Electrical and Electronic Engineers (EEEE) and the American National Standards Institute (ANSI).

Q. Does the law protect residents from ice throw by requiring protective setbacks?

A. No, see **Exhibit 2** p 90 from the SEIS advising 1,150 ft for safety purposes. The law requires a setback of only turbine height plus 100 ft from road ways and property lines.

As to substantive comments on the 115kv transmission lines, CWW-AFP find the entire process in a tremendous state of flux. Project parameters are constantly changing and the final maps are not yet submitted.

Q. Are the proposed project parcels really under CPP/UPC control?

A. There is no legal confirmation that lands are under lease. Leases which state they will be filed in Steuben County have not been filed to our knowledge to date. Many people have spoken at

Public Hearings held on site plan review, and commented they are on the map as having leases but have never been approached or have not signed anything with CPP/UPC.

Q. Is the project finalized?

A. To date there is no formal application for the project (Exhibit 21 building application dated Dec. 2005), a preliminary at best submittal, there is no FEIS, the Special Use permit applications are incomplete as well as the site plans, which are not for individual turbines as specified in Cohocton zoning law but for the project as a whole.

Exhibit 22. Letter from Sandra Riley, Town Clerk to Steuben County Planning Board, showing constant change of maps and project.

Exhibit 23. Letter from Nixon Peabody 3/27/07 showing revisions to site plans.

Exhibit 24. Letter from Nixon Peabody 4/3/07 showing further revisions.

Exhibit 1

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com
Date: Fri, 20 Apr 2007 16:18:53 EDT
Subject: Fwd: WG: Clipper C-96 2.5MW
To: judihall66@yahoo.com

In a message dated 4/20/2007 12:20:42 PM Eastern Daylight Time, axel.dombrowski@gl-group.com writes:

Dear Dr. Alice Sokolow

unfortunately a typo is crept in below email-address so that we are not sure that you have received it.
We would like to apologize for possible incommodities.

Mit freundlichen Grüßen / Yours sincerely

Axel Dombrowski

Germanischer Lloyd Industrial Services GmbH
Windenergie/Wind Energy
Abteilung Maschinenbau und Sicherheitstechnik / Machinery Components and Safety Department
Steinhoeft 9
20459 Hamburg
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Fax: +49 (0) 40 - 36149 - 1720
Email: mailto:Axel.Dombrowski@gl-group.com
WWW: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht-----
Von: Dombrowski, Axel
Gesendet: Dienstag, 27. März 2007 10:38
An: 'Sksaja@aol.com'
Betreff: AW: Clipper C-96 2.5MW

Dear Dr. Alice Sokolow

Thank you for your email.

You are right, the fabrication surveillance is not part of the Design Assessment which is successful finished for Clipper wind turbines C-89 (WT-00-012A-2006), C-93 (WT-00-009A-2006) and C-96 (WT-00-008A-2006). The manufacturing evaluation (or implementation of design related-requirements in Production and Erection - IPE) is part of the Type Certification, which is not started for the Clipper wind turbines yet.
Herein the manufacturing all turbines can be surveyed for one wind turbine (from blade tip to the bottom of the tower). Fabrication surveillance will be done in so called Project Certification. That means especially for one site.

Also a part of the Type Certification is the measurement of noise according to international standards. At the moment these measurements are not started.
The lightening protection is also a part of design assessment and was included in our assessment of the electrical equipment.

Risk analysis regarding the distances between wind turbines and gas pipelines can be done by GL Wind, but are not ordered in this case up to now.

The Statement of Compliance for the Design Assessment of the Clipper wind turbine C-96 (WT-00-008A-2006) is still valid

Regarding the blades you are right. They have been changed from the first Statement of Compliance for the Design Assessment of Clipper wind turbine C-93 (WT 00-006A-2005) which is basis of the prototype to the above mentioned statement
All of these afore mentioned Statements are still valid for four different Clipper wind turbines
Our Statements of Compliance are collecting all parts Certification Reports) of the wind turbines in one document That means that GL Wind confirms the compliance according to international standards like IEC 61400-1 or our GL Guideline

We hope that we could give you a short introduction to our work and especially to your questions.
In any case of questions feel free to contact us again Perhaps some of your questions are also answered on our homepage http://www.gl-group.com/industrial/glwind/3780.htm Please have also a look on it

Mit freundlichen Grüßen / Yours sincerely

Axel Dombrowski

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WWW: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht-----
Von: Nath, Christian
Gesendet: Donnerstag, 22. März 2007 17:53
An: 'Sksajs@aol.com'
Cc: Dombrowski, Axel; Woebbeking, Mike; Helm, Bodo
Betreff: AW: Clipper C-96 2.5MW

Dear Alice

Thank you for your mail. As I am not in the details of the machine, my colleague Axel Dombrowski will answer your questions

Mit freundlichen Grüßen / Yours sincerely

Christian Nath

Germanischer Lloyd Industrial Services GmbH

Geschäftsbereich Windenergie / Business Segment Wind Energy

Global Business Manager Wind Energy

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Fax: +49 40 36 149 1720

e-mail: Christian.Nath@gl-group.com

Internet: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht-----
Von: Sksajs@aol.com [mailto:Sksajs@aol.com]
Gesendet: Donnerstag, 22. März 2007 13:59
An: Helm, Bodo; Nath, Christian; GL Wind
Cc: steven_blow@dps.state.ny.us; doug_may@dps.state.ny.us; Richard_Powell@dps.state.ny.us; norman_morrisson@dps.state.ny.us
Betreff: Clipper C-96 2.5MW

Dear Christian Nath

Bodo Helm,

UPC Wind has applied for a Special Use Permit to install Clipper C-96 2.5MW Wind Turbines in Conocton NY. As part of the special use permit, under Local Law, the manufacturer's installation and operations instructions as well as "all applicable manufacturers standards for construction operation and maintenance of the proposed windmill have been met or are being complied with." Does the attached file for special use permit include all your standards to be met?

Your certification states "Changes in design are to be approved by Germanischer Lloyd WindEnergie GmbH, otherwise this statement loses its validity Fabrication surveillance is not part of this Statement of Compliance for the Design Assessment."(attached)

Do you have **safety zones and ice throw guidance** for the Clipper C-96 2.5 MW Wind Turbines as you supplied to GE for their 1.5 MW Turbines (GER4262 – Ice Shedding and Ice Throw – Risk and Mitigation-attached)? Do you know the **maximum noise level** of the Clipper C-96 2.5 MW Wind Turbines (including braking) at 500 feet?

Also, since **lightning strikes** are a major problem with the wind turbines, do you certify the lightning protection and what is your recommended proximity to a **gas pipeline**? What are your lightning recommendations?

Your certification states "Changes in design are to be approved by Germanischer Lloyd WindEnergie GmbH, otherwise this statement loses its validity Fabrication surveillance is not part of this Statement of Compliance for the Design Assessment." **Have there been any recent changes in the Clipper C-96 2.5 MW Wind Turbines since March 7, 2006 that Conocton or the NY PSC should know about? Any recertification?**

Why I ask? The blades on the Clipper 2.5 MW Steel Winds Project (picture attached) appear different in size and shape than those of the Clipper Website and they arrived significantly later in the process. This may be just a different visual perspective, but raises a good question as to your certifying the parts or the whole turbine?

Respectfully,

Dr. Alice Sokolow

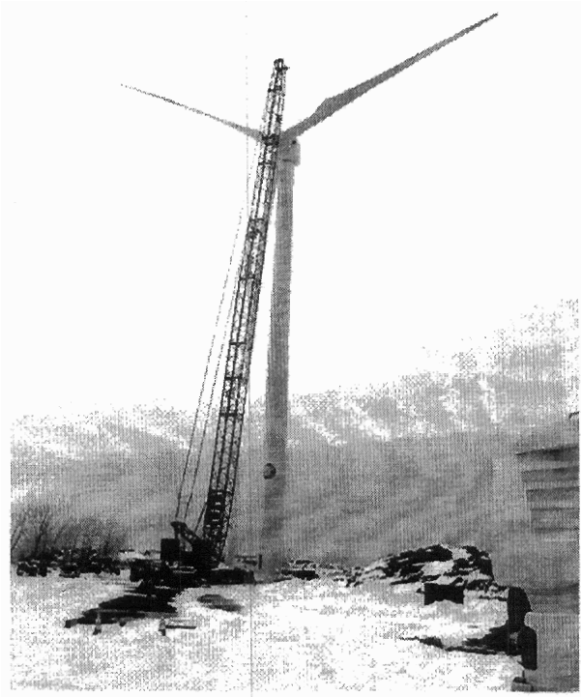
34 Avonmore Way

Penfield, NY 14526

PS. I have copied the New York State Public Service Commission in case you do not want to reply to me

Click here: Buffalo Rising - Wind Progress

Wind Progress



Yesterday I received an update on the installation of the first windmill along the shores of Lake Erie. I asked Bill Nowak of the Wind Action Group (local citizen group) a few questions regarding the progress and this is what he had to say: Click here for some background on the windmills.

How long was/is the installation process?

They broke ground (slag) in September. It's taken them way longer than expected. The October storm screwed things up considerably as that was supposed to be their good weather to work in. Once the winter winds kick in it makes it difficult to work with the crane.

Who installs them?

The companies are BQ and UPC. The blades are made by a US company called Clipper

How tall is it?

The tower is about 250 feet and the blades are 96 meters.

How many rotations per minute?

9.6-15.5 RPM

Do they generate any noise?

Some, but I doubt anyone will hear the ones at Bethlehem unless they're really close. The Lake and Route 5 will generally be louder. The turbines I've heard personally - 5 or 6 sites - have been very quiet.

How many houses will one windmill take care of approximately?

For these - about 700-750 American homes per turbine (~250-300 American homes per megawatt). The numbers go way up when people conserve. It might be twice that many European homes.

What is the impact on birds and their migration routes? To grossly simplify things, worldwide the average is 2 to 3 birds killed per turbine I personally don't see 8 turbines having much impact on migration routes as this is a small project that birds would not have to move very far to avoid Also most birds migrate well above the turbines Of course ecology is a complicated thing and there are far more things to say and look out for in answering this question especially

since many birds migrate through this region, but that would be my simplified answer.

How much does one mill cost, and how long does it take to recoup the original investment?

They cost in the $2-3 million range at this point, and the recoup time depends on the wind speed as power produced is a factor of the cube of the wind speed

Where did the money come from?

BQ and UPC raised it.

When will it and others be operational?

They were originally hoping by Thanksgiving, and they're sure it will be some time this spring

Bill Nowak Executive Director Buffalo's Green Gold Development Corporation

Chair, Communication Committee Wind Action Group

C/o 50 Inwood Place Buffalo, NY 14209 716-882-9237

Thanks to BQ's Paul Curran for the photograph

Click here: Lightning Hazard Reduction at Wind Farms - National Lightning Safety Institute http://www.lightningsafety.com/nlsi_lhm/wind1.html

NLSI

~ National Lightning Safety Institute ~

Section 5.5.1

Lightning Hazard Reduction at Wind Farms

By Richard Kithil, President & CEO, NLSI

Contents

Abstract

The USA wind farm industry (WFI) largely is centered in low-lightning areas of the State of California. While some evidence of lightning incidents is rep regarded as serious by most participants. The USA WFI now is moving eastward, into higher areas of lightning activity (1).

The European WFI has had many years experience with lightning problems. One 1995 German study estimated that 80% of wind turbine insurance claim were caused by lightning strikes (2).

Neither the European or USA WFI have adopted site criteria, design fundamentals, or certification techniques aimed at lightning safety. Such guidelines a reduction at wind farms is to be an achievable goal. (3).

Fig. 1. Lightning Effects to components of a wind power plant (4).

Lightning current parameter	Relevant component of the lightning strike	Effect	Endangered components
peak current I	first impulse current	potential rise of the wind power plant, voltage drop across cable shields	nacelle &power plant building, SCADA
specific energy	first impulse current	electromechanics, heating, evaporation	blades and bearings stressed by I
charge Q	long duration currents, first impulse current	melting	blades and bearings
average current	subsequent and superimposed	magnetic induction	SCADA

steepness i/T1	impulse currents		
number of impulse currents n	subsequent and superimposed impulse currents	repeated H-field impulses	SCADA

Recent Case Studies

USA Experience

1. At one southwestern USA Wind Farm lightning damage exceeded $50,000 in the first year of operation. Damage occurred to blades, generator, c SCADA, etc. A Lightning protection retrofit at site by manufacturer included air terminals, TVSS products and additional bonding & grounding m

Further lightning damage occurred after the retrofit. A consulting engineering specialist in lightning mitigation was hired. Recommendations for en are being implemented. TVSS, air terminal, shielding, nacelle, blade treatment, and personnel safety recommendations are not being implemented a

2. Eighty-five percent of the downtime experienced by a second southwestern USA commercial wind farm was lightning-related during the startup year of operation. Direct equipment costs were some $55,000, with total lightning-related costs totaling more than $250,000. (6)

European Experience.

1. A 1996 European retrospective study was conducted of some 11,605 wind turbine years experience in Denmark and Germany. Very accurate op available for analysis. General findings indicated:

a) lightning faults caused more loss in wind turbine availability and production than the average fault;

b) ranking in descending susceptibility to lightning damage were turbine control systems, electrical systems, blades, and generators;

c) the number of failures due to lightning increases with tower height;

d) wood epoxy blades have significantly less damage rates than GRP/glass epoxy blades. (7)

2. The German electric power company Energieerzeugungswerke Helgoland GmbH shut down and dismantled their Helgoland Island wind power insurance against further lightning losses. They had been in operation three years and suffered in excess of 800.000 German Marks damage. (8)

Design and Testing

Many USA lightning codes and standards are incomplete, superficial, and provide more benefit to commercial vendors than to those seeking relief Devices that claim to offer absolute protection abound in the marketplace, confusing specifying architects, engineers, and facility managers. Safety directive (9)

The time to review possible lightning effects upon wind turbines is during the site selection and design stages. A lightning mitigation plan can be d analysis. Then, a testing and verification program can provide validation and certification that the protective measures will function as engineered. problems do not receive consideration during the design stage. It then requires a specialized lightning safety engineer to analyze the effects of lightn provide a rationale for "safety-through-redesign" modifications to the wind farm facilities.

Lightning Realities

Lightning prevention or protection, in an absolute sense, essentially is impossible However, hazard mitigation and threat reduction are achievable the lightning phenomenon and preparation for its effects. Adoption of customized Safety Guidelines for Wind Farms (LSGWF) document offers a toward lightning safety The general outline of a LSGWF should include

- 1. Management Approval.
- 2. Personnel Training.
- 3. Site Analysis.
- 4. Threat Warning.
- 5. Safety Devices.
- 6. Testing and Certification

The cost of enacting a comprehensive lightning mitigation hardware system for wind farms normally is some 0.75 - 0.50 percent of total capital cos

Conclusion

A LSGWF document should be developed by wind industry participants. When applied, together with an understanding of lightning behavior, it wi operators to have working criteria to apply to most any wind turbine design or location.

References

1. See USA Isokeraunic map in Uman, M.: 1986, "Lightning", Dover, NY, p. 57. See also USA wind map at WWW:http://nwtc.nrel.gov/html_
2. Hoppe-Kilpper, M. & Durstewitz, M. : 1995 :"Blitz und Uberspannungsschutz von Windkraftanlangen" -Institut fur solare Engergieversorgu Gesprach Blitzschutz von Windkraftanlagen, Bonn, 19.01.1995.
3. Wiesinger, J.:1996: "Lightning Protection of Wind Power Plants", Proc. ICLP, Florence, Italy, Sept. 1996.
4. op cit.
5. Mitigation Study performed by NLSI, 1996.
6. NLSI conversation with Site Manager, 1996.
7. Cotton, I and Jenkins, N, "Lightning Protection of Wind Turbines", UMIST, CEU Joule Project - JOR3-CT95-0052, Nov. 1996.

8 Knauer, R. 1995 "Wenn der Blitz plotzlich die Windmuhle lahmlegt", Stuttgarter Zeitung, No 71, Wissenschaft und Tecknik, 25 March 199
9 IEEE Std 1100-1992, "IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment", p 41

Forwarded Message

Subject: WG: Clipper C-96 2.5MW
Date: Fri, 20 Apr 2007 18:20:00 +0200
From: "Dombrowski, Axel" <axel.dombrowski@gl-group.com>
To: Sksajs@aol.com

HTML Attachment

Dear Dr. Alice Sokolow

Unfortunately a typo is crept in below email-address so that we are not sure that you have received it
We would like to apologize for possible incommodities.

Mit freundlichen Grüßen / Yours sincerely

Axel Dombrowski

Germanischer Lloyd Industrial Services GmbH
Windenergie/Wind Energy
Abteilung Maschinenbau und Sicherheitstechnik / Machinery Components and Safety Department
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Fax: +49 (0) 40 - 36149 - 1720
Email: mailto:Axel.Dombrowski@gl-group.com
WWW: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht-----
Von: Dombrowski, Axel
Gesendet: Dienstag, 27. März 2007 10:38
An: 'Sksaja@aol.com'
Betreff: AW: Clipper C-96 2.5MW

Dear Dr. Alice Sokolow

Thank you for your email.

You are right, the fabrication surveillance is not part of the Design Assessment which is successful finished for Clipper wind turbines C-89 (WT-00-012A-2006), C-93 (WT-00-009A-200 manufacturing evaluation (or implementation of design related-requirements in Production and Erection - IPE) is part of the Type Certification, which is not started for the Clipper wind tu Herein the manufacturing all turbines can be surveyed for one wind turbine (from blade tip to the bottom of the tower). Fabrication surveillance will be done in so called Project Certifica

Also a part of the Type Certification is the measurement of noise according to international standards. At the moment these measurements are not started.
The lightening protection is also a part of design assessment and was included in our assessment of the electrical equipment.

Risk analysis regarding the distances between wind turbines and gas pipelines can be done by GL Wind, but are not ordered in this case up to now.

The Statement of Compliance for the Design Assessment of the Clipper wind turbine C-96 (WT-00-008A-2006) is still valid.

Regarding the blades you are right. They have been changed from the first Statement of Compliance for the Design Assessment of Clipper wind turbine C-93 (WT 00-006A-2005) which mentioned statement.

All of these a m. Statements are still valid for four different Clipper wind turbines
Our Statements of Compliance are collecting all parts (Certification Reports) of the wind turbines in one document. That means that GL Wind confirms the compliance according to international standards like IEC 61400-1 or our GL Guide ne

We hope that we could give you a short introduct on to our work and especially to your questions
n any case of questions feel free to contact us again. Perhaps some of your questions are also answered on our homepage http://www.gl-group com/ind.stnal.gwind/3780 htm. Please have also a look on it.

Mit freundlichen Grüßen / Yours sincerely

Axel Dombrowski

Germanischer Lloyd Industrial Services GmbH
Windenergie/Wind Energy
Abteilung Maschinenbau und Sicherheitstechnik / Machinery Components and Safety Department
Steinhoeft 9
20459 Hamburg
Germany
Phone: +49 (0) 40 - 36149 - 7408
Fax: +49 (0) 40 - 36149 - 1720
Email: mailto:Axel.Dombrowski@gl-group.com
WWW: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht----
Von: Nath, Christian
Gesendet: Donnerstag, 22. März 2007 17:53
An: 'Sksajs@aol.com'
Cc: Dombrowski, Axel; Woebbeking, Mike; Helm, Bodo
Betreff: AW: Clipper C-96 2.5MW

Dear Alice,

Thank you for your mail. As I am not in the details of the machine, my colleague Axel Dombrowski will answer your questions.

Mit freundlichen Grüßen / Yours sincerely

Christian Nath

Germanischer Lloyd Industrial Services GmbH
Geschäftsbereich Windenergie / Business Segment Wind Energy
Global Business Manager Wind Energy
Steinhoeft 9
20459 Hamburg
GERMANY
Tel.: +49 40 36 149 480
Fax: +49 40 36 149 1720
e-mail: Christian.Nath@gl-group.com
Internet: http://www.gl-group.com/glwind

-----Ursprüngliche Nachricht-----
Von: Sksajs@aol.com [mailto:Sksajs@aol.com]
Gesendet: Donnerstag, 22. März 2007 13:59
An: Helm, Bodo; Nath, Christian; GL Wind
Cc: steven_blow@dps.state.ny.us; doug_may@dps.state.ny.us; Richard_Powell@dps.state.ny.us; norman_morrisson@dps.state.ny.us
Betreff: Clipper C-96 2.5MW

Dear Christian Nath,
Bodo Helm,

UPC Wind has applied for a Special Use Permit to install Clipper C-96 2.5MW Wind Turbines in Cohocton, NY. As part of the special use permit, under Local Law, the manufacturer's installation and operations instructions as well as "all applicable manufacturer's standards for construction, operation and maintenance of the proposed windmill have been met or are being complied with." Does the attached file for special use permit include all your standards to be met?

Your certification states "Changes in design are to be approved by Germanischer Lloyd WindEnergie GmbH, otherwise this statement loses its validity. Fabrication surveillance is not part of this Statement of Compliance for the Design Assessment."(attached)

Do you have safety zones and ice throw guidance for the Clipper C-96 2.5 MW Wind Turbines as you supplied to GE for their 1.5 MW Turbines (GER4262 -- Ice Shedding and Ice Throw – Risk and Mitigation-attached)? Do you know the maximum noise level of the Clipper C-96 2.5 MW Wind Turbines (including braking) at 500 feet?

Also, since lightning strikes are a major problem with the wind turbines, do you certify the lightning protection and what is your recommended proximity to a gas pipeline? What are your lightning recommendations?

Your certification states "Changes in design are to be approved by Germanischer Lloyd WindEnergie GmbH, otherwise this statement loses its validity. Fabrication surveillance is not part of this Statement of Compliance for the Design Assessment." Have there been any recent changes in the Clipper C-96 2.5 MW Wind Turbines since March 7, 2006 that Cohocton or the NY PSC should know about? Any recertification?
Why I ask? The blades on the Clipper 2.5 MW Steel Winds Project (picture attached) appear different in size and shape than those of the Clipper Website and they arrived significantly later in the process. This may be just a different visual perspective but raises a good question as to your certifying the parts or the whole turbine?

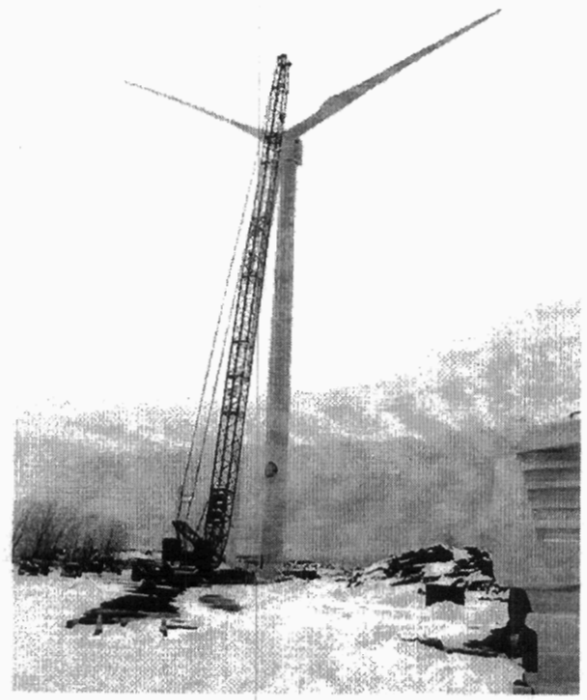
Respectfully,

Dr. Alice Sokolow
34 Avonmore Way
Penfield, NY 14526

PS. I have copied the New York State Public Service Commission in case you do not want to reply to me.

Click here: Buffalo Rising - Wind Progress

Wind Progress



Yesterday I received an update on the installation of the first windmill along the shores of Lake Erie. I asked Bill Nowak of the Wind Action Group (local citizen group) a few questions regarding the progress and this is what he had to say: Click here for some background on the windmills.

How long was/is the installation process?

They broke ground (slag) in September. It's taken them way longer than expected. The October storm screwed things up considerably as that was supposed to be their good weather to work in. Once the winter winds kick in it makes it difficult to work with the crane.

Who installs them?

The companies are BQ and UPC. The blades are made by a US company called Clipper

How tall is it?

The tower is about 250 feet and the blades are 96 meters

How many rotations per minute?

9.6-15.5 RPM

Do they generate any noise?

Some, but I doubt anyone will hear the ones at Bethlehem unless they're really close. The Lake and Route 5 will generally be louder. The turbines I've heard personally - 5 or 6 sites - have been very quiet.

How many houses will one windmill take care of approximately?

For these - about 700-750 American homes per turbine (~250-300 American homes per megawatt). The numbers go way up when people conserve. It might be twice that many European homes.

What is the impact on birds and their migration routes? To grossly simplify things, worldwide the average is 2 to 3 birds killed per turbine. I personally don't see 8 turbines having much impact on migration routes as this is a small project that birds would not have to move very far to avoid. Also, most birds migrate well above the turbines. Of course ecology is a complicated thing and there are far more things to say and look out for in answering this question, especially since many birds migrate through this region, but that would be my simplified answer

How much does one mill cost, and how long does it take to recoup the original investment?

They cost in the $2-3 million range at this point, and the recoup time depends on the wind speed as power produced is a factor of the cube of the wind speed

Where did the money come from?

BQ and UPC raised it.

When will it and others be operational?

They were originally hoping by Thanksgiving, and they're sure it will be some time this spring

Bill Nowak Executive Director Buffalo's Green Gold Development Corporation

Chair, Communication Committee Wind Action Group

C/o 50 Inwood Place Buffalo, NY 14209 716-882-9237

Thanks to BQ's Paul Curran for the photograph.

Click here: Lightning Hazard Reduction at Wind Farms - National Lightning Safety Institute http://www.lightningsafety.com/nlsi_lhm/wind1.html

NLSI

~ National Lightning Safety Institute ~

Section 5.5.1

Lightning Hazard Reduction at Wind Farms

By Richard Kithil, President & CEO, NLSI

Contents

Abstract

The USA wind farm industry (WFI) largely is centered in low-lightning areas of the State of California. While some evidence of lightning incidents is repo not regarded as serious by most participants. The USA WFI now is moving eastward, into higher areas of lightning activity (1).

The European WFI has had many years experience with lightning problems. One 1995 German study estimated that 80% of wind turbine insurance claims compensation were caused by lightning strikes (2).

Neither the European or USA WFI have adopted site criteria, design fundamentals, or certification techniques aimed at lightning safety. Such guidelines an hazard reduction at wind farms is to be an achievable goal. (3).

Fig. 1. Lightning Effects to components of a wind power plant (4).

Lightning current parameter	Relevant component of the lightning strike	Effect	Endangered components
peak current I	first impulse current	potential rise of the wind power plant, voltage drop across cable shields	nacelle &power plant building, SCADA
specific energy	first impulse current	electromechanics, heating, evaporation	blades and bearings stressed by I
charge Q	long duration currents, first impulse current	melting	blades and bearings
average current steepness i/T1	subsequent and superimposed impulse currents	magnetic induction	SCADA
number of impulse currents n	subsequent and superimposed impulse currents	repeated H-field impulses	SCADA

Recent Case Studies

USA Experience

1. At one southwestern USA Wind Farm lightning damage exceeded $50,000 in the first year of operation. Damage occurred to blades, generator, co cables, SCADA, etc. A Lightning protection retrofit at site by manufacturer included air terminals, TVSS products and additional bonding & ground

Further lightning damage occurred after the retrofit. A consulting engineering specialist in lightning mitigation was hired. Recommendations for enh measures are being implemented. TVSS, air terminal, shielding, nacelle, blade treatment, and personnel safety recommendations are not being imple (5)

2. Eighty-five percent of the downtime experienced by a second southwestern USA commercial wind farm was lightning-related during the startup p first full year of operation. Direct equipment costs were some $55 000, with total lightning-related costs totaling more than $250,000. (6)

European Experience.

1. A 1996 European retrospective study was conducted of some 11,605 wind turbine years experience in Denmark and Germany. Very accurate oper available for analysis. General findings indicated:

a) lightning faults caused more loss in wind turbine availability and production than the average fault;

b) ranking in descending susceptibility to lightning damage were turbine control systems, electrical systems, blades, and generators;

c) the number of failures due to lightning increases with tower height;

d) wood epoxy blades have significantly less damage rates than GRP/glass epoxy blades. (7)

2. The German electric power company Energieerzeugungswerke Helgoland GmbH shut down and dismantled their Helgoland Island wind power pl denied insurance against further lightning losses. They had been in operation three years and suffered in excess of 800 000 German Marks damage. (

Design and Testing

Many USA lightning codes and standards are incomplete, superficial, and provide more benefit to commercial vendors than to those seeking relief fr effects. Devices that claim to offer absolute protection abound in the marketplace, confusing specifying architects, engineers, and facility managers. ! prevailing directive (9)

The time to review possible lightning effects upon wind turbines is during the site selection and design stages. A lightning mitigation plan can be der design analysis. Then, a testing and verification program can provide validation and certification that the protective measures will function as engine lightning problems do not receive consideration during the design stage. It then requires a specialized lightning safety engineer to analyze the effects operations, and provide a rationale for "safety-through-redesign" modifications to the wind farm facilities.

Lightning Realities

Lightning prevention or protection, in an absolute sense, essentially is impossible. However, hazard mitigation and threat reduction are achievable th understanding of the lightning phenomenon and preparation for its effects. Adoption of customized Safety Guidelines for Wind Farms (LSGWF) doc rational, systematic approach toward lightning safety. The general outline of a LSGWF should include:

- 1. Management Approval.
- 2. Personnel Training.
- 3. Site Analysis.
- 4. Threat Warning.
- 5. Safety Devices.
- 6. Testing and Certification.

The cost of enacting a comprehensive lightning mitigation hardware system for wind farms normally is some 0.75 - 0.50 percent of total capital cost:

Conclusion

A LSGWF document should be developed by wind industry participants. When applied, together with an understanding of lightning behavior, it will manufacturers and operators to have working criteria to apply to most any wind turbine design or location.

References

1. See USA Isokeraunic map in Uman, M.: 1986, "Lightning", Dover, NY, p. 57. See also USA wind map at WWW:http://nwtc.nrel.gov/html_dc
2. Hoppe-Kilpper, M. & Durstewitz, M. : 1995 :"Blitz und Uberspannungsschutz von Windkraftanlangen" -Institut fur solare Engergieversorgun; BMBF- Gesprach Blitzschutz von Windkraftanlagen, Bonn, 19.01.1995.
3. Wiesinger, J.:1996: "Lightning Protection of Wind Power Plants", Proc. ICLP, Florence, Italy, Sept. 1996.
4. op cit.
5. Mitigation Study performed by NLSI, 1996.
6. NLSI conversation with Site Manager, 1996.
7. Cotton, I and Jenkins, N, "Lightning Protection of Wind Turbines", UMIST, CEU Joule Project - JOR3-CT95-0052, Nov. 1996.
8. Knauer, R.:1995 "Wenn der Blitz plotzlich die Windmuhle lahmlegt", Stuttgarter Zeitung, No. 71, Wissenschaft und Tecknik, 25 March 1995.
9. IEEE Std. 1100-1992, "IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment", p.41.

Attachments

Files:

Axel_Dombrowski.vcf (648)

Exhibit 2

- The point where the detached ice fragment lands (function of wind speed and direction, rotor speed, radial position on blade, blade azimuth, etc.).

- The mass, shape, and speed of the fragment.

- The structural integrity of the fragment (i.e., will it break up in flight?).

- The probability of a person being at the exact point of landfall at the time that a fragment hits the ground.

The AWS Truewind study refers to a comprehensive study of ice shedding and human strike probabilities from wind turbines prepared by the consulting firm Garrad Hassan and Partners, Ltd. in conjunction with the Finnish Meteorological Institute and Deutches Windenergie-Institute as part of a research project on the application of wind energy in cold climates (Morgan et al., 1998). The Garrad Hassan study was cited in the DEIS, and has been added to Appendix M of the SDEIS.

The Garrad Hassan study confirms the points made above regarding principal ice shedding mechanisms and ice throw risk factors. It relied on numerous field observations which indicated that most ice shedding consists of ice fragments being dropped off, rather than thrown from, the rotor. This study also included an assessment of potential ice throw distances during exceptional events and the probabilities of a person being struck by an ice fragment under specific operational conditions. For a moderate icing location, such as Cohocton, the maximum achievable distance (i.e., worst case scenario) for ice to be thrown was conservatively estimated to be approximately 350 m (1,150 ft). If a person is always present within proximity of the turbine during icing conditions, and no control method is incorporated into a wind turbine's control logic to prevent an ice throw, the risk of that person being struck by an ice fragment is estimated to be greater than one in 1 million. As was stated in the DEIS, this risk is less than the risk of a person being struck by lighting.

Numerous control technologies exist to further reduce the potential risk of ice throw events from current generations of wind turbines. The Town of Cohocton Windmill Local Law requires (and the proposed revision would also require) use of such control technologies. Based upon its review of the Garrad Hassan study and its own knowledge of wind energy

Exhibit 3

The currently proposed layout of all Project components is illustrated in Figure S3. Any components different than those described in the DEIS are described individually below.

2.2.1 *Wind Turbines*

The wind turbines proposed for this Project are the 2.5 MW Liberty C96 turbine manufactured by Clipper Windpower Technology. Additional information regarding these turbines is included in Appendix A.

The height of the tower, or "hub height" (height from foundation to top of tower) will be approximately 80 meters (m) (262 feet), and total turbine height (i.e., height at the highest blade tip position, when vertical) will be approximately 128 meters (420 feet). This is approximately 21 feet taller than the 399 foot turbine described in the DEIS. All of the turbine components (tower, nacelle, and rotor) are as described in the DEIS, except the tower is approximately 6.5 feet taller (80m vs. 78m) and the rotor diameter is about 29.5 feet larger (96m vs. 87m). Each of the three blades is approximately 153 feet in length. The nacelle on the Clipper is more compact than the nacelle on other turbines because the Clipper power train utilizes a compact two stage helical distributed design. Wind monitoring instrumentation and lighting on the nacelle are described in the DEIS. Similar to the previously proposed Gamesa turbines, the Clipper turbines begin generating energy at wind speeds as low as 4 meters per second (9 mph) and cut out if the wind speed exceeds approximately 25 meters per second (56 mph). The maximum operational rotor speed is approximately 15.5 revolutions per minute (rpm).

2.2.2 *Electrical System*

The proposed electrical system is as described in the DEIS. Additional details on the components of this system are presented below, and supplemental information has been added to Appendix A.

Underground Collector System:

The components of the collector system are described in the DEIS. The location of the currently proposed collection lines is indicated in Figure S3. The total length of buried cable carrying electricity to the collection station will be approximately 16.6 miles. This has been reduced from the approximately 27 miles of buried cable proposed in the Project addressed in the DEIS. No overhead lines are proposed as part of this system.

Exhibit 4

Cohocton Wind

March 1, 2007

Zoning Officer, Town of Cohocton
Post Office Box 327
Cohocton, New York 14826

Re: ***Canandaigua Power Partners, LLC***
Special Use Permit Application
Cohocton Wind Project

Dear Sir or Madam:

On behalf of Canandaigua Power Partners, LLC ("Canandaigua Power"), and in accordance with the requirements of the Town of Cohocton's windmill law, Local Law #2 of 2006, as well as the Zoning Law of the Town of Cohocton, please accept this letter and its enclosures as Canandaigua Power's application for a Special Use Permit for the Cohocton Wind Power Project ("Cohocton Project"), together with initial Site Plans for the Town's review in connection with the Special Use Permit application. The purpose of this letter is to briefly describe the project, and to provide a description of where all of the elements of Local Law #2, the Town's Zoning Law, as well as other applicable legal requirements, may be found in the application materials.

The Project

Canandaigua Power is proposing to develop the Cohocton Project, a wind-power generating facility of up to 36 turbines with a capacity of up to 90 MW. The Project would meet the electrical needs of approximately 39,500 homes. In addition to the wind turbines, the Cohocton Project will involve the construction of three meteorological towers, 8.9 miles of gravel access roads, 16.6 miles of buried electrical cables, an operations and maintenance building, a collector substation, a 9.0 mile long 115 kV overhead transmission line and an interconnect substation.

The Cohocton Project will be built on leased private land totaling approximately 5,700 acres in the Towns of Cohocton and Avoca. The Cohocton Project will be constructed in one continuous phase that is anticipated to run from Spring 2007 through December 2007. Approximately six operations and maintenance personnel will be employed. The wind turbine currently proposed is the Clipper Liberty C96, with a

minimum cut-in wind speed of approximately 4 meters per second ("m/s") (or 9 mph) required to generate electricity. The turbine's maximum rotational speed is 15.5 rpm, and high speed shutdown will occur when constant wind velocity exceeds roughly 25 m/s (56 mph). Each wind turbine will be equipped with a computer to control critical functions, monitor wind conditions, and report data.

The Cohocton Project will sell its output exclusively at wholesale and will not be a retail provider. The Cohocton Project anticipates selling its output into markets administered by the New York Independent System Operator ("NYISO"), or neighboring control areas, or pursuant to power purchase agreements or financial hedge contracts.

Special Use Permit

Section 1110(1) of the Zoning Law of the Town of Cohocton requires a project sponsor to apply for and obtain a special use permit from the Town of Cohocton Planning Board prior to installing or operating an Industrial Windmill or Windmill Facilities within the Town. The Appendices attached contain the required components of the special use permit application, as discussed below:

Appendix A	Completed Town of Cohocton Special Use Permit Application
Appendix B	Demonstration of compliance with special use permit standards contained in Sections 730(8)(b) and (c) of the Zoning Law of the Town of Cohocton

Site Plan Approval

Section 1110(2) of the Zoning Law of the Town of Cohocton requires a project sponsor to apply for and obtain site plan approval from the Town of Cohocton Planning Board prior to issuance of a building permit for an Industrial Windmill or Windmill Facilities within the Town. A preliminary set of site plans are enclosed. The actual site plan approval application (containing the final Site Plans) and supporting materials will follow shortly under separate cover.

Local Law # 2 of 2006 Specific Requirements

Local Law #2 of 2006 contains specific requirements applicable to Industrial Windmills or Windmill Facilities within the Town. The Appendices attached demonstrate compliance with these requirements, as discussed below:

Appendix C	Demonstration of Compliance with the requirements of Section 1120(3) of the Zoning Law of the Town of Cohocton
Appendix D	Demonstration of Compliance with the requirements of Section 1130(2)(a) of the Zoning Law of the Town of Cohocton
Appendix E	Demonstration of Compliance with the requirements of Sections 1130(2)(b) and (c) of the Zoning Law of the Town of Cohocton

In accordance with the requirements of Section 1130(2)(d)(ii), following construction, the site will be restored to the extent possible, and in accordance with the guidelines established by the Department of Agriculture and Markets. In accordance with Section 1130(2)(e)(iii), and as set forth in Appendix A to the Supplemental Draft Environmental Impact Statement, all applicable manufacturers, New York State and U.S. standards for the construction, operation and maintenance of the project will be complied with.

Section 1130(2)(e)(ii) requires a certification by a licensed professional engineer that the windmills will meet manufacturers, New York State, U.S., IEEE and ANSI standards. Canandaigua Power is not aware of any applicable manufacturers, New York State, or U.S. standards for the construction, operation and maintenance of the wind turbines. In addition, Canandaigua Power is not aware of any ANSI standards directly or specifically applicable to the building, operation and maintenance of wind turbines. Clipper has represented in their specifications that one component, the power quality of their turbines, is IEEE 519 compliant. IEEE and ANSI typically promulgate specific testing protocols and some component standards, but not for composite systems such as wind turbine generators. However, there is a design standard, International Standard IEC 61400-1, "Wind turbine generator systems – part 1: Safety Requirements", second edition, dated February 1999. Enclosed herewith is Germanischer Lloyd WindEnergie GmbH certification for the Clipper C-96/80 m reflecting design compliance with this standard. In accordance with Section 1130(2)(e)(iv) a certification of a licensed professional engineer or the manufacturer that the tower design is sufficient to withstand wind-load requirements for structures under the Building Code of New York will be submitted shortly.

Section 1130(f) requires an applicant to provide, after the application has been approved, but prior to a building permit being issued, a letter of credit or other surety acceptable to the Town sufficient to ensure removal of the project if the use is discontinued. Canandaigua Power will comply with this requirement.

Exhibit 5

Statement of Compliance

GL Wind Statement No.: WT 00-008A-2006

This Statement of Compliance for the Design Assessment of the Wind Turbine

Clipper C-96 2.5MW

is issued to **CLIPPER WINDPOWER**
6305 Carpinteria Ave., Ste. 300 / Carpinteria, CA 93013-2901 / USA

The Design Assessment is based on the calculations and fabrication drawings listed in the relevant Certification Reports referenced below and the characteristic data given in the attached Annex.

Certification Report numbers and titles:

72679-1	dated 06.12.2005	Load Assumptions according to IEC 61400-1, ed. 2, class II_B (Hub Height 80 m), Clipper-96m blade
72059-2, Rev. 1	dated 07.03.2006	Safety System and Manuals
72679-3	dated 07.03.2006	Rotor Blade Clipper-96m blade
72679-4	dated 07.03.2006	Machinery Components
72679-5	dated 15.12.2005	Tubular Steel Tower, Hub Height 80 m
72059-6, Rev. 1	dated 16.12.2005	Electrical Equipment

Normative references: International Standard IEC 61400-1 "Wind turbine generator systems – part 1: Safety requirements", second edition, dated February 1999.

Germanischer Lloyd "Regulations for the Certification of Wind Energy Conversion Systems", 1999 Edition.

Changes in design are to be approved by Germanischer Lloyd WindEnergie GmbH, otherwise this statement loses its validity. Fabrication surveillance is not part of this Statement of Compliance for the Design Assessment.

Hamburg, 07th March 2006

Germanischer Lloyd
WindEnergie

Christian Nath

Bodo Helm

By DAP German Accreditation System for Testing accredited Certification Body for products
The accreditation is valid for the fields of certification listed in the certificate

Deutscher Akkreditierungs Rat
DAP-ZE-3443.00

Germanischer Lloyd WindEnergie GmbH
Steinhöft 9
20459 Hamburg
Germany

Annex

07th March 2006
page 1/3

GL Wind Statement No.: **WT 00-008A-2006**

Characteristic Data Clipper C-96

General	Type:	horizontal axis wind turbine with variable rotor speed
	Power regulation:	independent electromechanical pitch system for each blade
	Rated power:	2500 kW
	Hub height:	80 m
	Rated rotational speed:	15.5 rpm
	Operating range rotational speed:	10... 17.8 rpm
	Cut-in wind speed:	4 m/s
	Rated wind speed:	12.0 m/s
	Cut-out-wind speed (3s):	25 m/s
	Extreme wind speed (50-year-gust):	59.5 m/s
	Annual average wind speed:	8.5 m/s
	Design Life Time	20 years
	IEC 61400-1-Type class:	II_B
Nacelle	Manufacturer:	CLIPPER WINDPOWER
	Drawing No.:	10-002036-01-A
Rotor	Diameter:	96 m
	Number of blades:	3
	Orientation:	upwind
	Blade type:	Clipper-96m blade
	Blade material:	glass fibre reinforced epoxy
	Manufacturer:	Tecsis, Brazil
	Drawing No.:	10-005010-01, steet 1-31
Rotor Hub	Type:	cast
	Material:	EN-GJS-400-18U-LT
	Drawing No.:	10-004571-01, Rev. A

Germanischer Lloyd
WindEnergie

Statement of Compliance

Annex

07th March 2006

GL Wind Statement No.: **WT 00-008A-2006**

Main Shaft	Type:	forged
	Material:	42CrMoS4
	Drawing No.:	001B00140, Rev. 10
Main Braking System	Design:	independent electromechanical pitch system for each blade
	Drawing No. pitch drive:	4003240
	Pitch gear:	Sipco, RES 1800 GR3S
Auxiliary Braking System	Design:	spring applied disc brake with 2 brake callipers
	Location:	at high speed shaft
	Brake calliper:	BSAI 3000–MSxxS-205 and -206, Svendborg Brakes

Generator	Design:	water cooled	ODP air cooled
		permanent magnet synchronous generator	
	Rated power:	4 x 650 kW	4 x 650 kW
	Rated voltage:	900 Vac	1020 Vac
	Rated speed:	1120 rpm	1133 rpm
	Degree of protection:	IP 54	IP 32 ODP
	Manufacturer:	Potentia Industrial, Mexico	

Support base / base plate	Type:	cast
	Material:	EN-GJS-400-18U-LT
	Drawing No.:	10-004561-01, Rev. B
Gear Box	Type:	Clipper Quantum Drive multiple power path gear box with two helical gear stages

Germanischer Lloyd
WindEnergie

Annex **07th March 2006**

GL Wind Statement No.: **WT 00-008A-2006**

Yaw System	Design:	4 active electric yaw drives and slewing ring
	Drawing No. yaw drive:	4003248, sheet 1/8 SIPCO
	Drawing No. slewing gear:	BR-4000-GR4S, SIPCO
	Drawing No slewing ring:	A19-118N1, Rotek
Tower 80m Hub Height	Design:	tubular steel tower with 4 sections
	Length:	77.40 m
	Drawing No.:	10-002008-01 Rev. A, sheet S3.0
Control and Safety System	Manufacturer:	CLIPPER WINDPOWER

End of Annex

Germanischer Lloyd
WindEnergie

Appendix A

Exhibit 6

From: Sksajs@aol.com View Contact Details Add Mobile Alert
Date: Sun, 20 May 2007 17:35:47 EDT
Subject: Exhibit - order time frame confidential(need to slip in for WFP and Dutch)
To: judihall66@yahoo.com

In a message dated 10/18/2006 3:38:26 PM Eastern Daylight Time, cswartley@upcwind.com writes:

> Hi Alice, that information is confidential.
>
> Chris

Christopher Swartley
Director of Business Development
UPC Wind Management, LLC
100 Wells Avenue, Suite 201
Newton, MA 02459
Direct: (857) 226-5119
Main: (617) 964-3340
Fax: (617) 964-3342
Email: chriss@upcwind.com
www.upcwind.com

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Wednesday, October 18, 2006 2:34 PM
To: Chris Swartley
Subject: Fwd: Haley and Aldrich Website Page

In a message dated 10/18/2006 10:46:58 AM Eastern Daylight Time, Sksajs writes:

> Dear Chris,
>
> Are they ordered already? The GE turbines and Clipper? And what is the timeframe for completion of the order? I understand that GE's are backordered fo
>
> Alice

In a message dated 10/18/2006 10:36:30 AM Eastern Daylight Time, cswartley@upcwind.com writes:

> 50 Clipper Wind turbines for the two Cohocton Projects. Prattsburgh project will use GE 1.5MW turbines.
>
> Christopher Swartley
> Director of Business Development
> UPC Wind Management, LLC
> 100 Wells Avenue, Suite 201
> Newton, MA 02459
> Direct: (857) 226-5119
> Main: (617) 964-3340
> Fax: (617) 964-3342

Email: chriss@upcwind.com
www.upcwind.com

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Wednesday, October 18, 2006 9:03 AM
To: Chris Swartley
Subject: Fwd: Haley and Aldrich Website Page

Dear Chris,

I am now under the impression that 50 Clipper Liberty turbines have been purchased. How many are for WFP and Cohocton I and II?

Alice

In a message dated 10/17/2006 2:38:09 PM Eastern Daylight Time, Sksajs writes:

Dear Chris,

I can easily and confidently disagree

Around April 2006, GE Energy added to their website, a brochure, **ICE SHEDDING AND ICE THROW- RISK MANAGEMENT, detailing safety precautic** ice/tower **fall and ice shedding**:

GER4262 – Ice Shedding and Ice Throw – Risk and Mitigation

http://www.gepower.com/prod_serv/products/tech_docs/en/wind_turbines.htm

"Locating turbines a safe distance from any occupied structure, road, or public use area. Some consultant groups have the capability to provide risk as. that will lead to suggestions for turbine locations. In the absence of such an assessment, other guidelines may be used. ***Wind Energy Production in*** *(formula for calculating a safe distance:*

1.5 times (hub height plus rotor diameter)

While this guideline is recommended by the certifying agency Germanischer Lloyd as well as the Deutsches Windenergie-institut(DEWI), it should be no ***upon turbine dimensions, rotational speed and many other potential factors****. Please refer to the References for more resources."*

GE Energy also details Physical and Visual Warnings, Turbine Deactivation and Operator Safety.

Please explain how Local Law #1 or #2, which your company had input into, compares with these guidelines. How can the public feel safe?

Alice

In a message dated 10/17/2006 2:19:18 PM Eastern Daylight Time, cswartley@upcwind.com writes:

The town's setbacks are the most stringent. Although law #2 has not passed, this is the best information that we have to go on for setback: are using.

Christopher Swartley
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From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, October 17, 2006 2:15 PM
To: Chris Swartley
Subject: Fwd: Haley and Aldrich Website Page

Dear Chris,

Local Law #2 has not passed yet. How could this be?? What happened to manufacturer's recommendations?

Alice

In a message dated 10/17/2006 1:44:16 PM Eastern Daylight Time, cswartley@upcwind.com writes:

The safety setbacks are set by the town in their law #2. That is what we are using.

Chris

Christopher Swartley
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From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, October 17, 2006 1:10 PM
To: Chris Swartley
Subject: Re: Haley and Aldrich Website

Dear Chris,

I guess the groundwater will have to be redone since the 2.5 Liberty foundation is different. From the number of turbines, I thought H & A was combi

Out of curiosity, what are the manufacturer's safety setbacks? Are they similar to the GE 1.5 MW turbine, which was your original choice, or similar t
DEIS, or does that part of the DEIS have to be redone also?

Alice

In a message dated 10/17/2006 12:48:15 PM Eastern Daylight Time, cswartley@upcwind.com writes:

It is fine to forward it. From looking at the web page, it just looks like H&A made a mistake. I'll follow up with them so that they cor
Colocton Windfarm, we're actually down to 36 turbines now...this is the number that will be presented in the Colocton Wind SDEIS.

Christopher Swartley
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From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, October 17, 2006 10:56 AM
To: Chris Swartley
Subject: Re: Haley and Aldrich Website Page

Chris,

This still does not make sense. Please explain 65 v & Aldrich assessed the potential for impacts to groundwater resources as part of the Draft Envi Statement (EIS). Based on our findings, no significant potential impacts to groundwater resources were identified in the Draft EIS as a result of the & Aldrich evaluated the proposed project elements through site visits and data assembly. A series of geographic information system (GIS)-based m hydrogeologic and surface hydrology conditions, along with the proposed wind turbine layout, residences and other key features were generated fo and inclusion in the Draft EIS. ©2006 Haley & Aldrich, Inc.Privacy Statement|Legal Information K

Chris,

This still does not make sense. Please explain 65 verses 41 verses less in relation to the MW??

Can I forward this to concerned parties?

Alice

In a message dated 10/17/2006 10:44:27 AM Eastern Daylight Time, cswartley@upcwind.com writes:

The number of turbines has changed due to advancement in turbine technology. We are now using a 2.5MW Clipper Liberty machin layout and attendant studies will be presented in the Cohocton Wind Farm Supplemental DEIS to be handed to the town board soon.

Chris

Christopher Swartley
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Email: chriss@upcwind.com
www.upcwind.com

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, October 17, 2006 10:40 AM
To: Chris Swartley
Subject: Haley and Aldrich Website Page

Dear Chris Swartley,

According to Haley and Aldrich , your groundwater resource engineers, the Cohocton Wind Power Project is a 65 turbine project. Cohocton Wind

Respectfully,

Alice Sokolow

Notice Of Acceptance Of Draft EIS And Public Hearing

Steuben County - The Planning Board of the Town of Cohocton , as lead agency, has accepted a Draft Environmental Impact Statement on the p School , 30 Park Avenue , Cohocton , NY . Public comments will be accepted until June 9, 2006. The action involves Site Plan and Special Use P turbines with a capacity of up to eighty two (82) megawatts, a 115 kV overhead transmission line, electrical substation, collector station, operatio towers, on approximately 5,755 acres of private lands. The turbines are proposed to be located primarily along Pine Hill and Lent Hill northeast of

Contact: Sandra Riley, Town of Cohocton , 15 South Main Street , Cohocton , NY 14826 , phone: (585) 384-5330 ext. 1.

http://www.haleyaldrich.com/capabilities/energy_facilities/cohocton.html

Contact: Sandra Riley, Town of Cohocton, 15 South Main Street, Cohocton, NY 14826, phone: (585) 384-5330 ext. 1.

http://www.haleyaldrich.com/capabilities/energy_facilities/cohocton.html

Cohocton Wind Power Project

UPC Wind Management, LLC
Cohocton , New York

The proposed Cohocton Wind Power Project involves installing up to 65 wind turbines and associated surface structures and powerlines in a large existing high-voltage transmission line. Haley & Aldrich assessed the potential for impacts to groundwater resources as part of the Draft Environm the proposed project.

Haley & Aldrich evaluated the proposed project elements through site visits and data assembly. A series of geographic information system (GIS)-l features were generated for technical evaluation and inclusion in the Draft EIS.

Client/Community Benefits

Sound technical evaluation of potential impacts of the proposed ac existing resources such as localized private water supplies and larg aquifers would not be adversely affected

Timely and efficient technical input for the Draft EIS, which was o

Project will provide an environmentally-friendly, alternative sourc New York region.

Exhibit 7

Wind Turbine Certification and Type Certification
Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004

Mike Woebbeking, Christian Nath
Germanischer Lloyd WindEnergie GmbH (GL Wind), Steinhoeft 9, 20459 Hamburg, GERMANY
woeb@gl-group.com

Abstract *Certification of wind turbines or components is state-of-the-art and a must in most places around the world. Furthermore certification to harmonised requirements is an active support of export. Therefore it is important for manufacturers, banks and insurances of wind turbines and components to know the different certification processes as well as guidelines.*
The procedures to obtain Type and Project Certificates are described according to the Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004 [2]. Type Certification comprises Design Assessment, Implementation of the design-related requirements in Production and Erection, Evaluation of Quality Management and Prototype Testing. Project Certification is based on Type Certification and covers the aspects of Site Assessment Surveillance during Production, Transport and Erection as well as Witnessing of Commissioning and Periodic Monitoring. The individual modules are concluded with Statements of Compliance. Certificates are issued upon the successful completion of the relevant modules.

1. Introduction

Certification of wind turbines has a history of almost thirty years. It has been applied differently in scope, requirements and depth in Denmark, Germany and the Netherlands each on the basis of their own rules. These three countries are still leading in the development and application of certification rules but during recent years a number of other countries as well as many banks realised the necessity of a thorough evaluation and certification of wind turbines and their proposed installation. Among these countries are China, Greece, India, Spain, Sweden and the USA.

2. Certification

2.1 Definition

According to the European standard EN 45020, certification is the confirmation of compliance of a product or a service with defined requirements (e.g. guidelines, codes and standards). In the field of wind energy the focus lies on complete wind turbines or components such as rotor blades, gearboxes or towers. The scope consists of the examination of structural integrity, safety and compliance with these requirements.

2.2 Design Assessment

2.2.1 C-Design Assessment

The Design Assessment can be divided into three parts: A-, B- and C-Design Assessment. Within the C-Design Assessment (for prototypes of wind turbines), a plausibility check of the prototype will be performed on the basis of the design documentation. This type of Design Assessment can be used to erect the prototype of a wind turbine. It is based on a load assessment and a complete plausibility check of the rotor blades, the machinery components as well as of the tower and foundation. Depending on national or local regulations the complete assessment of tower and foundation might be necessary. The final step of this assessment will be the issue of a Statement of Compliance for the C-Design Assessment which is valid for test operation comprising a maximum of 2 years or 4000 equivalent hours at full load. After this period the B-Design Assessment shall be obtained at latest.
In [2] the necessary documentation is presented as follows:

- general description of the wind turbine
- description of the control and safety concepts
- description of the safety system and the braking systems
- (complete) calculation of the loads
- main drawings of the rotor blade, including structural design and blade connection
- general arrangement drawing of the nacelle
- drawing of the hub, main shaft and the main frame
- listing of the primary components to be used (e.g. main bearing, gearbox, brake, generator etc.)
- main drawings of tower and foundation
- soil investigation report (optional)
- description of the electrical installations
- name and address of the owner
- planned location of the prototype

As described above this listing might have to be extended by calculation documents for tower and foundation.

2.2.2 A- and B-Design Assessment

A- or B-Design Assessments are the next steps in certification. They consist of a complete examination of the design analyses with all required material and component tests and are completed with the commissioning witnessing of one of the first wind turbines of the assessed type (Fig. 1). Following completion, the certification body will issue Statements of Compliance for the A- or B-Design Assessment.

There are the following differences between A- and B-Design Assessment. The B-Design Assessment may contain items that are outstanding, if these are not directly safety-relevant. Furthermore it has a validity period of one year. This period can be used to fulfil all requirements for the A-Design Assessment which contains no outstanding items and does not expire unless the design is modified.

The examination of a foundation is optional within the scope of the A- or B-Design Assessments. The submission of documents for the Implementation of design-related requirements in Production and Erection, which is part of Type Certification, might be helpful within the Design Assessment to reduce the total time of Type Certification.

According to [2] the following documents in the form of specifications, calculations, drawings, descriptions and / or parts lists are to be assessed:

- control and safety concepts
- load case definitions / load assumptions
- safety system
- rotor blades and blade test reports
- mechanical structures including nacelle housing and spinner
- machinery components (including prototype test of the gearbox on an adequate test bench)
- electrotechnical components, including lightning protection
- tower and, optionally, foundation
- manuals for erection, commissioning, operating and maintenance

After a successful assessment Certification Reports on load assumptions, safety system, rotor blades, machinery components, tower and foundation, electrical installations, commissioning, hub and nacelle cover will be issued (Fig. 4).

2.3 Type Certification

To attain the Type Certificate, the following steps are necessary (Fig. 2):

- A-Design Assessment
- Implementation of the design-related requirements in Production and Erection (IPE)
- Quality Management (QM) System of the manufacturer
- Prototype Test, including prototype trial of the gearbox inside the wind turbine

Statements of Compliance for all of these steps as well as the Type Certificate will attest the finalisation of the certification of this type of wind turbine (Fig. 4). It does not apply for actual installations or projects. The Type Certificate has a validity period of two years. During the validity period, all installed wind turbines of this type are to be reported to the certification body annually. A re-certification is possible to renew the certificate.

The IPE shall ensure that the requirements in the technical documentation of the components are observed and implemented in production and erection. This is to be shown once to the certification body by the manufacturer of the components and the manufacturer of the wind turbine. In addition to this, it is generally intended to replace external surveillance during normal production. The extent of the surveillance during production and erection depends on the standard of the quality-management measures. As the implementation of requirements resulting from the technical documentation will be observed it is very useful to handle IPE within the Design Assessment as mentioned above.

The manufacturer has to show that he meets the requirements of ISO 9001 with regard to the design and manufacturing process. In general the QM system is certified by an accredited certification body.

Within the scope of Prototype Testing measurement of the power curve, noise emission and electrical properties as well as a test of wind turbine behaviour and load measurements are carried out. Furthermore the prototype of the gearbox is to be tested on the wind turbine. The measured results are to be evaluated and documented. The test reports will be checked for plausibility of the measured results and compared to the assumptions in the design documentation.

2.4 Project Certification

For the Project Certification of a wind farm or of a wind turbine, the following steps are to be performed (Fig. 3):

- Type Certificate
- Site-specific Design Assessment
- Examination of the Foundation
- Surveillance during Production
- Surveillance during Transport and Erection
- Surveillance during Commissioning
- Periodic Monitoring to maintain the validity of the certificate

Following completion, the Project Certificate will be issued by the certification body. It does not expire as long as the Periodic Monitoring is carried out at regular intervals. Major modifications, conversions or repairs not approved by the certification body affect the validity of the certificate.

Before surveillance when production may begin, certain Quality Management (QM) requirements shall be met by the manufacturer. As a rule, the QM system should be certified to comply with ISO 9001, otherwise the QM measures can be assessed by the certification body. The extent of the Surveillance during Production depends on the level of the QM measures. In general, actions and approvals like inspection and testing of materials and components, scrutiny of QM records (test certificates, reports), surveillance of production, inspection of the corrosion protection and of the electrical power system are needed.

3. The Certification Body

GL Wind is an internationally operating certification body for wind turbines and market leader in this field. GL Wind carries out examinations, certifications and expertises and is actively involved in the development of national and international standards. GL Wind does not participate in the design of wind turbines and their components. GL Wind offers the complete range of services for certifying wind energy products and projects. Certification of wind turbines is among others carried out on the basis of the GL Wind Guideline for the Certification of Wind Turbines (2003 edition) and the Regulations for the Certification of Offshore Wind Energy Conversion Systems (1999 edition). Furthermore, GL Wind is accredited to carry out certification in accordance with all relevant standards in the field of wind energy.

4. Conclusion

The rapid growth of the wind energy industry and the growing size of wind turbines itself enforce financing banks and insurance companies as well as authorities to require reliability and safety assessments of these projects. The assessments are carried out within the certification of the individual turbines or the projects such as wind farms, onshore and offshore. Within the framework of the certification of wind turbines reliability, safety, strength and fatigue are evaluated in order to guarantee safe operation for building authorities, financing institutions, manufacturers and operators as well as insurance companies.

5. References

[1] IEC WT 01: IEC System for Conformity Testing and Certification of Wind Turbines, Rules and Procedures, 2001-04

[2] Germanischer Lloyd WindEnergie GmbH: Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004

[3] Germanischer Lloyd: Regulations for the Certification of Offshore Wind Energy Conversion Systems, edition 1999

[4] Germanischer Lloyd WindEnergie GmbH: Guideline for the Certification of Offshore Wind Turbines, draft 2004

6. Figures

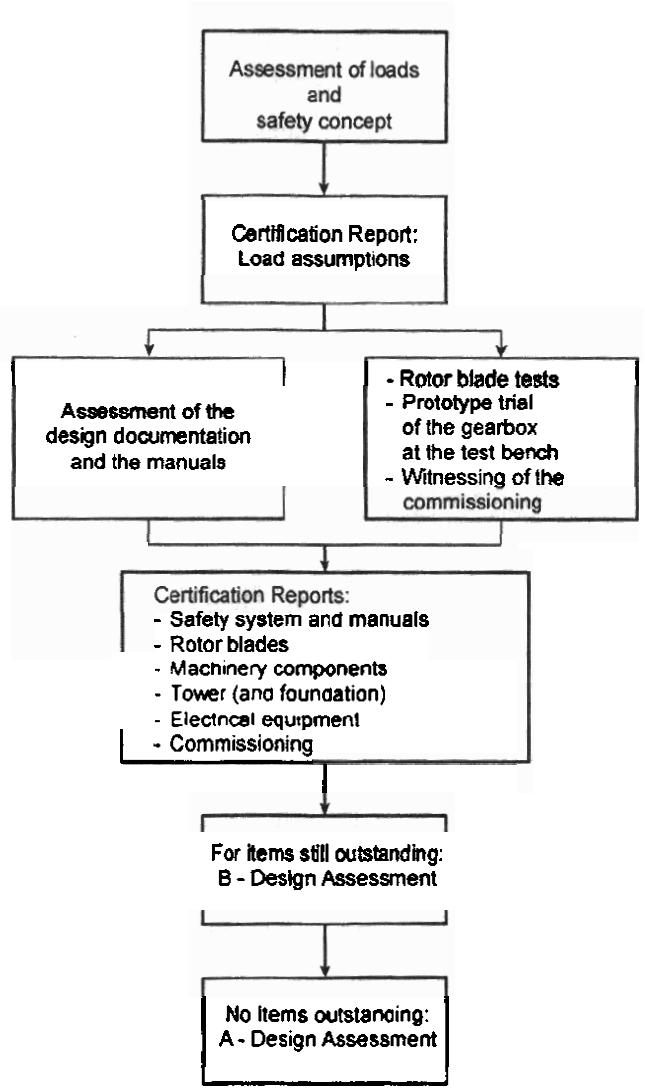

Fig. 1: Procedure for A- and B-Design Assessment [2]

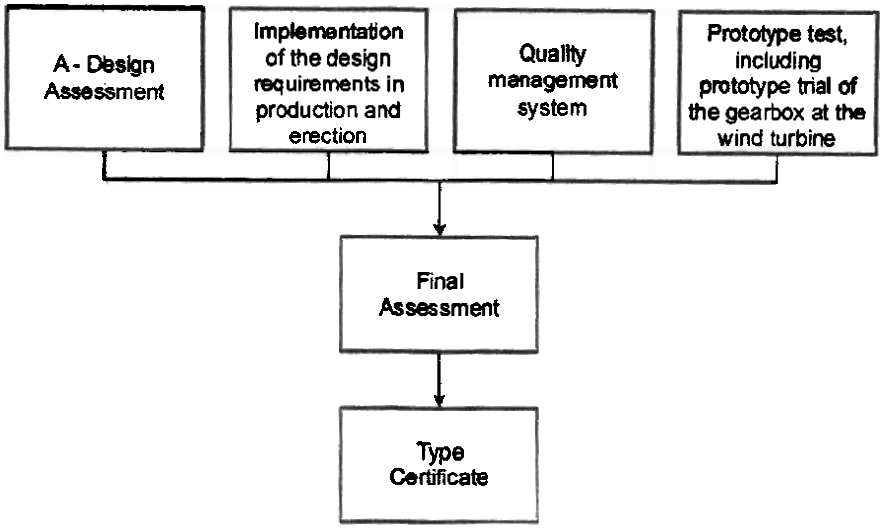

Fig. 2: Modules of the Type Certificate [2]

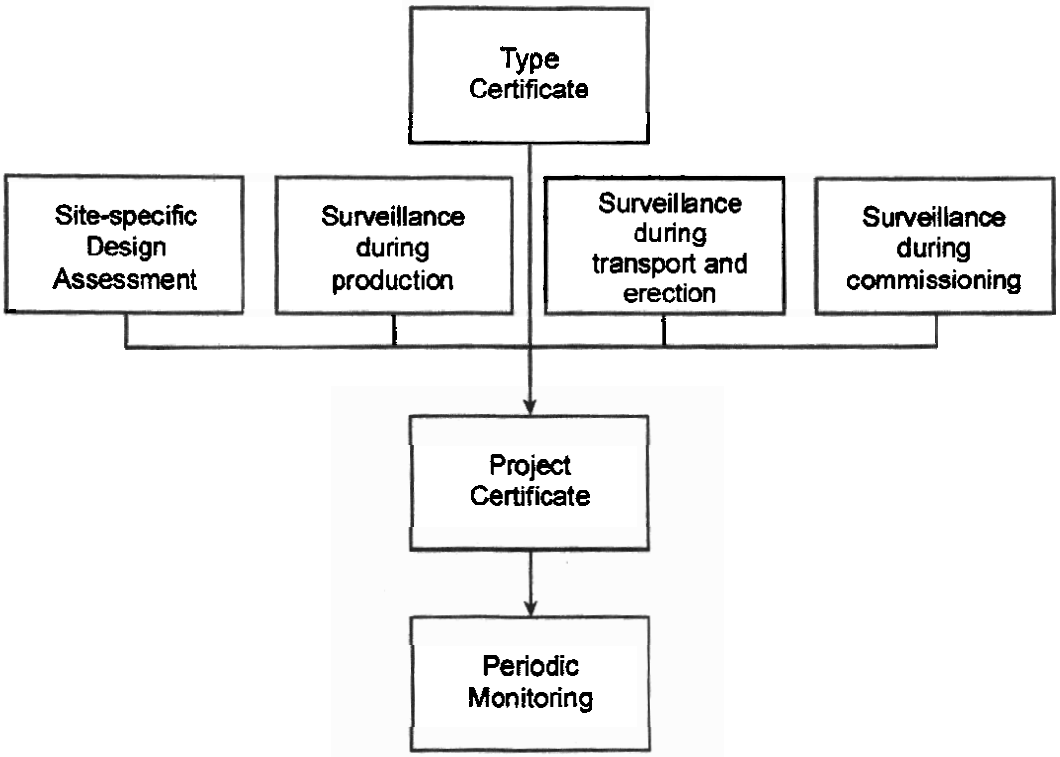

Fig. 3: Modules of the Project Certificate [2]

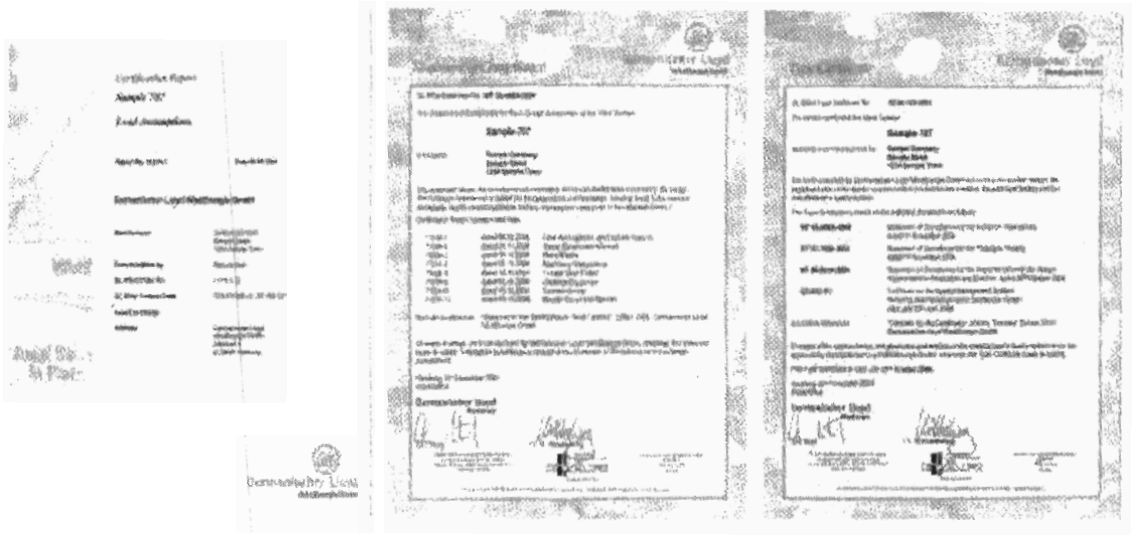

Fig. 4: Examples for Certification Report (left), Statement of Compliance (middle) and Type Certificate (right)

Exhibit 8

Type Certification for wind turbines - Project Certification for wind farms

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Silke Schwartz, Dipl-Ing
Germanischer Lloyd WindEnergie GmbH (GL Wind), Steinhöft 9, 20459 Hamburg, GERMANY
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Andreas.Anders@gl-group.com

Abstract: *Certification of wind turbines or components is state-of-the-art and a must in most places around the world. Furthermore certification to harmonised requirements is an active support of export. The benefit of Type and Project Certification for manufacturers, banks and insurances is described. Therefore it is important to know the different certification processes as well as the guidelines. The modules to obtain Type and Project Certificates are shown in detail according to the Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004 [2]. Type Certification comprises Design Assessment, Implementation of the design-related requirements in Production and Erection, Evaluation of Quality Management and Prototype Testing. Project Certification is based on Type Certification and covers the aspects of Site Assessment, Site Specific Design Assessment, Surveillance during Production, Transport and Erection as well as Commissioning and Periodic Monitoring. Each individual module is concluded with a Statement of Compliance. Certificates are issued upon the successful completion of the relevant modules.*

1 Introduction

Certification of wind turbines has a history of almost thirty years. It has been applied differently in scope, requirements and depth in Denmark, Germany and the Netherlands each on the basis of their own rules. These three countries are still leading in the development and application of certification rules but during recent years a number of other countries as well as many banks realised the necessity of a thorough evaluation and certification of wind turbines and wind farms. Among these countries are China, Greece, Italy, India, Spain, Sweden and the USA. In general, assessment, expertise and certification of wind turbines with respect to technical integrity and safety requirements become more apparent with view to demonstrate functionality and reliability. In particular Project Certification gives the possibility to assess technical integrity of the wind turbine due to site specific demands (e.g. cold climate or wake effects in wind park configuration) to ensure reliability of the wind turbines on site. Minimising of risks and building up confidence to investors, insurances, operators and authorities are the main aspects of a third party assessment within the Project Certification.

2 Certification

According to the European standard EN 45020, certification is the confirmation of compliance of a product or a service with defined requirements (e.g. guidelines, codes and standards). The scope consists of a third party examination of structural integrity, safety and compliance with these requirements. According to international standards and guidelines, it is possible to carry out Type or Project Certification. In the field of wind energy the focus lies on complete wind turbines or components such as rotor blades, gearboxes or towers or the whole wind farm.

For wind turbines it is common practice to perform Type Certification (see chapter 4). Building up on the Type Certification a Project Certification may follow. This Project Certification covers site specific requirements, technical integrity of the wind turbine and installation of the wind turbines on site (see chapter 5).

3 Guidelines

Procedures for certification of onshore wind turbines were initiated with the commercial introduction of wind turbines more than 25 years ago and have continuously been updated and developed. In 1989 GL created a first comprehensive certification procedure for international Type and Project Certification which in its roots still applies today, but was enhanced in order to cover the practical aspects and the experiences and developments in the field.

International standardisation efforts on wind turbine certification procedures started in 1995 within IEC and resulted in the first issue of IEC WT01 [1] published by the IEC in April 2001. The certification procedure according to [1] as well as the procedure according to GL [2,3] have been introduced internationally and are the most important guidelines for certification of onshore and offshore wind turbines.

4 Type Certification

Type Certification applies in general for a generic design or series product of wind turbine and includes the entire design, starting with load assumptions, structural integrity of rotor blades, support structure and machinery components as well as the assessment of the electrical equipment. To attain a Type Certificate the following modules are to be carried out (see figure 1):

- Design Assessment,
- Implementation of the design-related requirements in production and erection (IPE),
  Quality Management (QM) System of manufacturer,
- Prototype test.

For each module a Statement of Compliance will attest the conformity with the guidelines. The Type Certificate will list the conformity statements and finalise the certification of the wind turbine type. The Type Certificate has a validity period of two years. During the validity period, all installed wind turbines of this type are to be reported to the certification body annually. A re-certification is possible to renew the certificate.

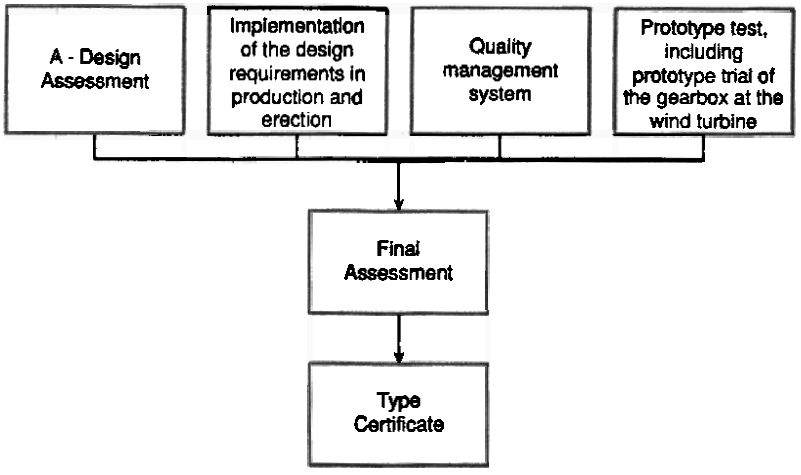


Figure 1: Modules of Type Certification

4.1 Design Assessment

Design Assessment consists of a complete examination of the design analyses with all required material and component tests. It will be completed with commissioning witnessing of one the first prototypes of the assessed wind turbine type.

Design Assessment acc. to [2] can be divided into three parts: A-, B- and C-Design Assessment. The C-Design Assessment can be used to erect the prototype of a wind turbine. Within this Design Assessment, a plausibility check of the design documentation for the prototype will be performed. This includes a plausibility check of the complete load assumptions and plausibility check of the rotor blade design, the machinery components, tower and foundation. Depending on national or local regulations the complete assessment of tower and foundation might be necessary. As a final step of this assessment a Statement of Compliance for the C-Design Assessment will be issued, which is valid for test operation comprising a maximum of 2 years or 4000 equivalent hours of full load. After this period an A- or B-Design Assessment shall be obtained latest.

A- and B-Design Assessment consist of a complete examination of the design analyses with all required material and component tests. It will be completed with the commissioning witnessing of one of the first wind turbines of the assessed type. Following completion, the certification body will issue a Statements of Compliance for the A- or B-Design Assessment. Compared to the A-Design Assessment, the B-Design Assessment may contain outstanding items, if these are not directly safety-relevant. Furthermore the validity period is limited to one year. This period can be used to fulfil all requirements for the A-Design Assessment which contains no outstanding items and does not expire unless the design is modified. The examination of a foundation is optional within the scope of the A- or B-Design Assessments. The submission of documents for the Implementation of design-related requirements in Production and Erection (IPE, see chapter 4.2), which is part of Type Certification, might be helpful within the Design Assessment to shorten the period of Type Certification.

According to [2] the following documents in the form of specifications, calculations, drawings, descriptions and / or parts lists are to be assessed:

- control and safety concept
- load case definitions / load assumptions
- safety system
  rotor blades and blade test reports
- mechanical structures including nacelle housing and spinner
- machinery components (including prototype test of the gearbox on an adequate test bench)
- electro technical components, including lightning protection
  tower and, optionally, foundation
- manuals for erection, commissioning, operating and maintenance

4.2 Implementation of the design-related requirements in production and erection (IPE)

IPE shall ensure that the requirements in the technical documentation of the components are observed and implemented in production and erection of the wind turbine. This is to be shown once by the manufacturer of the components and the manufacturer of the wind turbine to the certification body. In addition, it is generally intended to replace external surveillance during normal production. The extent of the surveillance during production and erection depends on the standard of the quality-management measures. As the implementation of requirements resulting from the technical documentation will be observed, it is very useful to handle IPE within the Design Assessment as mentioned above.

4.3 Quality Management system of the manufacturer

It is to be shown that the manufacturer meets the requirements of ISO 9001 with regard to the design and manufacturing process. In general the QM system is certified by an accredited certification body.

4.4 Prototype Test

Within the scope of Prototype Testing measurements of the power curve, noise emission and electrical properties as well as a test of wind turbine behaviour and load measurements are carried out. Furthermore the prototype of the gearbox is to be tested on the wind turbine. All resulting test reports will be checked for plausibility of the measured results and compared to the assumptions in the design documentation.

5 Project Certification

Project Certification covers the aspects of assessing site conditions and suitability of the wind turbine from the technical point of view. In addition monitoring of manufacturing, transport and installation as well as witnessing of commissioning and periodic monitoring is included (see figure 2). Upon successful assessment of the different modules shown in figure 2, the Project Certificate will be issued. Project Certification is carried out for wind turbines having successfully received Type Certification. The scope of Project Certification is to evaluate whether type certified wind turbines fit for the external conditions, applicable construction, electrical codes and other requirements and demands for the specific site (e.g. cold climate).

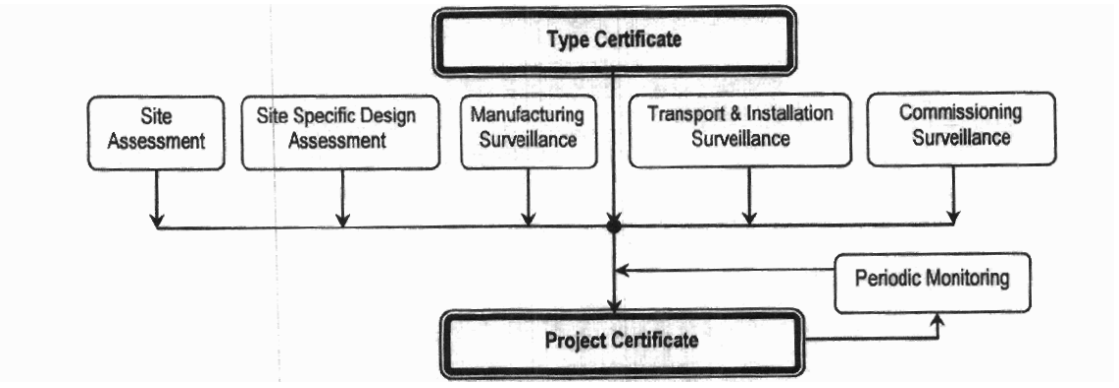


Figure 2: Modules of Project Certification

5.1 Site Assessment

Within the Site Assessment, the site conditions will be checked and compared to the parameters used for the generic design evaluation of the wind turbine as part of the Type Certification. Documentation to the following categories will be assessed:

Wind conditions:

- Annual average wind speed
- Turbulence intensity (mean and characteristic values)
- Wake effects
- Extreme wind speed (50-year and 1-year occurrence)
- Wind shear
- Air density
- Wind direction distribution

- Soil conditions
- Electrical conditions:
  - Normal supply voltage and fluctuations
  - Normal supply frequency and fluctuations
  - Symmetrical and asymmetrical faults
  - Number and type of electrical grid outages and their average duration
  - Requirements of local grid operator

Other environmental conditions:

- Temperature range

Earthquake conditions
Lightning
Solar radiation
Snow and ice formation
...

It has to be assured that all relevant parameters influencing the design of the wind turbine have been evaluated within the documentation. In particular the influence of complex terrain on the wind data has to be considered in detail. The Site Assessment will be concluded with a Statement of Compliance for the Site Assessment by the certification body.

In case conditions at the site are not covered by design parameters, a design evaluation shall be performed applying the site-specific conditions. The generic design evaluation will be enhanced to a Site Specific Design Assessment (see chapter 5.2).

5.2 Site Specific Design Assessment

The Site Specific Design Assessment extends the Design Assessment as part of the Type Certification to the site specific conditions. Due to the following reasons a Site Specific Design Assessment has to be performed:

- Site conditions are not covered by design parameters or
- Design of the wind turbine to be installed deviate from the design assessed as part of the Type Certification (e.g. tower developed for the wind farm only)

In case the site conditions or the design changes (e.g. new tower eigenfrequency) are not covered by the load assumptions within the generic Design Assessment, the site-specific loads are to be calculated taken into account the following, if needed:

- Wake effects,

  Earthquake requirements,
- Extreme and fatigue loads,
- Extreme temperatures.

The amount of load calculations is depending on the discrepancies found within the Site Assessment

The site-specific loads shall be compared to the certified design loads. In case the site loads are not covered, the residual safety of the affected component has to be assessed. Components developed only for the wind farm project can be assessed by taking site specific loads. In particular the loads at the site are much lower, a development of a site specific tower can be an alternative and leads to be more competitive in terms of financing.

5.3 Manufacturing Surveillance

Before manufacturing surveillance may begin, certain Quality Management (QM) requirements shall be met by the manufacturer. As a rule, the QM system should be certified to comply with ISO 9001; otherwise the QM measures can be assessed by the certification body. The extent of the surveillance during production depends on the level of the QM measures. In general, actions and approvals like inspection and testing of materials and components, scrutiny of QM records (test certificates, reports), surveillance of production, inspection of the corrosion protection and of the electrical power system are needed. The following topics will be assessed:

- Qualification verification of the personnel

  Qualification verifications of the welding procedure
- Inspection of the manufacturing process and the results of the non-destructive tests
- Examination of design drawings
- Review of the material certificates

  Inspection and testing of materials and components

  Witnessing of the final tests
- Final inspection of finished components

5.4 Transport and Installation Surveillance

At the wind farm site the important steps during installation shall be monitored. Prior to this monitoring, the transportation of the components from the manufacturer's works to the relevant site shall be surveyed.

Before starting, an installation manual shall be prepared containing all actions under consideration of the special circumstances of the site. Furthermore, a site plan showing the locations of the wind turbines shall be prepared, together with plans of the electrical installation showing how the plant will be connected to the public mains supply.

The extent of the monitoring depends on the quality management measures of the companies involved in transport and erection. As a rule, the following activities are to be carried out:

- Identification and allocation of all components of the wind turbine in question
- Inspection of the components for damage during transport

  Inspection of prefabricated subassemblies and of components to be installed
- Surveillance of important steps in the erection on a random basis (machinery, rotor blades, tower and foundation inclusive lifting operations)

  Inspection of the electrical installation

5.5 Commissioning Surveillance

Commissioning surveillance is an important part of the Project Certification process. It deals with the transition of the finalised installation to get the wind turbine into operation. Surveillance of commissioning is to be performed for a number of wind turbines of the wind farm and shall finally confirm that the wind turbine is ready to operate and in compliance with the assumptions during the design assessment.

Commissioning will be performed according to the previously approved procedures for all components related to operation and safety. This includes the following tests and inspections:

- Functioning of the emergency stop buttons
- Triggering of the braking system (pitch and/or mechanical break)
- Functioning of the yaw system

  Behaviour at grid loss

  Behaviour at overspeed
- Functioning of automatic operation
- Visual inspection of the entire installation
- Checking the logic of the control system's indicators
- Conformity of the main components with the certified design and traceability/numeration of the same

The commissioning is performed under surveillance of the certification body.

5.6 Periodic Monitoring

Periodic Monitoring is necessary to maintain the validity of the Project Certificate and is carried out in regular intervals. Periodic Monitoring shall be carried out by authorized persons according to approved manuals and shall contain at least the main components (e.g. rotor blades, gearbox, tower), the electrical installation, the hydraulic and pneumatic system and the safety and control system. Periodic Monitoring intervals are to be defined in the inspection plan and are to be agreed with the certification body. As a rule the Periodic Monitoring interval is two years. Any damage or major repairs and any alterations shall be reported to the certification body. To maintain validity of the certificate, any changes at the wind turbine have to be approved. The extent to which this work is supervised shall be agreed. The maintenance records will be perused by the certification body.

Periodic Monitoring shall be carried out by experts for wind turbines approved by the certification body. The experts shall have the necessary technical knowledge for the evaluation of the complete wind turbine. The relevant training and a continuous exchange of experience shall be proven. An accreditation according to EN 45004 or EN 45011 (ISO/IEC Guide 65) or equivalent is required, or the aptitude of the experts shall be checked by a competent examination board. The experts shall be independent and shall have access to the relevant technical documentation of the wind turbine.

6 The Certification Body

GL Wind is an internationally operating certification body for wind turbines and market leader in this field. GL Wind carries out examinations, certifications and expertises and is actively involved in the development of national and international standards. GL Wind offers the complete range of services for wind farm projects and products. Certification of wind turbines is among others carried out on the basis of the GL Wind Guideline for the Certification of Wind Turbines (2003 edition) [2] and the Guideline for the Certification of Offshore Wind Turbines (2005 edition) [3]. Furthermore, GL Wind is accredited to carry out certification in accordance with all relevant standards in the field of wind energy.

7 Conclusion

The rapid growth of the wind energy industry and the growing size of wind farms enforce financing banks and insurance companies as well as authorities to require reliability and safety assessments of these projects. The assessments are carried out within the certification of the individual turbines or the wind farms, onshore and offshore. Within the framework of the certification of wind turbines, reliability, safety, strength and fatigue are evaluated in order to guarantee safe operation. Minimising of risks and building up confidence to investors, insurances, operators and authorities are the main aspects of a third party assessment within the certification process.

8 References

[1] IEC WT 01: IEC System for Conformity Testing and Certification of Wind Turbines, Rules and Procedures, 2001-04

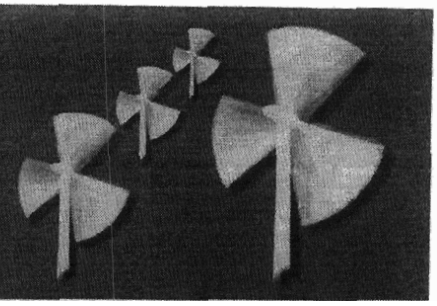
[2] Germanischer Lloyd WindEnergie GmbH: Guideline for the Certification of Wind Turbines, Edition 2003 with Supplement 2004

[3] Germanischer Lloyd WindEnergie GmbH: Guideline for the Certification of Offshore Wind Turbines, Edition 2005

Exhibit 9

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Wind Energy Program Technology Portfolio

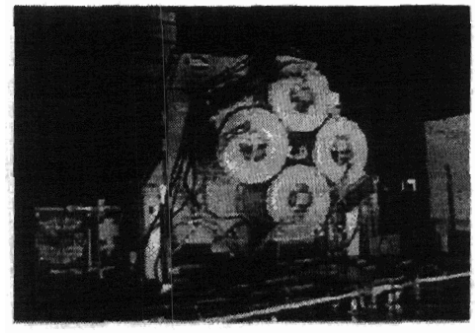


Low Wind Speed Technology Phase I: Clipper Turbine Development Project

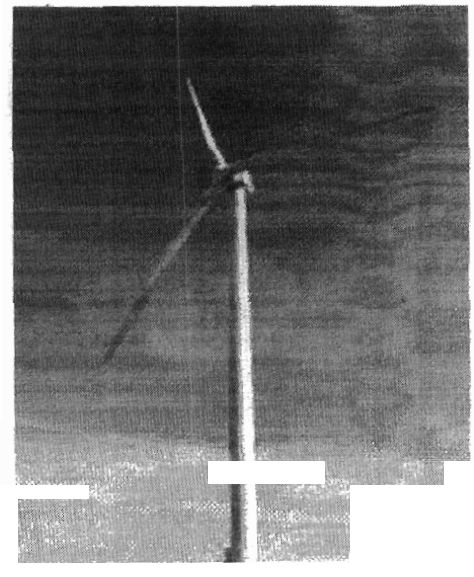
Clipper Windpower Technology, Inc.

Project Description: Design studies conducted by the U.S. Department of Energy, its subcontractors, and others have indicated that several new design configurations offer significant opportunities for reducing cost over current wind turbine configurations. These technologies include reduction in the cost of and improvements in the efficiency of the drivetrain; increases in energy capture by increasing rotor diameter; and improved active wind turbine controls. Several techniques can be used to achieve these results. Many, such as decreasing drivetrain weight to make taller towers more cost effective, or advanced rotor designs that decrease loads and allow greater rotor diameter, are interrelated.

This project is developing a new turbine design that incorporates a number of advanced elements. This new design, designated the Clipper C-93 Liberty turbine, uses a highly innovative multiple-drive path gearbox feeding four advanced permanent magnet generators. The multiple-drive path design radically decreases individual gearbox component loads, which reduces gearbox weight and size. The new generators significantly reduce component mass by eliminating much of the copper that would be required for windings in the rotor. The machine will also take advantage of advanced feedback controls to reduce load excursions in turbulent wind conditions and optimize pitch schedules to reduce drivetrain loads and improve energy capture. The new machine, with its 93-meter rotor, 75-meter hub height, and 2.5-MW rating promises to be significantly lighter, less costly, and easier to maintain than other machines in this rating.



This Clipper 2.5-MW drivetrain underwent dynamometer testing at the National Wind Technology Center.



Clipper 2.5-MW Liberty Turbine installed in Medicine, Wyoming.

Project Type: Prototype Development
Total Project Budget: $18,955,065
Industry Cost Share: $9,359,147
DOE Cost Share: $9,595,918
Planned Project Duration: October 2002–December 2006

Contacts:

NREL/Sandia:
Alan Laxson, NREL
1617 Cole Blvd.
Golden, Colorado 80401
303-384-6944
alan_laxson@nrel.gov

Clipper Windpower Technology, Inc.:
Amir Mikhail, Clipper Windpower Technology, Inc.
6305 Carpinteria Avenue #300
Carpinteria, California 93013-2901
805-690-3275
amikhail@clipperwind.com

Current Status: NREL began field tests on the prototype in 2005.

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DOE/GO-102006-2199
March 2006

Exhibit 10

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305

January 19, 2005

Mr. Bill Wichers
Deputy Director
Wyoming Game and Fish Department
5400 Bishop Blvd
Cheyenne, WY 82002

RE: Response to Wyoming Game and Fish Department (WGFD) Comments on Draft Environmental Assessment for the Proposed Clipper Windpower, Inc. Low Wind Speed Turbine Demonstration Project, Carbon County, Wyoming. DOE/EA-1516

Dear Mr. Wichers:

Pursuant to your comment letter to Mr. Steve Blazek dated January 7, 2005, please accept this letter as the Department of Energy's (DOE's) response to your comments concerning the above referenced Draft Environmental Assessment (DEA). Our responses are presented in the same order as your comments.

WGFD Comment 1

We provided comments on the scoping of this project in a letter dated November 10, 2004, and those concerns still exist.

DOE Response to Comment 1

Please see responses below.

WGFD Comment 2

Major unresolved issues raised during scoping include the justification for siting the demonstration project at this site, the lack of detail in comparing how the Clipper low speed turbine differs from existing turbines that have been evaluated for environmental consequences, the lack of adequate baseline, construction and post-construction monitoring, and minimal commitment to avoid impacts or implement mitigation.

DOE Response to Comment 2

DOE is very concerned about minimizing potential environmental impacts of the proposed Clipper Low Wind Speed Demonstration project and takes its regulatory responsibilities seriously. Clipper Windpower Inc. (Clipper) has used the U.S. Fish & Wildlife Service Guidance document, *Interim Guidance on Avoiding and Minimizing Impacts to Wildlife from Wind Turbines* (Service Guidance), in the planning phase of this project and the preparation of the DEA. As a result, several potential sites for the proposed project were evaluated by Clipper and eliminated from detailed analysis in the DEA because they ran contrary to many of the siting recommendations presented in the Service Guidance and would have resulted in more potential environmental impacts than the proposed project. Clipper determined the best available site by identifying potential project areas that conform to as many of the siting recommendations presented in the Service Guidance document as possible, while still meeting other technical, economic, and administrative restrictions.

DOE agrees with WGFD that pre-construction monitoring may be warranted in areas that receive high use by bats and/or avian species. In the same light, DOE also agrees that pre-construction monitoring is likely not warranted in areas that receive low use by bats and/or avian species. Based on TRC-Mariah's analysis, it is DOE's opinion that the bat and/or avian species use of the project area is low. This position is based on the fact that the project area has been utilized for wind energy projects for more than 20 years, relevant bat and avian information has been collected from other projects conducted in the general area including the Foote Creek and Simpson Ridge Wind Farm projects, and the Carbon Basin Coal Mine project, and the lack of known important habitats such as nesting and breeding areas, migration routes, sensitive habitats (wetlands) for bats and/or avian species within or near the project area. Mr. David Young, Jr. with Western EcoSystems Technology, Inc. (WEST) (of Cheyenne, Wyoming) and project biologist for bat and avian studies that were conducted at the Foote Creek Rim Windpower Project, agrees that pre-construction monitoring would not be very useful given the very small project area, the specific habitats near the project area, and the existence of the Medicine Bow Wind Farm Project (personal communication between Scott Kamber, TRC-Mariah and David Young, WEST, January 7, 2005).

Mr. Young also noted that the result of pre-construction monitoring conducted at the Foote Creek Rim Windpower Project did not correlate with the results from post-construction bat and avian species mortality surveys conducted for the same area (personal communication, Kamber/Young, January 7, 2005). For example, as noted in Young et al. (2003) golden eagle use of the Foote Creek Rim wind farm represented 40% of all documented raptor use of the study area. Utilizing the pre-construction use survey method to predict impacts and mortalities, it would have been logical to predict that golden eagles would represent approximately 40% of the mortalities. However, no golden eagle mortalities were recorded during the 3.5-year study period. Like wise, American kestrels accounted for only 5% of the total raptor use of the study area, but

they accounted for 60% of the raptor mortalities. It may be useful for the Service to review this research that was conducted within 10 mi of the proposed project area. Copies of Young et al. (2003) can be obtained at http://www.west-inc.com/wind_reports.php.

As result of this apparent low use of the project area by bats and/or avian species, it is DOE's professional opinion that additional pre-construction bat and avian use surveys of the project area are not necessary or warranted for this project. However, despite the low use of the project area by bats and/or avian species, DOE would require Clipper to conduct post-construction mortality surveys for bats and avian species during the first 12 months of operation. DOE contends the post-construction monitoring is justified and important to document actual impacts to bat and/or avian species due to the operation of the larger Clipper wind turbine. DOE would also require Clipper to conduct raptor and passerine bird use surveys at the project site during the first 12-month period of operation using methods and protocols presented in Thomas et al. (1997) and used at the nearby Foote Creek Rim Windpower Project. All surveys would be conducted by qualified biologists. Detailed survey methods would be included in a survey protocol document to be prepared for the project and submitted to DOE, USFWS, and WGFD for review and comment.

Based on the review of the Clipper wind turbine and recommendation by Mr. David Young, Jr. (with WEST of Cheyenne, Wyoming), DOE has increased the mortality search distance from 250 ft to 325 ft. This change is expected to be adequate to capture the mortalities associated with the larger wind turbine design. The 325-ft survey distance for the mortality surveys is included in the Errata Document for the DEA.

Based on the recommendation of Mr. Young, the frequency of surveys will be changed from once every two weeks to a time period based on the results of on-site seasonal carcass removal trials that will be conducted at the project site (personal communication between Scott Kamber, TRC-Mariah, and David Young, West, January 7, 2005). The objective of the carcass removal trials is to estimate the length of time avian and bat carcasses remain in the search areas prior to being removed. Carcass removal eliminates the possibility of detection during mortality surveys and includes removal by predators, scavengers, or other means; it is directly related to level of use of the project area by local scavengers. The carcass removal trials would be conducted utilizing protocol presented in the *Final Report: Avian and Bat Mortality Associated with the Initial Phase of the Foote Creek Rim Windpower Project, Carbon County, Wyoming* (Young et al. 2003). This document can be found at http://www.west-inc.com/wind_reports.php . The trials would be conducted at the beginning of each of the following seasons: spring migration (February 15 – April 15), summer breeding season (April 16 – August 31), fall migration (September 1 – October 31), and winter (November 1 – February 14) and would be used to statistically determine the amount of time between each survey. The carcass removal trials will document scavenger use of the immediate project area and will be used to determine the frequency of mortality surveys. In addition, a commitment to conduct carcass removal trials will replace the two-week survey period and is reflected in the Errata Document for the DEA.

WGFD Comment 3

> The EA does not fully address the cumulative impacts (Section 4.9, pp75ff), particularly the existing and proposed wind plants in the vicinity, and fails to disclose the potential for windpower expansion at the proposed site. Figure 4.1 and the related discussion are incomplete and do not show many of the projects.

DOE Response to Comment 3

DOE has made every effort to fully address cumulative impacts in the DEA, including the existing wind farm, and proposed wind farms and other industrial development in the general project area known to DOE, Clipper, and TRC-Mariah staff.

In addition, the Proposed Action only calls for the construction and operation of the single Clipper demonstration wind turbine and as stated in the DEA, there are no reasonably foreseeable plans to place more wind turbines at this site. If additional turbines were to be located at this site as part of a federally-funded project, additional environmental analysis would likely be conducted. Therefore, this portion of the WGFD comment is outside the scope of this NEPA analysis.

WGFD Comment 4

> A considerable amount of wildlife information has been gathered in the vicinity and at nearby windplants over the years. We suggest that these be specifically reviewed and referenced in the EA. If the EA is going to base assumptions on other studies (e.g., SeaWest), then it needs to present the similarities and differences between sites and projects. A single, nonquantified reconnaissance survey is inadequate as a baseline for the projects (e.g., p 41).

DOE Response to Comment 4

The DEA currently discusses and cites numerous baseline environmental studies that have been conducted over the past several years including the Environmental Impacts Statements (EISs) for the Foote Creek Rim and Simpson Ridge wind farm project, the EIS for the Carbon Basin Coal Mine, and post-construction monitoring conducted at the Foote Creek Rim and Simpson Ridge project areas. The DEA states that the environmental analysis includes the existing baseline studies supplemented with a reconnaissance survey.

Detailed information regarding the methods used to estimate bat and avian mortality is currently included in Section 4.8.1 of the DEA. Additional detail has been added, and is provided in the Errata document which is a component of the Final EA.

Clipper has committed to conduct avian use surveys and post-construction mortality surveys for bats and avian species during the first 12 months of operation. DOE feels

these various surveys are justified and important to document actual impacts to bat and/or avian species due to the operation of the larger Clipper wind turbine. Information concerning additional surveys has been included in the Errata document for the DEA.

WGFD Comment 5

> Measures to reduce impacts incorporated into the project are vague and appear to be solely at the discretion of the operator, despite federal funding and involvement. For example, we recommended during scoping that construction not occur from November 15 – April 30, to prevent disturbance on crucial big game range. However, construction would start in December of 2004 and continue for about 2 months during this sensitive period (pp. 15, 21, 60-62).

DOE Response to Comment 5

In addition to the applicant-committed practices currently listed in Section 2.1.5 of the DEA, please reference the additional applicant committed measures regarding raptor and passerine avian use surveys, as described in the attached Errata document. Clipper Windpower will be contractually bound to all of these applicant-committed practices.

Section 4.8.1.1 includes a discussion of potential environmental impacts to pronghorn antelope and the applicant-committed practice included in the project to minimize impacts. Additional information concerning the timing and extent of construction operations has been included in the Errata Document for the DEA.

WGFD Comment 6

> Measures to mitigate sage-grouse concerns are inadequate (p. 21). The immediate construction of the project does not allow of any baseline data gathering and may discourage sage-grouse from even initiating strutting in the event these decide to reoccupy close lek sites. NREL or Clipper WindPower should commit to monitoring. If leks are active, additional mitigation would be required.

DOE Response to Comment 6

Construction will begin in mid- January 2005, and is expected to last for about 2 months. Construction activities are expected to be completed by the middle of March 2005, which is before the prime breeding season for greater sage-grouse. In addition, seasonal mitigation measures for greater sage-grouse are listed on page 21 of the DEA.

WGFD Comment 7

> The provision for only monitoring mortality for only 1 year (p. 21) is grossly inadequate and does not negate the project from obligations under the Migratory Bird Treaty Act and other laws. One year's monitoring may mask actual impacts due to seasonal and annual variation. DOE should require monitoring for at lease three

years. Results should be compared to other nearby projects. Mortality monitoring does not address scavenging and decomposition (pp. 64-65).

DOE Response to Comment 7

Clipper Windpower has agreed to conduct surveys of avian use of the immediate project area by raptors and passerine birds along with the mortality surveys discussed in the DEA. The avian use surveys will be based on survey methods and protocols used at the nearby Foote Creek Rim Windpower Project. The Errata to the DEA includes a commitment to these site use surveys.

One year of post-construction mortality surveys will provide some information on the potential impacts of the Proposed Action on bat and/or avian species and further characterize the impacts of this wind turbine.

As discussed under *DOE Response to Comment* 2, Mortality surveys would be conducted in accordance with *Final Report: Avian and Bat Mortality Associated with the Initial Phase of the Foote Creek Rim Windpower Project, Carbon County, Wyoming* (Young et al. 2003); these survey procedures do address issues of scavenging and decomposition. This document can be found at http://www.west-inc.com/wind_reports.php .

WGFD Comment 8

We suggest that the design and characteristics of the proposed low-speed wind turbine be contrasted with other existing designs, including height of rotor-swept area, blade tip speeds, and potential wildlife mortalities. Implications of the differing height of the rotor-swept area from the Clipper design to conventional turbines should be discussed in detail (p. 64).

DOE Response to Comment 8

Design specifications for the Clipper wind turbine are discussed in the DEA on pages 9 – 14. Relevant design specifications for the Clipper wind turbine are also compared to conventional wind turbines on pages 63-64 of the DEA. The DEA also presents an analysis that estimates bird and bat mortalities for the Clipper wind turbine compared to the existing wind turbines that are located at the Foote Creek Rim Windpower Project and the Medicine Bow Wind Project. Clipper has also committed to additional monitoring in an attempt to better define relative impacts to wildlife of the larger turbine compared with smaller turbines.

WGFD Comment 9

Individual met towers can cause as much wildlife mortality as working turbines, especially if these are lattice towers with guy wires. We recommend using current met tower by the Platte River Power Authority and other since they are already monitoring wind speeds in the area.

DOE Response to Comment 9

As stated above, Clipper has utilized and incorporated the recommendations stated in the Service Guidance document into the planning phase of this project, wherever possible. DOE and Clipper recognize that tall, guy-wired meteorological towers can result in numerous bat and avian mortalities. However, as stated in the DEA, one of the primary purposes of the proposed research project is international certification of the demonstration wind turbine. These certification standards specify the location and height requirements of meteorological towers relative to turbines being certified. Meteorological data is needed to correlate wind velocities seen by the turbine with the power output generated. This correlation is required to predict the rated power output of the turbine. According to the international standards, meteorological tower height must be within 2% of hub height of the turbine (the hub height will be 75 meters, or 246 feet), and a maximum of 2 to 4 rotor diameters from the turbine, with the accepted practice being 2.5 rotor diameters away from the turbine (about 760 feet in this case). DOE has discussed with Clipper the potential use of the existing meteorological towers associated with the Medicine Bow Wind Project, and Clipper has determined that these towers are too far away from the proposed turbine site and not tall enough to be utilized for the proposed research project. While utilization of an existing meteorological tower would result in significant cost savings, it would not meet the technical data standards that are required for this project. In addition, the tower must be 240 ft tall, and a guyed-lattice tower is the only practical and reasonable method that can be used to erect a tower of that height.

WGFD Comment 10

> The assumptions about impacts to Bald Eagles (p.35, p.54) are understated. An active Bald Eagle nest is within 8 miles of the preferred site and is directly in the flight line to East Allen Lake, where waterfowl, fish and other preferred prey occur.

DOE Response to Comment 10

The analysis included in Section 4.4.1.2 does not understate potential impacts to bald eagles (a federally listed and protected species). The document clearly states that migrating bald eagles may occasionally forage or fly though the project area. The DEA also states that there is a chance that bald eagles might collide with the operating wind turbine or meteorological tower and guy wires. When asked for their comments and concerns about wildlife species in the area during the scoping period prior to preparation of the DEA, neither the WGFD nor the USFWS identified the project area as a migratory pathway for bald eagles. There are no data to indicate that the project area is located in a migratory flight path. The Wyoming Natural Diversity Database (coordinated by the University of Wyoming) also does not note any sightings of bald eagles within 6 miles of the project area including the area around East Allen Lake and no bald eagle mortalities have been documented at the Medicine Bow Wind Project. The DEA concludes that the

Proposed Action may affect, but would not adversely affect bald eagles that might utilize the project area.

DOE appreciates WGFD's review of the Proposed Clipper Windpower, Inc. Low Wind Speed Turbine Demonstration Project Environmental Assessment. If you have further questions regarding DOE's response to your comments, please contact Steve Blazek at 303-275-4723. Mr. Blazek will contact you in the near future to coordinate review and comment of the survey protocol documents.

Sincerely,

John H. Kersten
Manager

Enclosure

Exhibit 11

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com

Date: Mon, 21 May 2007 11:47:38 EDT

Subject: !!!!!!!!!!!!!!!!1Fwd: Clipper Liberty 2.5 MW

To: judihall66@yahoo.com

In a message dated 5/21/2007 10:36:55 AM Eastern Daylight Time, DavisP@prpa.org writes:

> Alice,
>
> The Clipper Liberty turbine at our Medicine Bow wind site is a C93. It went operational in April of 2005. It is still being tested. As for how far along it is, you'll have to check with Clipper; we have little to do with its testing operations. You might try Mr. Phillip Waddell:
>
> Phillip Waddell, Director, O&M Services
> Clipper Windpower
> 1624 Market Street, Suite 203
> Denver, CO 80202
> pwaddell@clipperwind.com
> (303) 295-7327
>
> Thanks,
> Paul Davis
> 970-229-5370
>
> ---
>
> **From:** Sksajs@aol.com [mailto:Sksajs@aol.com]
> **Sent:** Friday, May 18, 2007 6:11 AM
> **To:** Wind
> **Subject:** Clipper Liberty 2.5 MW
>
> Dear PRPA,
>
> When was the Clipper Liberty 2.5MW operational? Is it a C93 or C96?
>
> We understand it is a prototype and would like to know how far along in the testing is it.
>
> We plan to travel out this summer to see it. We have already seen the Vestas.
>
> Thanks,
>
> Alice Sokolow
>
> ---
>
>

Forwarded Message

Subject: RE: Clipper Liberty 2.5 MW

Date: Mon, 21 May 2007 08:36:43 -0600

From: "Davis, Paul" <DavisP@prpa.org>

To: Sksajs@aol.com

HTML Attachment

Alice,

The Clipper Liberty turbine at our Medicine Bow wind site is a C93. It went operational in April of 2005. It is still being tested. As for how far along it is, you'll have to check with Clipper; we have little to do with its testing operations. You might try Mr. Phillip Waddell:

Phillip Waddell, Director, O&M Services
Clipper Windpower
1624 Market Street, Suite 203
Denver, CO 80202
pwaddell@clipperwind.com
(303) 295-7327

Thanks,
Paul Davis
970-229-5370

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Friday, May 18, 2007 6:11 AM
To: Wind
Subject: Clipper Liberty 2.5 MW

Dear PRPA,

When was the Clipper Liberty 2.5MW operational? Is it a C93 or C96?

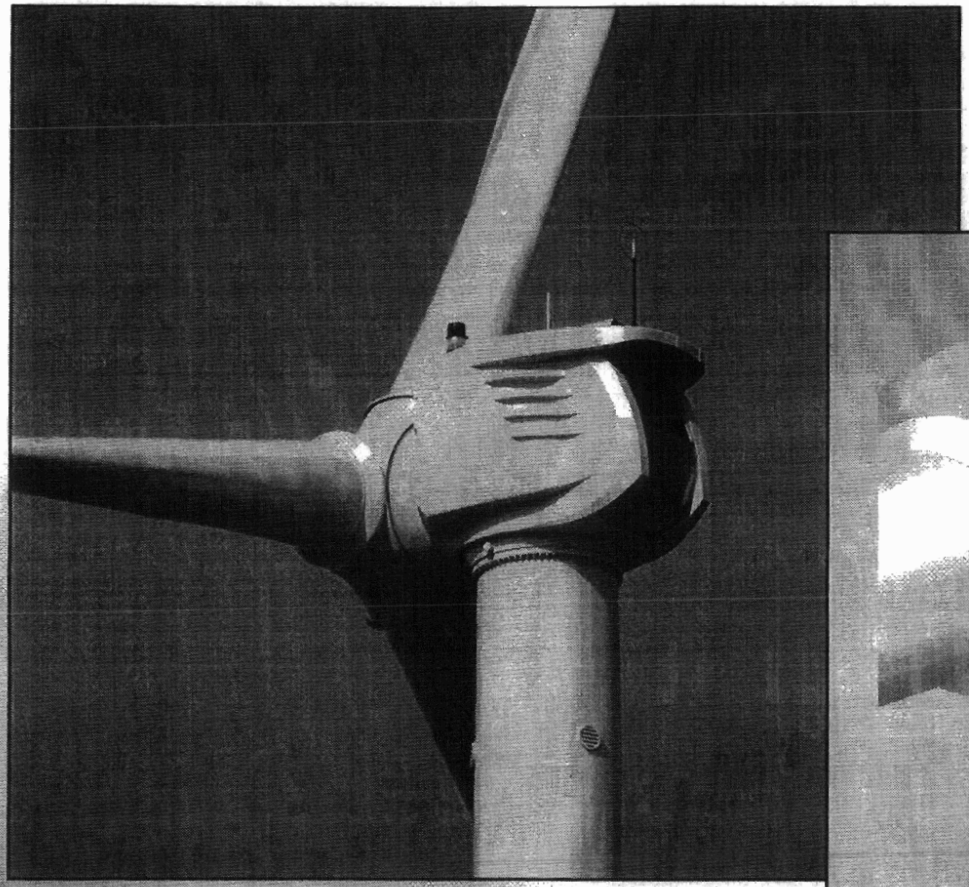
We understand it is a prototype and would like to know how far along in the testing is it.

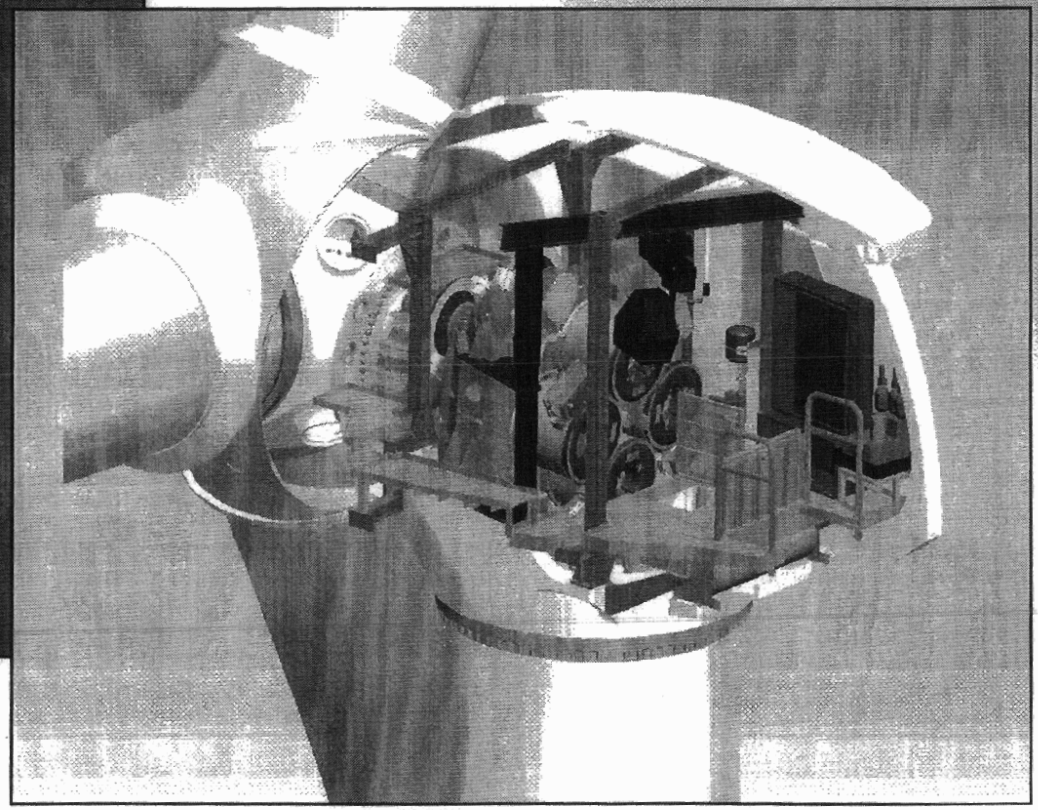
We plan to travel out this summer to see it. We have already seen the Vestas.

Thanks,

Alice Sokolow

The C-93 at Medicine Bow, Wyoming

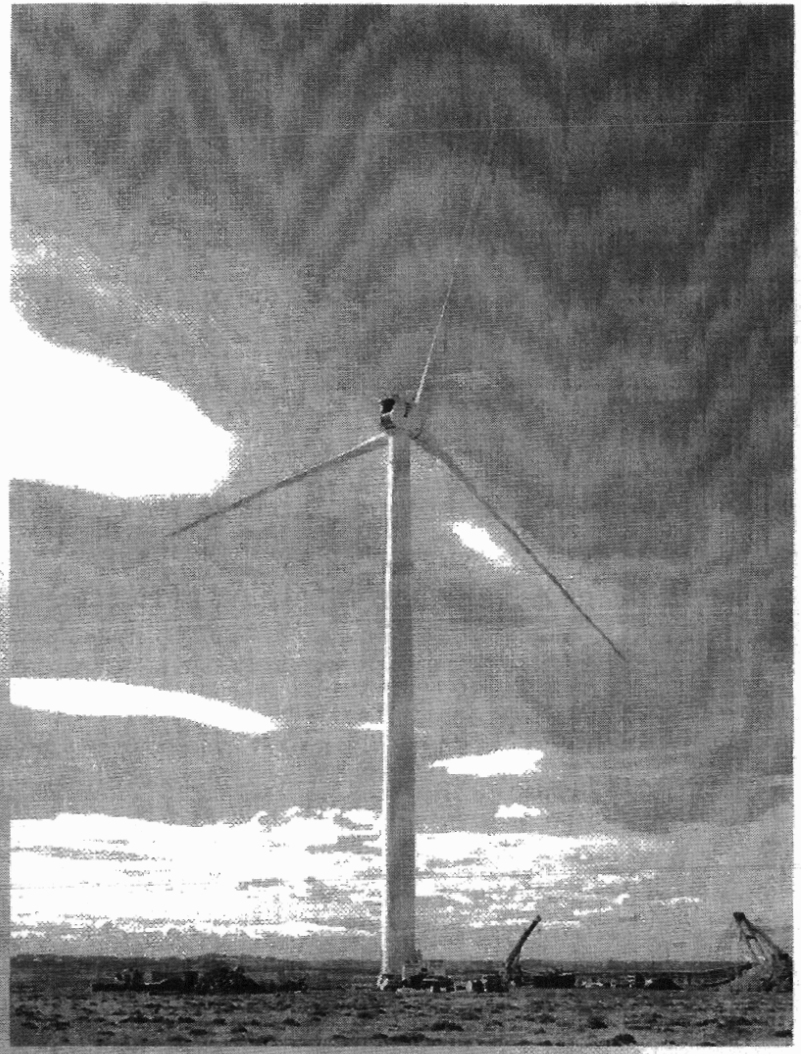


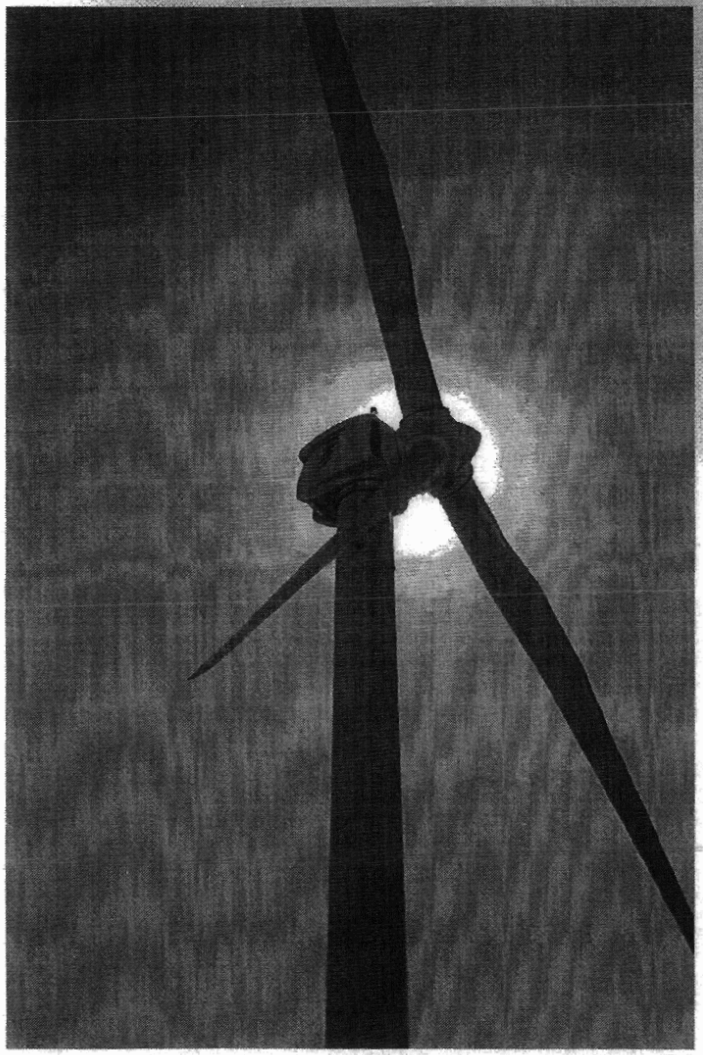


Clipper Liberty 2.5 MW Series

Clipper
WINDPOWER

The C-93 at Medicine Bow, Wyoming





Clipper Liberty 2.5 MW Series

Clipper
WINDPOWER

Exhibit 12

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com

Date: Fri, 18 May 2007 08:01:36 EDT

Subject: Jan 2005 Broke ground Exhibit

To: judihall66@yahoo.com

Click here: PRPA: SUVs Can Be Environmentally Friendly
http://www.prpa.org/pressroom/releaseclipper.htm

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Releases

NEWS

January 24, 2005

Contact: Rae Todd 970-229-5255
toddr@prpa.org (Platte River Power)
Tom Feiler 303-295-7320
tfeiler@clipperwind.com (Clipper Windpower, Inc.)

FOR IMMEDIATE RELEASE

Prototype Wind Turbine Construction Begins at Platte River's Site

FORT COLLINS, Colo. -- Platte River Power Authority and Clipper Windpower, Inc. have broken ground for Clipper's 2.5 megawatt (MW) Liberty Series wind turbine to be installed at Platte River's Medicine Bow Wind Project, located near Medicine Bow, Wyo. Platte River will purchase the energy from the commercial prototype turbine for the Fort Collins Utilities' Wind Program and the Town of Estes Park. A megawatt of wind power from the Medicine Bow site typically provides enough energy for approximately 350 homes, Clipper's turbine can then be expected to bring enough energy for about 875 homes each year.

"We are pleased to work with an industry innovator like Clipper," said Paul Warila, Energy Services Engineer for Platte River. Warila, who is also the Medicine Bow Wind site engineer, says that the 400-foot tall turbine (including blades) is expected to be more effective in the use of land area and available wind than smaller turbines.

"Clipper is pleased to be working with Platte River in this exciting project," said Peter Stricker, Vice President of Project Development for Clipper, "We applaud their interest in the Liberty turbine and their long-term commitment to the advancement of wind energy technology."

"This commercial prototype of the Liberty turbine will be the largest wind turbine in Wyoming," said Warila. "Platte River was the first utility in Colorado to provide one of its four owner

communities, Fort Collins, with wind energy in 1998, followed by the wind power program within its other owner communities of Longmont, Estes Park and Loveland."

With its experience operating a wind energy site since 1998 - the Medicine Bow Wind Project currently has 10 turbines - Platte River was a good fit with Clipper. Performance statistics for the site can be found at www.prpa.org/energysources/wind.htm.

For decades, the tallest landmark near Medicine Bow was a 4 MW Hamilton Standard wind turbine (391-feet tall) at the wind site until 2002, when Platte River demolished and scrapped the non-working turbine. Now, a new landmark will reach to the sky when construction of the Liberty turbine is complete.

Platte River Power Authority generates reliable, low-cost and environmentally responsible electricity used by its owner communities of Estes Park, Fort Collins, Longmont and Loveland since 1973.

Clipper is comprised of the founder and key executives of Zond Systems, one of the pioneers of the modern wind industry, with over 3,000 wind turbines and a 20-year history of project development and operation to its credit. Clipper presents a new platform marshaling a unique and powerful combination of management and technical talent, along with breakthrough technology and substantial project development resources. Clipper is in the business of developing, owning and operating wind energy generating projects, and developing wind turbine technology aimed at lowering the cost of wind generated electricity.

-30-

Exhibit 13

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com

Date: Sat, 19 May 2007 20:51:01 EDT

Subject: Exhibit Prototype

To: judihall66@yahoo.com

Click here: PRPA: Wind Turbine Specifications
http://www.prpa.org/energysources/windturbinespecs.htm

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Energy Sources>Wind>

Wind Turbine Specifications

Vestas V42-600

- Manufacturer: Vestas-American Wind Technology (www.vestas.com)
- 600 kW nameplate capacity at 16 m/s (meters per second) or above (36 mph)
- Cut-in speed at 4 m/s (9 mph)
- Cut-out speed at 25 m/s (56 mph) sustained winds
- Rotor diameter equals 42 meters (138 ft.)
- Tower height at hub is 40 meters (131 ft.)
- Total height to top of blade tip is 61 meters (200 ft.)
- 30 RPM

Vestas V42-600 Power Curve Statistics

Vestas V47-660

- Manufacturer: Vestas-American Wind Technology
- 660 kW nameplate capacity at 15 m/s or above (33.5 mph)
- Cut-in speed same as V42-600
- Cut-out speed same as V42-600
- Rotor diameter equals 47 meters (154 ft.)
- Tower height at hub is 50 meters (164 ft.)
- Total height to top of blade tip is 73.5 meters (241 ft.)
- 28.5 RPM

Vestas V47-660 Power Curve Statistics

Clipper Liberty I (prototype)

- Manufacturer: Clipper Windpower (www.clipperwind.com)
- 2.5 MW capacity (656 kW rated capacity each generator)
- Cut-in wind velocity of 4 m/s (9 mph)
- Cut-out wind velocity of 25 m/s (56 mph)
- Rotor diameter equals 93 meters (305 ft.)
- Tower height at hub is 75 meters (246 ft.)
- Total height to top of blade tip (full sweep) is 121.5 meters (399 ft.)
- Blade length is 45.2 meters (148 ft.)

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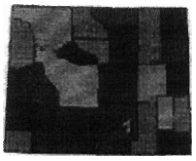
Providing wholesale electricity and services to Estes Park, Fort Collins, Longmont and Loveland.

Wind Project Data Base

Wind Energy . . . Clean Energy for Our Environment and Economy



Wyoming
Wind Energy Development

Existing Project or Area	Owner	Date Online	MW	Power Purchaser/ User	Turbines/ Units
Medicine Bow	PRPA	1996	0.065	Platte River Power Authority	Nordtank (1)
1. Medicine Bow, WY	PRPA	1998	1.2	Platte River Power Authority	Vestas (2)
1. Foote Creek Rim - I (Carbon Co.)	Pacificorp, Eugene Water & Elec.	April 1999	41.4	Pacificorp, EWEB	Mitsubishi (69)
1. Foote Creek Rim - II (Carbon Co.)	Caithness	June 1999	1.8	BPA	Mitsubishi (3)
1. Foote Creek Rim - III (Carbon Co.)	Caithness	June 1999	24.75	Public Service Co of Colorado	NEG Micon 750-kW (33) Project Info
1. Foot Creek Rim - IV (Carbon Co.)	Caithness	Oct 2000	16.8	BPA	Mitsubishi 600 (28)
1. Medicine Bow	PRPA	Oct 1999	3.3	Platte River Power Authority	Vestas V-47 (5)
1. Medicine Bow	PRPA	July 2000	1.32	Platte River Power Authority	Vestas V-47 (2)
Rock River I	Shell Wind Energy	Oct 2001	50.0	PacifiCorp	Mitsubishi 1-MW (50)
Wyoming Wind Energy Center	FPL Energy	4th Q 2003	144.0	PPM Energy	Vestas 1800 (80)
Clipper Windpower Test Turbine	Clipper Windpower	2005	2.5	Platte River Power Authority	Clipper Windpower 2.5 MW (1)
F.E. Warren Air Force Base	F.E. Warren Air Force Base	2005	1.32	F.E. Warren Air Force Base	Vestas 660 kW (2)

State Summary:
Installed MW = 288*
Planned MW = 201*

Wind Energy Potential:
Average Power Output (MW): 85,000
Annual kWh: 747 Billion

Rank in US: 7th**

Follow the Links for more information

Regional Links:

Western Resources Advocates

Renewable Northwest Projec

Interwest Energy Alliance

Updated: March 31, 2007

Proposed Wind Projects in Wyoming

Project or Area	Utility/Developer	Location	Status	MW Cap	On Line By / Turbines
Bridger Butte Wind Project	Mountain Wind Power LLC	Near Evanston		201	NA/ 1500kW (134)

PLEASE NOTE: This is not necessarily a comprehensive list of proposed wind power projects in this state. If you have questions about the extent of development activity in the state or have a project that you would like listed, please contact Kathy Belyeu at Kbelyeu@awea.org .

Sources:
*Installed & Projected MW - AWEA
**Wind Energy Potential - *An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States*, Pacific Northwest Laboratory, 1991. ("Potential" is stated in terms of average Megawatts of Capacity (MWa), or megawatts of capacity at 100% capacity factor. 1 MWa is roughly equal to about 3 MW of nameplate wind turbine capacity.)

WIND PROJECT DATA BASE | AWEA HOME PAGE

Exhibit 14

RECORD OF PROCEEDINGS

Town of Estes Park, Larimer County, Colorado, January 13, 2005.

Minutes of a Regular meeting of the **UTILITIES COMMITTEE** of the Town of Estes Park, Larimer County, Colorado. Meeting held in the Municipal Building in said Town of Estes Park on the 13th day of January 2005.

Committee:	Chairman Jeffrey-Clark, Trustees Newsom and Pinkham
Attending:	All
Also Attending:	Town Administrator Repola, Public Works Director Linnane, Senior Electrical Engineer Matzke, Assistant to the Senior Electrical Engineer Mangelsen, and Deputy Clerk Williamson
Absent:	None

Chairman Jeffrey-Clark called the meeting to order at 8:00 a.m.

LIGHT AND POWER DEPARTMENT

Platte River Power Authority (PRPA) Medicine Bow Wind Farm – Request Authorization to Participate in New Wind Turbine.

In December 1999, the Town Board approved a twenty-year commitment to purchase one-quarter of the output of one wind turbine at Platte River's Medicine Bow Plant. This commitment was expected to equal approximately 40,000 kWh per month at $0.024 per kWh or $11,520 annually. In July 2000, the Town Board agreed to purchase 100 blocks (one block equals 100 kWh per month) of the Town's total wind energy purchased for use by the Municipal Building. In March 2003, the Municipal Building was placed on the Town's wind energy surcharge with 100% of the electrical use from wind energy and has since requested a short-term energy purchase of an additional 41,000 kWh per month over and above the original 40,000 kWh per month. The Town's current request for short-term energy expires March 31, 2005.

John Bleem, Platte River Power Authority, reported that a new wind turbine (Clipper) is being installed at the Medicine Bow Plant to serve additional wind energy requirements. The Clipper wind turbine will produce more power at the lower wind speeds than the current turbines. The turbine will be owned and operated by Clipper and all electrical output will be purchased by PRPA.

All PRPA members have been offered the opportunity to participate, and Fort Collins is prepared to purchase the total output of the turbine. This opportunity would allow Estes Park to transition the current short-term wind energy purchased to a long-term 10 year commitment in the Clipper Project at the same price of $0.024 per kWh above wholesale as the current short-term rate.

The Committee recommends participating in the new Clipper wind turbine with a ten year contract effective April 1, 2005 to purchase 41,000. kWh per month, replacing the current short-term purchases.

Finance Department Copier Replacement – Request Authorization to Solicit Bids

The Finance Department's current copier is obsolete, and as of December 2004 maintenance support is no longer available. The 2005 budget includes $15,000 for this purchase. Administrator Repola reviewed the benefits of purchasing a copier rather than leasing.

The Committee recommends Finance Staff to be authorized to solicit bids for a new copier. Bids including staff's recommendation will be emailed to all committee members for review and if within budget the bid will be approved.

Reports

- The Committee reviewed financial reports for the Light & Power and Water departments for the month of December.
- Audio visual consultant, EBD is scheduled to start the repair process for the Board Room A/V equipment. The Channel 39 audio problem is an issue with Charter Communications cable and is not related to the Town's A/V equipment. Staff has given Charter the week of January 17, 2005 to fix the problem.
- The current broadcasting audio is an issue with Charter Communications cable.
- The electric rate increase will be reflected on customer's February 1st statements.
- The fiber optics installation is complete. A meeting was held last week with Mike Dahl of ICG to discuss potential market base. ICG would have to invest capital in infrastructure.
- The MacGregor Mountain water tank construction has been shut down through August at the request of the Colorado Division of Wildlife.
- The small hydro plant project at the foot of the dam will begin the end of 2005.

There being no further business, Chairman Jeffrey-Clark adjourned the meeting at 9:15 a.m.

Jackie Williamson, Deputy Town Clerk

Exhibit 15

1.0 INTRODUCTION

Hessler Associates, Inc. has been retained by UPC Wind Management, LLC to evaluate potential noise impacts from the proposed Cohocton Wind Project on residents in the vicinity of the project area, which lies mainly to the east of the town of Cohocton, NY but also contains a small separate section on Brown Hill south of town.

Current plans call for the erection of 36 wind turbines, each with a nominal output of 2.5 MW. It is anticipated that Model C96 wind turbine generators manufactured by Clipper Windpower Technology, Inc. will be used. This model has a 96 m diameter, three-bladed rotor mounted on 80 m tubular steel towers. As is currently the case with most wind turbine models in the 2.5 MW size class, the C96 is not yet in commercial production but rather is still in the development phase. The first commercial models are being installed by UPC Wind at the "Steelwinds" project near Lackawanna, NY. Installation is expected to be completed in December of 2007. A prototype of the C96 has been built for testing and design refinement purposes at a site in the Western United States and preliminary sound power level measurements have been taken of this unit. As the only available information, these measurements have been used in the modeling portion of this assessment although it is anticipated that the final noise level of the production version will be lower than the current sound level of the prototype, which does not yet include certain noise abatement features. Once the modifications have been made and new sound tests are complete, an addendum will be added to this study to report the results.

The study essentially consisted of two phases: a background sound level survey and a computer modeling analysis of future turbine sound levels. The field survey of existing sound levels at the site was necessary to determine how much natural masking noise there might be - as a function of wind speed - at the nearest residences to the project. The relevance of this is that high levels of background noise due to wind induced natural sounds, such as tree rustle, would reduce or preclude the audibility of the wind farm while low levels of natural noise would permit operational noise from the turbines to be more readily perceptible. For a broadband, atonal noise source, such as the proposed wind turbines, the audibility of and potential impact from the new noise is a function of how much, if at all, it exceeds the pre-existing background level.

In the second phase of the project an analytical noise model of the project was developed to predict the sound level contours associated with the project over the site area and thereby determine if any nearby residents might be able to hear the turbines above the pre-existing background level and, if so, what the likelihood of an adverse impact might be.

The primary basis for evaluating potential project noise is the Program Policy *Assessing and Mitigating Noise Impacts* issued by the New York State Department of Environmental Conservation (NYCDEC), Feb. 2001. This assessment procedure is incremental in the sense that a simplified "first level noise impact evaluation" is initially carried out to determine if any residential receptors *may* experience a noticeable increase in sound level followed by a more in depth "second level noise impact evaluation" if any sensitive receptors are identified as being possibly affected. The procedure essentially defines a cumulative increase in overall sound level of 6 dBA as the threshold between no significant impact and a potentially adverse impact.

2.0 BACKGROUND SOUND LEVEL SURVEY

2.1 OBJECTIVE AND MEASUREMENT QUANTITIES

The purpose of the survey was to determine what minimum environmental sound levels are consistently present and available at the nearest potentially sensitive receptors to mask or obscure

Exhibit 16

Hessler Associates, Inc.
Consultants in Engineering Acoustics

[redacted]
3862 Clifton Manor Place
Suite B
Haymarket, Virginia 20169 USA
Phone: 703-753-1602
Fax: 703-753-1522
Website: www.hesslernoise.com

ADDENDUM
TO
REPORT NO. 1755-010606-D

REVISION: B
DATE OF ISSUE: APRIL 3, 2007

UPDATED NOISE MODELING RESULTS BASED ON NEW DATA FROM CLIPPER WINDPOWER

COHOCTON WIND FARM PROJECT

COHOCTON, NY

PREPARED FOR:

UPC Wind Management, LLC

Prepared by:

David M. Hessler, P.E., INCE
Principal Consultant
Hessler Associates, Inc.

CONTENTS

1.0 INTRODUCTION

A noise impact assessment for the Cohocton Wind Farm project was prepared by Hessler Associates, Inc. for UPC Wind Management and submitted on November 15, 2006 (Report 1755-010606-D). At that time the only noise emissions information available for the Clipper C96 wind turbine planned for the project was preliminary in nature and was developed from measurements of a prototype that did not have certain noise abatement features that will be present on the production model. This preliminary, unmitigated sound spectrum was used to carry out the predictive noise modeling for the project described in the November report since it was the only available information.

Since the original report was submitted Clipper Windpower has installed noise mitigation on the prototype and has carried out further noise emissions tests. The new sound power level information, received in preliminary from Clipper in early December and in final form in a report dated March 1, 2007, indicates that the noise emissions of the units that will actually be installed at the Cohocton site will be significantly quieter than previously expected based on the measurements of the unmitigated prototype.

This Addendum to Report 1755-010606-D replots the project sound level contours based on the new sound power level spectrum provided by Clipper and the latest site layout (as of 2/27/07) and briefly describes the resulting change in the project's expected noise impact on the community.

2.0 REVISED PROJECT NOISE MODELING AND IMPACT ASSESSMENT

2.1 ASSESSMENT CRITERIA

There are two metrics against which to compare the predicted noise from the project and thereby determine if any adverse environmental impacts might result from it. The first of these measures is a local regulatory noise limit and the second is a set of noise assessment guidelines published by the New York State Department of Environmental Conservation (NYSDEC).

2.1.1 REGULATORY NOISE LIMITS

A local (Town of Cohocton) noise ordinance has been established that limits noise from any wind energy conversion facility to a maximum of 50 dBA "at the boundaries of all abutting parcels that are owned by persons other than the owner of the parcel on which each turbine is located". Other restrictions include a maximum allowable project sound level of 45 dBA outside any non-participating residence and a numerical limit on tonal noise. Unacceptable pure tones are "defined to exist when a one-third (1/3) octave band noise level exceeds the arithmetic average of the two adjacent one-third (1/3) octave band levels by the following:

Band Range	Exceedance
31.5 – 125 Hz	15 dB
160 – 400 Hz	8 dB
500 – 8000 Hz	5 dB"

There are no other overarching state or federal noise regulations that would apply to the project.

3.1.2 NYSDEC GUIDELINES

In the Program Policy *Assessing and Mitigating Noise Impacts* published by the New York State Department of Environmental Conservation (2001) a methodology is described for evaluating

potential community impacts from any new noise source. As opposed to an absolute noise limit at property lines, the NYSDEC method is fundamentally based on the perceptibility of the new source above the existing background sound level at the nearest houses where people actually reside. The likelihood of someone being regularly present at the extreme edge of their property seems much lower than their being in or near the residence. Consequently, the dwelling itself is considered the more relevant location to examine the potential for disturbance from project noise.

It is a well established fact for a new broadband, atonal noise source, such as a wind turbine, that a cumulative increase in the total sound level of about 5 or 6 dBA at a given point of interest is required before the new sound begins to be clearly perceptible or noticeable to most people. Cumulative increases of between 3 and 5 dBA are generally regarded as negligible or hardly audible. Lower sound levels from the new source are completely "buried" in the existing background sound level and are totally inaudible. The specific language relating to these perceptibility thresholds in the NYSDEC program policy (Section V B(7)c) is a follows:

> Increases ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive receptors are present. Sound pressure increases of more than 6 dB may require closer analysis of impact potential depending on existing SPL's [sound pressure levels] and the character of surrounding land use and receptors.

What this essentially says is that a cumulative increase in the total ambient sound level of 6 dBA or less is unlikely to constitute an adverse community impact. From a practical standpoint, because decibels add logarithmically, this threshold means that noise from the project could exceed the existing background level by up to 5 dBA. For this project, the measured background level of **37 dBA** (during an 8 m/s wind) plus a project-only noise level of **42 dBA** would equal a total cumulative level of 43 dBA – or 6 dBA above the original level.

The program policy outlines an incremental approach towards evaluating cumulative increases and potential impacts. Once the background sound level is established by means of a field survey a **First Level Noise Impact Evaluation** is carried out where noise from the future project is modeled in an extremely simple and conservative manner considering only the reduction in sound level with distance in accordance with the inverse square law. All other natural forms of sound propagation loss, such as from intervening terrain, vegetation, etc., are ignored and the ground surface is assumed to be completely reflective as though it were the surface of a large placid lake. The purpose of this analysis is to simply identify the area, defined by the 6 dBA cumulative increase contour line (42 dBA in this instance), that needs to be looked at in greater detail to see if any sensitive receptors are present.

If any residences or other potentially sensitive receptors are identified as being within the area of potential concern a **Second Level Noise Impact Evaluation** noise modeling study is carried out realistically considering all normal sound propagation loss mechanisms (in addition to pure distance losses). In this case, any receptors outside the 6 dBA cumulative increase contour are considered to have a low probability of disturbance while any receptors inside the contour might be adversely impacted and some form of mitigation should be investigated.

Preliminary noise modeling carried out in the earlier design phase of the project to help optimize the turbine layout with respect to potential community noise impacts indicated that, irrespective of subsequent minor changes to the site plan, there would be homes present within First Level Impact area. Consequently, the modeling discussed below begins with a Second Level Impact analysis.

2.2 TURBINE NOISE LEVELS

A prototype of the Clipper C96 wind turbine, with a slightly smaller rotor diameter of 93 m (as opposed to 96 m), has been built for testing and design refinement purposes and recent sound level measurements of this unit have been made after the installation of some noise mitigation measures. Similar, if not identical, noise abatement will be installed in the C96 production model – the turbine that will actually be used for the Cohocton project.

The measured sound level of the prototype prior to the retrofits was used in the original modeling study since that was only information available at the time. The new octave band sound power level is tabulated below along with the preliminary spectrum. This new noise information is taken directly from the field test results obtained by Channel Island Acoustics on behalf of Clipper Windpower. As summarized in Report TOT0606-06 IM[1] the testing was carried out in accordance with IEC 61400-11:2002 *Wind turbine generator systems – Acoustics measurement techniques.*

Table 2.2.1 *Clipper C96 Prototype Sound Power Level Spectrum (in an 8 m/s wind at 10 m agl) Before and After the Installation of Noise Mitigation Features*

Octave Band Center Frequency, Hz	31.5	63	125	250	500	1k	2k	4k	8k	dBA
Preliminary Sound Power Level 9/15/06, dB re 1 pW	**114.5**	**110.2**	**108.8**	**105.8**	**105.0**	**99.3**	**90.7**	**85.1**	**68.3**	**104.7**
New Sound Power Level as of 12/4/06, dB re 1 pW	**120.9**	**114.1**	**108.7**	**104.2**	**101.9**	**96.9**	**91.8**	**84.7**	**75.9**	**103.0**

The more detailed 1/3 octave band sound power level spectrum of the prototype before and after modifications is shown below. The principal goal of the mitigation was to minimize the slight prominences at 160, 400 and 1000 Hz and smooth out the spectrum.

[1] Walker, B. (Channel Island Acoustics), Report TOT0606-06 IM *Acoustic Measurement and Assessment Report for Clipper 2.5 MW Wind Turbine Noise Emissions*, Prepared for Clipper Windpower, Inc., Carpenteria, CA, March 1, 2007.

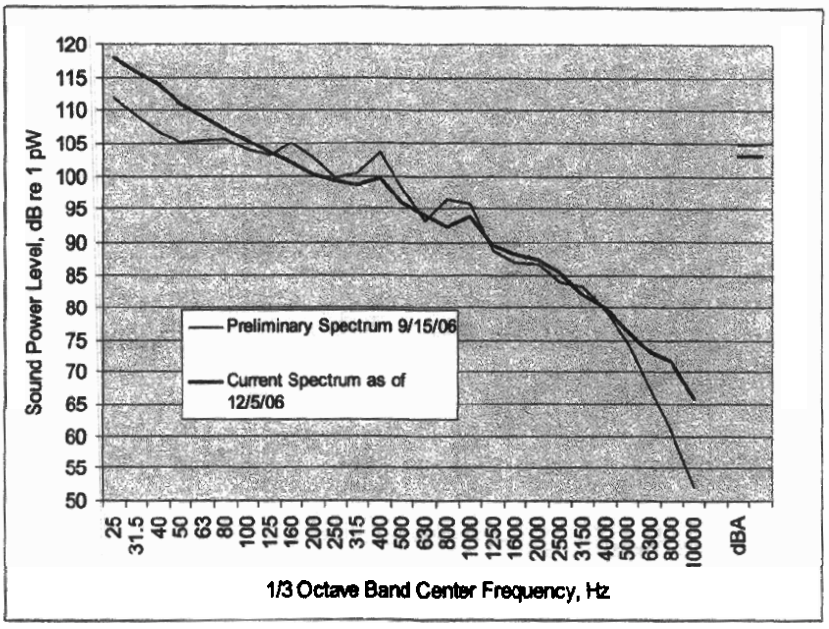


Figure 2.2.1 *Preliminary and Current 1/3 Octave Band Sound Power Level Spectrum for the Clipper C96 Wind Turbine (from Prototype Field Measurements)*

2.3 NOISE MODELING METHODOLOGY

Using the latest (12/5/06) sound power level spectrum in Table 2.2.1 above, a worst-case, maximum noise level contour plot for the site was calculated using the "Cadna/A", ver. 3.5 noise modeling program developed by DataKustik, GmbH (Munich). This software enables the project and its surroundings, including terrain features, to be realistically modeled in three-dimensions. The somewhat complex hill and valley topography of this site was digitized into the noise model from USGS maps. Each turbine is represented as a point noise source at a height of 80 m above the local ground surface (design hub height).

A somewhat conservative ground absorption coefficient of 0.5 has been assumed in the model since all of the intervening ground between the turbines and potentially sensitive receptors essentially consists of open farm fields or pasture land with a few wooded areas. Ground absorption ranges from 0 for water or hard concrete surfaces to 1 for absorptive surfaces such as farm fields, dirt or sand. Consequently, a higher ground absorption coefficient on the order of 0.7 to 0.9 would be fully justified here; however, for conservatism the value of 0.5 has been used. In addition, any additional attenuation that might result from wooded areas has been completely neglected in all calculations.

Although wind direction effects can be modeled with this software, to be conservative the noise level from each turbine is assumed to be the downwind sound level in *all directions simultaneously*. In other words, although physically impossible, an omnidirectional 8 m/s wind is assumed. This approach yields a contour plot that essentially shows the maximum possible sound level at any given point and sometimes also shows levels that cannot possibly occur – such as between two or more adjacent turbines, since the wind would have to be blowing in two opposing directions at the same time. In a more realistic scenario with, for example, a wind out of the west the contour lines would occur closer to the turbines on the west side and would remain as shown on the east.

At the risk of significantly overestimating potential project sound levels, the various conservative assumptions in the Second Level modeling analysis have been applied to ensure that the impact of

project noise on the community does not exceed predicted levels. Sound levels that are substantially lower than those predicted in the modeling plots are actually expected to occur. The model represents a theoretical worst-case condition that would require a practically impossible convergence of wind direction, wind speed, low ground porosity and favorable atmospheric sound propagation conditions to occur.

2.4 MODEL RESULTS

The overall results of the Second Level model with the new turbine sound power level are shown in **Graphic B**. This plot represents a conservative view of what can be expected with all turbines operating at their maximum noise point assuming an omni-directional 8 m/s wind. Non-participating residences are represented by yellow triangles and blue boxes indicate the homes of project participants.

The area inside of the 42 dBA sound contour (shown in green) represents the region where noise from the project may be audible above the residual (L90) background level; i.e. where the cumulative sound level is expected to be 6 dBA or more above the pre-existing level.

Relative to the plots in the original assessment report based on preliminary measurements of the unmitigated prototype, this plot is noteable in that far fewer residences lie on or inside the region bounded by the 42 dBA contour. This means that the vast majority of residents in the project area, where sound levels are predicted to be less than 42 dBA, will be largely or completely unaffected by project noise. Only three non-participating residences may potentially experience sound levels in the 42 to 43 dBA range under worst-case circumstances. The remaining 7 homes on or inside the 42 contour belong to project participants where an adverse reaction to project is unlikely. The predicted sound level at most of these participating homes is also in the vicinity of 42 to 43 dBA with one, in the Brown Hill section, at 44 dBA.

In general, small changes of 1 to 3 dBA in sound level are very hard to subjectively perceive so it is not a foregone conclusion that someone experiencing a project-only sound level of 43 dBA, for example, would react any differently to sounds from the turbines than someone projected to see a level of 42 dBA. The dividing line between an acceptable and adverse impact from wind turbine noise in particular is more indistinct than it is with other types of noise sources, such as a conventional power station, and much of it has to do with an individual's general attitude towards the project and aspects of it that have nothing to do with noise. As a result, it would be incorrect to assume that everyone within the 42 dBA sound contours will find project noise objectionable. Instead, it might be more accurate to say that mild annoyance may be felt in one or two instances but strongly adverse reactions are considered improbable since the maximum sound level at any non-participating receptor is not expected to exceed 43 dBA. In absolute terms, a sound level of 45 dBA is normally considered "quiet" and is a value that commonly appears in regulatory standards and guidelines worldwide (U.S. EPA, HUD, World Bank, World Health Organization, etc.) as an acceptable nighttime noise level.

In general, the perceptibility of project noise in the vicinity of the 42 dBA contour is likely to be intermittent in nature. For the predicted sound levels in the contour plots to have any chance of actually occurring at residences with predicted levels of 42 dBA or more the following conditions would be necessary:

- The wind would need to be blowing from the nearest turbines towards the house
- The wind would need to be blowing a speed of 8 m/s or greater at 10 m above ground level (lower wind speeds would be associated with lower project sound levels)
- The ground surface would need to be semi-reflective (as might happen when it is frozen or partially covered with ice or glazed snow)

The perceptibility of turbine noise under these conditions would also require that a background sound level of 37 dBA or less is occurring at the point of observation and that the observer is standing outside. Higher background levels would obscure project noise and the 15 to 20 dB attenuation afforded by any house would make a project sound level of 42 dBA outside completely inaudible inside.

In summary, the new model predictions ostensibly indicate that project noise might be audible at a few houses but the circumstances required for this to occur would happen only rarely at best. Consequently, no significant or sustained adverse impact is expected at any home in the project vicinity due to project noise.

2.5 COMPLIANCE WITH TOWN OF COHOCTON NOISE ORDINANCE

The Town of Cohocton Noise Ordinance limits noise exclusively from the project to 50 dBA at the property line of any parcels of land belonging to non-participants in the project. **Graphic C** shows the 50 dBA sound level contour using the new turbine sound power level, calculated under the conservative conditions described above, relative to the land parcels owned by project participants (shaded yellow).

Apart from the corners of two non-participating properties on Brown Hill, this graphic illustrates that project sound levels of 50 dBA or more will be confined to participating properties. It is also important to note that these sound levels would only occur intermittently during windy conditions and there would be no noise whatsoever from the project at these property boundaries during calm or low wind conditions.

The second condition of the Ordinance limits project noise to 45 dBA outside any non-participating residences. As illustrated in Graphic B, the maximum predicted sound level at any non-participating residence is just under 43 dBA so compliance is anticipated at all residences under all wind conditions.

Finally, the Ordinance limits tonal noise to a set of specific 1/3 octave band exceedances applicable in different regions of the frequency spectrum (see Section 2.1.1). As illustrated in Figure 2.2.1, the acoustical modifications to the prototype turbine have significantly reduced the minor prominences that had previously existed in the sound power level spectrum. There is no longer any prominence at 160 Hz and the 400 and 1000 Hz "tones" have been substantially suppressed.

The table below lists the values of the current prominent frequency bands in the power level spectrum and compares them to the Ordinance limits. It should be noted that the sound power level spectrum represents the frequency spectrum that occurs fairly close to the turbine. Beyond the minimum setback distance of 1500 feet these tones are likely to become substantially less prominent.

Table 2.5.1 *Prominent Bands in the Clipper C96 Sound Power Level Spectrum (After Installation of Noise Abatement Measures) Relative to Ordinance Tonal Limitations*

Nominal Tone Frequency, Hz	1/3 Octave Band Sound Power Level of "Tone" and Two Adjacent Bands, dB re 1 pW	Exceedance above Average of Adjacent Bands, dB	Applicable Cohocton Ordinance Limit, dB (as Observed at a Prop. Line or Residence)
400	98.6	2.5	8
	99.6		
	95.6		
1000	92.2	2.9	5
	93.7		
	89.4		

As can be seen from this table, the slightly prominent bands in the power level spectrum are well within the permissible limits. Consequently, it is anticipated that the project will comply with the tonal restrictions contained in the Cohocton Noise Ordinance.

3.0 CONCLUSIONS

Updated predictions of the sound levels likely to result from the Cohocton Wind Farm Project, using the latest noise emissions data for the C96 wind turbine and latest site plan, indicate that far fewer residences are likely to be potentially impacted by project noise than previously hypothesized in the original assessment (Report 1755-010606-D, 11/15/06).

The overall sound level of the C96 turbine is now expected to be roughly 2 dBA quieter than before based on new field measurements of the prototype turbine made after the installation of several noise abatement features – features that will be incorporated into the production model used in the project.

This reduction in fundamental sound power translates into a significant contraction of the 42 dBA sound level contour, which largely defines the area of potentially adverse impact per the NYSDEC assessment guidelines. The overwhelming majority of residences in the project area are now beyond the 42 dBA threshold. The new contour plot calculations show that only four non-participating residences may be affected by project noise under rare, worst-case wind and atmospheric conditions.

As previously concluded, the project is expected to fully comply with the Town of Cohocton ordinance limits related to wind energy conversion projects.

- No non-participating residence is expected to experience a sound level of 45 dBA or more due to project noise under any circumstances.
- The limit of 50 dBA at all non-participating property lines is expected to be met at all locations except for two small corners of non-participating parcels near the Brown Hill turbines.
- The latest sound power level spectrum for the C96 turbine shows that it contains no significant tones and will not exceed the frequency dependent tonal noise restriction contained in the ordinance.

Exhibit 17

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com

Date: Mon, 21 May 2007 08:40:38 EDT

Subject: Exhibit Basic Principles of Wind Resource Evaluation

To: judihall66@yahoo.com, rmatilsk@physics.rutgers.edu

Click here: Basic Principles of Wind Resource Evaluation http://www.awea.org/faq/basicwr.html

resources

Wind Energy FAQ

Basic Principles of Wind Resource Evaluation

Wind resource evaluation is a critical element in projecting turbine performance at a given site. The energy available in a wind stream is proportional to the cube of its speed, which means that doubling the wind speed increases the available energy by a factor of eight. Furthermore, the wind resource itself is seldom a steady, consistent flow. It varies with the time of day, season, height above ground, and type of terrain. Proper siting in windy locations, away from large obstructions, enhances a wind turbine's performance.

In general, annual average wind speeds of 5 meters per second (11 miles per hour) are required for grid-connected applications. Annual average wind speeds of 3 to 4 m/s (7-9 mph) may be adequate for non-connected electrical and mechanical applications such as battery charging and water pumping. Wind resources exceeding this speed are available in many parts of the world.

Wind Power Density is a useful way to evaluate the wind resource available at a potential site. The wind power density, measured in watts per square meter, indicates how much energy is available at the site for conversion by a wind turbine. **Classes of wind power density** for two standard wind measurement heights are listed in the table below. Wind speed generally increases with height above ground.

Classes of Wind Power Density at 10 m and 50 m[a]

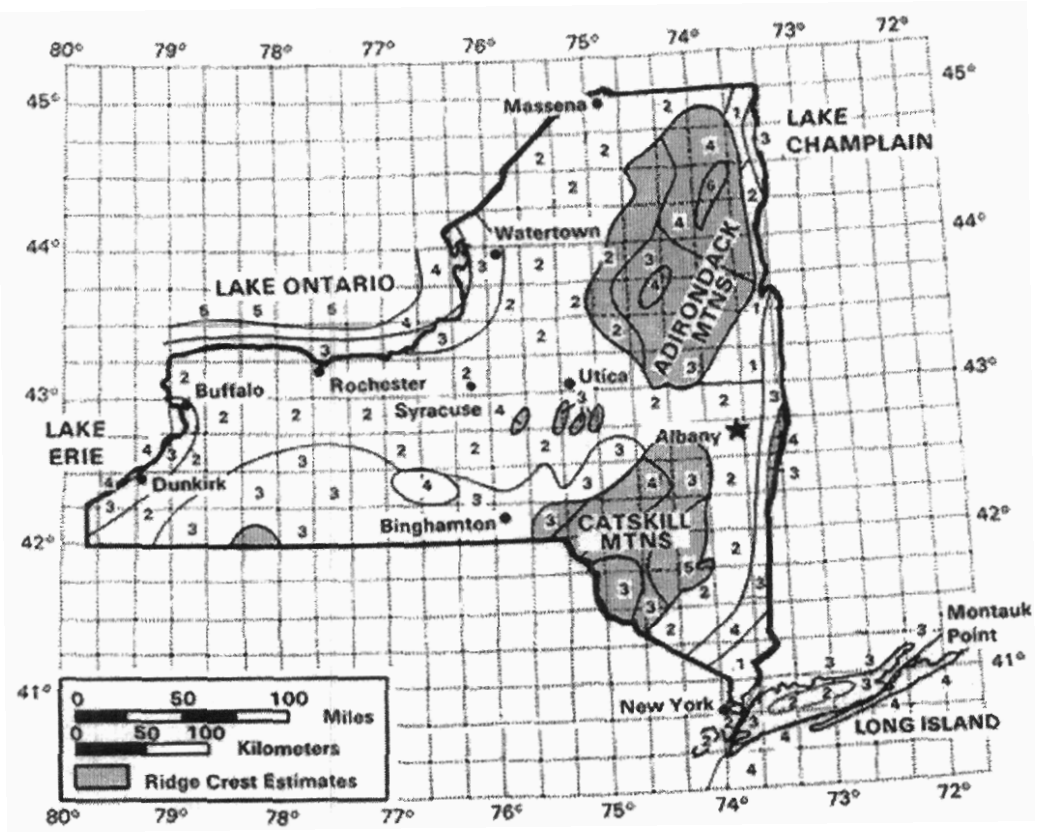
	10 m (33 ft)		50 m (164 ft)	
Wind Power Class	**Wind Power Density (W/m^2)**	**Speed[b] m/s (mph)**	**Wind Power Density (W/m^2)**	**Speed[b] m/s (mph)**
1	<100	<4.4 (9.8)	<200	<5.6 (12.5)
2	100 - 150	4.4 (9.8)/5.1 (11.5)	200 - 300	5.6 (12.5)/6.4 (14.3)
3	150 - 200	5.1 (11.5)/5.6 (12.5)	300 - 400	6.4 (14.3)/7.0 (15.7)
4	200 - 250	5.6 (12.5)/6.0 (13.4)	400 - 500	7.0 (15.7)/7.5 (16.8)
5	250 - 300	6.0 (13.4)/6.4 (14.3)	500 - 600	7.5 (16.8)/8.0 (17.9)
6	300 - 400	6.4 (14.3)/7.0 (15.7)	600 - 800	8.0 (17.9)/8.8 (19.7)
7	>400	>7.0 (15.7)	>800	>8.8 (19.7)

(a) Vertical extrapolation of wind speed based on the 1/7 power law

(b) Mean wind speed is based on the Rayleigh speed distribution of equivalent wind power density. Wind speed is for standard sea-level conditions. To maintain the same power density, speed increases 3%/1000 m (5%/5000 ft) of elevation.
(from the Battelle Wind Energy Resource Atlas)

In general, sites with a Wind Power Class rating of 4 or higher are now preferred for large scale wind plants. Research conducted by industry and the U.S. government is expanding the applications of grid- connected wind technology to areas with more moderate wind speeds.

Exhibit 18



3-25 New York annual average wind power

http://rredc.nrel.gov

Exhibit 19

YAHOO! MAIL

Print - Close Window

From: Sksajs@aol.com
Date: Sun, 20 May 2007 17:39:22 EDT
Subject: Exhibit- Wind data confientiai -this one is better- three projects confidential
To: judihall66@yahoo.com

In a message dated 12/20/2006 9:17:02 PM Eastern Standard Time, cswartley@upcwind.com writes:

> Cohocton, Dutch Hill, and Prattsburgh.
>
> Christopher Swartley
> Director of Business Development
> UPC Wind Management, LLC
> 100 Wells Avenue, Suite 201
> Newton, MA 02459
> Direct: (857) 226-5119
> Main: (617) 964-3340
> Fax: (617) 964-3342
> Email: chriss@upcwind.com
> www.upcwind.com
>
> CONFIDENTIALITY NOTICE: This electronic mail transmission, including any files or attachments transmitted with it, is intended only for the use of the individual or entity to which it is addressed and may contain confidential information that is privileged by law. Any disclosure, copying or distribution of this e-mail or the taking of any action based on its contents, other than for its intended purpose, is strictly prohibited. If you are not the intended recipient or if you have received this electronic mail in error, please notify the sender immediately and delete the original message and all copies from your system. Any review, reliance or distribution by others or forwarding without express permission is strictly prohibited. Any views or opinions expressed in this electronic mail are not necessarily those of UPC Wind Management, LLC, its subsidiaries and affiliates (UPC). Electronic mail transmission cannot be guaranteed to be error-free or secure or free from viruses, and UPC disclaims all liability for any resulting damage, errors, or omissions.
>
> ---
>
> **From:** Sksajs@aol.com [mailto:Sksajs@aol.com]
> **Sent:** Wednesday, December 20, 2006 9:25 AM
> **To:** Chris Swartley; scida@stny.rr.com; COHOCTONCLERK@aol.com; TownOfCohocton@aol.com; Rick Towner ; ebachmeyer@globalwinds.com
> **Cc:** Richard_Powell@dps.state.ny.us; akg02@health.state.ny.us; Matthew.Brower@agmkt.state.ny.us; tmathes@woh.com; Tim_Sullivan@fws.gov
> **Subject:** Re: Windfarm Prattsburgh/UPC/Cohocton Wind I & II/Candanaigua Power Partners
>
> Dear Chris,
>
> Which project are you referring to in terms of "not public" for *Meteorological Wind measurements and proof of viability*?

Alice

In a message dated 12/19/2006 7:22:02 PM Eastern Standard Time, cswartley@upcwind.com writes:

The information below is not public and therefore not FOILable.

Regards,

Chris

5. *Meteorological Wind measurements to date and proof of viability.*

Christopher Swartley
Director of Business Development
UPC Wind Management, LLC
100 Wells Avenue, Suite 201
Newton, MA 02459
Direct: (857) 226-5119
Main: (617) 964-3340
Fax: (617) 964-3342
Email: chriss@upcwind.com
www.upcwind.com

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, December 19, 2006 1:31 PM
To: scida@stny.rr.com; COHOCTONCLERK@aol.com; TownOfCohocton@aol.com; Chris Swartley; Rick Towner ; ebachmeyer@globalwinds.com
Cc: Richard_Powell@dps.state.ny.us; akg02@health.state.ny.us; Matthew.Brower@agmkt.state.ny.us; tmathes@woh.com; Tim_Sullivan@fws.gov
Subject: Windfarm Prattsburgh/UPC/Cohocton Wind I & II/Candanaigua Power Partners

Dear SCIDA, Lead Agency for Windfarm Prattsburgh/UPC and Ecogen, Cohocton Lead Agency for UPC Cohocton Wind 1 & 2/ Canandaigua Power Partners,

Pursuant to Article 6 of the Public Officers Law, Freedom of Information Law, please accept this letter as a formal request for the following records for the Windfarm/ UPC/ Global Windfarm Prattsburgh and Cohocton Wind 1 & 2:

1. DOT's responses to SEQR to date.

2. PSC's responses to SEQR to date.

3. DOH's responses to SEQR to date.

4. FWS and Ag's and Marketing's response to SEQR to date.

5. *Meteorological Wind measurements to date and proof of viability.*

6. Engineer's certification of the turbine and safety recommendations therein.

7. List of Interested/Involved agencies that were informed of the project(s).

Please acknowledge this request within five business days and advise me as to the date they will be available for review and the fee for copying. If this is part of the public record, *which it should be under SEQR and has been promised by UPC to be electronically available*, please notify me of its location and copying availability. Please feel free to contact me if there are any questions or anything I can do to expedite this process.

Thank you.

Dr. Alice Sokolow

34 Avonmore Way

Penfield , NY 14526

In a message dated 12/19/2006 10:14:47 AM Eastern Standard Time, prk@nyserda.org writes:

> During NYSERDA's tenure, none of the three was "involved." The PSC and DOT were treated as interested agencies.

Peter R. Keane
Senior Counsel

Sksajs@aol.com

12/19/2006 07:52 AM To prk@nyserda.org
cc

Subject
Fwd: DOH and Ice Throw

Dear Peter,

Under NYSERDA as lead agent for Windfarm Prattsbrugh,was the PSC, DOT, DOH included as interested/potentially involved agencies?

Alice

In a message dated 12/14/2006 4:19:03 PM Eastern Standard Time, Sksajs writes:
Dear Mr. Sherron and Mr. Gleason,

In the DOH FOIL # 06-10-225 Wind Turbine Ice Throw, I requested current legal recommendations for wind turbine ice throw. The response is attached. Then I received another letter under the same FOIL, reiterating no additional materials but requesting I contact Kevin Gleason. He has forwarded the email change to 400 feet but stated it would not negate any manufacturers safety setbacks. It is a "reference" change only? Kevin Gleason also stated the DOH was an interested party (not involved) to only one windfarm project thus far. I told him I was surrounded by three, only one of which named the DOH as an interested party. I also referred him to the NYISO Interconnection Que where there are hundreds of projects.

The DOH, in their review, identified several points requiring additional information- siting distance from participating residences, future land use or subdivision and or development, blasting and seismic issues, ice shedding and tower collapse/fall zones/blade throw, ELF and EMF, AS WELL AS Shadow Flicker. Have these been applied to all windfarm SEQR's currently under SCIDA? Along with the new GE recomendations? As well as those of NWCC and NREL?(attached). The updated NYSERDA Toolkit with reference to these?

Since DOH has supplied input and acted as an interested party, why were they not included in Windfarm Prattsburgh and the other windfarm projects you are participating in as lead/ involved agency? The same applies to the Cohocton Windfarm and I will be notifying the lead agent there in this same email.

These enormously land intensive projects with unknown and poorly documented effects on health and safety, fall in a legal void. Yet, if a catastrophic negative impact occurs, the final SEQR document should clearly provide the answer and potential mitigation of said catastrophe.

The same should be said for the PSC since the Renewable Portfolio completed a similar SEQR with the requirement of identifying catastrophic impacts and the mitigation thereof generically. The PSC identified NYSERDA as the authority and the PSC cannot promulgate new health and safety regulations without the dissolved Energy Council (1995).

My ultimate question is where does this leave, WE, the people? As a nonprofessional in this area, it appears that each of the government agencies touches on part of the answer with the majority falling on the authority (NYSERDA), the initiator (Executive Order 111 and the PSC), the DEC in terms of cumulative impact upon the State (Article 3) and especially the IDA's that must protect the health and safety of their designated areas of the state. The DOT's when it comes to State Roadways.

The insurance companies will not cover the municipalities that do not follow manufacturer's recommendations and the municipal Code Enforcement Officers cannot certify outside of the NYS Building and Fire Code.

Clarity as to whom are the responsible parties and what are the specifics of their responsibilities should be part of the transparency of the Renewable Portfolio SEQR as well as the project specific SEQR's.

Can you supply any clarity or transparency or do you have the ability to request it?? And will you?? I am requesting that clarity and transparency.

Respectfully impacted by

three projects,

Dr. Alice Sokolow
34 Avonmore Way
Penfield , NY 14526

In a message dated 12/14/2006 2:19:18 PM Eastern Standard Time, scida@stny.rr.com writes:

Dear Alice,

The change you reference in your email regarding the 400 feet was a clarification of a comment by the DOH. The original document stated 400 meters rather than feet. SCIDA wanted the minutes to reflect the DOH error.

The DOH has no approval function in the SEQR process, therefore, cannot be considered an involved agency or even an interested agency. However because of SCIDA's prior practice of including the DOH for comments we

will forward a copy of the DEIS and ask for any comments they may have.

Jim Sherron

James Sherron, Executive Director

Steuben County Industrial Development Agency

7234 Route 54

PO Box 393

Bath , New York 14810

(607)776-3316

(607)776-5039 fax

scida@stny.rr.com

From: Sksajs@aol.com [mailto:Sksajs@aol.com]
Sent: Tuesday, December 12, 2006 4:31 PM
To: scida@stny.rr.com
Subject: Fwd: DOH

In a message dated 12/12/2006 3:07:12 PM Eastern Standard Time, Sksajs writes:
Dear Mr Sherron,

Has the Department of Health been contacted for Windfarm Prattsburgh for completeness as it was for Ecogen? As an interested agency?

What were the final recommendations of the Department of Health for any of the windfarm projects? I remember the November 10th Minutes reflecting the DOH's change to 400 feet. Could you explain.

I am impacted by three tentative projects now.

Respectfully,

Alice Sokolow

Response to the FOIL attached.

In a message dated 10/27/2006 10:58:20 AM Eastern Daylight Time, Sksais writes:
Dear NY DEC, NYSERDA, PSC, DOH, DOS, Assemblymembers and Senators,

The National Wind Coordinating Council presented the same recommendations for ice throw from windturbines
http://www.nationalwind.org/events/siting/presentations/baring-gould.pdf p
in December 2005 as General Electric made in April 2006
http://www.gepower.com/prod_serv/products/tech_docs/en/downloads/ger4262.pdf

The SIMPLE FORMULA is:

(Rotor Diameter plus Hub height) times 1.5

Our existing wind turbine projects are not in compliance. Should they be shut down in potential icing conditions? The companies are limited liability companies. The insurance will probably not cover injury due to non-adherence to "known" recommendations.

Who is liable?
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NYS? The Governor?
The PSC and the nonexistent Energy Council as per law?
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The DEC who is responsible for cumulative impact under Article 3?
The IDA's under lease-leaseback who feel that getting approval from the DOH is good enough?
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There are a multitude of projects awaiting approval from these very agencies. What are the current recommendations from each agency? Please accept this as a formal request under the new electronic FOIL.

There is still time for input of new information under a supplemental environmental impact statement for many of these projects. USE it wisely. UPDATE you websites to reflect the pro wind recommendations!

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Dear James O'Hare, Records Access Office at the NY DOH,

The request under my FOIL was for the DOH current legal recommendations for wind turbine Ice throw, its fiduciary responsibilities thereof and rational for those setbacks. I did not request your "pro wind recommendations."

Currently, I do have the emails from the DOH, submitted to Steuben County IDA that changed your recommendations from 400 meters to 400 feet; electronically available as part of the SEQR process. I do not have the information that substantiates that change. It appears to be directly after a request from the engineering firm of the windfarm company.

I have questioned the legislative responsibility of safety and windfarms for over three years and have received a response from the PSC leading to potential clarification of law (attached). Are you now the government agency promulgated with that responsibility along with the PSC?

For my family's safety, in walking on our land and not just residing in our house, I need to know who will be responsible for the potentially lethal projectiles thrown through the air onto my property. I know that the LLC's won't and their insurance won't since the recommendations do not match those of the NREL, NWCC and GE Energy (many of which are present in Tughill with less than adequate setbacks for the current standard- email attached).

Respectfully,

Dr. Alice Sokolow
34 Avonmore Way
Penfield , NY 14526

I apologize for the delay in responding to you - the final EIS can be found on line at http://www.mapleridgewind.com/. In our issue paper we

had written:

"What are tower safety requirements? Local laws that address wind towers often require setbacks from the road, property lines, and/or structures. In Harrisburg , local law requires all wind power generating facilities to be located at least 100 feet plus the height of the structure from road lines, and side and rear lot lines. In Martinsburg, the setback from the road centerline is 100 feet plus the height of structure, setback from side and rear lot lines is 300 feet, and setback from any existing residential structures is 1500 feet. In Lowville, local law requires a set back of 250 feet from any lot line."

I don't know if the developer has created more stringent guidelines for distances from lot lines or not.

Hope this helps.

Katie

Katie Malinowski
Natural Resources Specialist
(315) 785-2380

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Respectfully,
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----- Message from Sksajs@aol.com on Thu, 14 Dec 2006 16:19:03 EST -----

To: scida@stny.rr.com, akg02@health.state.ny.us, janasca@gw.dec.state.ny.us, COHOCTONCLERK@aol.com, TownOfCohocton@aol.com, tmathes@woh.com, rtowner@upcwind.com, cswartley@upcwind.com , Richard_Powell@dps.state.ny.us, prk@nyserda.org, rgedick@gw.dec.state.ny.us, kakisper@gw.dec.state.ny.us, jlcole@gw.dec.state.ny.us

cc: tonkop@assembly.state.ny.us, speaker@assembly.state.ny.us, johns@assembly.state.ny.us, dgl@nyserda.org, LSHERMAN@dot.state.ny.us, Matthew.Brower@agmkt.state.ny.us

Subj DOH and Ice Throw
ect:

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The request under my FOIL was for the DOH current legal recommendations for wind turbine ice throw, its fiduciary responsibilities thereof and rational for those setbacks. I did not request your "pro wind recommendations."

Currently, I do have the emails from the DOH, submitted to Steuben County IDA that changed your recommendations from 400 meters to 400 feet; electronically available as part of the SEQR process. I do not have the information that substantiates that change. It appears to be directly after a request from the engineering firm of the windfarm company.

I have questioned the legislative responsibility of safety and windfarms for over three years and have received a response from the PSC leading to potential clarification of law (attached). Are you now the government agency promulgated with that responsibility along with the PSC?

For my family's safety, in walking on our land and not just residing in our house, I need to know who will be responsible for the potentially lethal projectiles thrown through the air onto my property. I know that the LLC's won't and their insurance won't since the recommendations do not match those of the NREL, NWCC and GE Energy (many of which are present in Tughill with less than adequate setbacks for the current standard- email attached).

Respectfully,

Dr. Alice Sokolow
34 Avonmore Way
Penfield , NY 14526

I apologize for the delay in responding to you - the final EIS can be found on line at http://www.mapleridgewind.com/. In our issue paper we had written:

"What are tower safety requirements? Local laws that address wind towers often require setbacks from the road, property lines, and/or structures. In Harrisburg , local law requires all wind power generating facilities to be located at least 100 feet plus the height of the structure from road lines, and side and rear lot lines. In Martinsburg, the setback from the road centerline is 100 feet plus the height of structure, setback from side and rear lot lines is 300 feet, and setback from any existing residential

structures is 1500 feet. In Lowville, local law requires a set back of 250 feet from any lot line."

I don't know if the developer has created more stringent guidelines for distances from lot lines or not.

Hope this helps.

Katie

Katie Malinowski
Natural Resources Specialist
(315) 785-2380

In a message dated 10/27/2006 10:58:20 AM Eastern Daylight Time, Sksajs writes:
Dear NY DEC, NYSERDA, PSC, DOH, DOS, Assemblymembers and Senators,

The National Wind Coordinating Council presented the same recommendations for ice throw from windturbines
http://www.nationalwind.org/events/siting/presentations/baring-gould.pdf p
in December 2005 as General Electric made in April 2006
http://www.gepower.com/prod_serv/products/tech_docs/en/downloads/ger4262.pdf

The SIMPLE FORMULA is:

(Rotor Diameter plus Hub height) times 1.5

Our existing wind turbine projects are not in compliance. Should they be shut down in potential icing conditions? The companies are limited liability companies. The insurance will probably not cover injury due to non-adherence to "known" recommendations.

Who is liable?
The Towns with local laws less than the recommendations?
NYS? The Governor?
The PSC and the nonexistent Energy Council as per law?
The DOH who recommended 400 feet or less?
The DEC who is responsible for cumulative impact under Article 3?
The IDA's under lease-leaseback who feel that getting approval from the DOH is good enough?
NYSERDA and its Toolkit?

There are a multitude of projects awaiting approval from these very agencies. What are the current recommendations from each agency? Please accept this as a formal request under the new electronic FOIL.

There is still time for input of new information under a supplemental environmental impact statement for many of these projects. USE it wisely. UPDATE you websites to reflect the pro wind recommendations!

Respectfully,
Dr. Alice Sokolow
34 Avonmore Way
Penfield , NY 14526

----------(Embedded image moved to file: pic06422.jpg)(Embedded image moved to file: pic24946.jpg)(Embedded image moved to file pic27506.jpg)(Embedded image moved to file: pic13030.jpg)(Embedded image moved to file: pic16413.jpg)(Embedded image moved to file: pic29168.jpg)

Exhibit 20

Windmill only noise levels at non-project property lines shall not exceed 50 dB(A), when measured at the minimum wind speed at which the windmill will achieve its rated electric output as set forth in the project related special use permit.

As set forth herein, compliance with windmill only noise level requirements shall periodically be determined by the Town Code Enforcement Officer, or such other officer or employee which the Town Board may designate. The Code Enforcement Officer, or such other designated officer or employee of the Town, shall take three successive A-weighted fifteen (15) second L_{eq} measurements at an appropriate position on non-project property lines. If the arithmetic average of noise at non-project property lines is equal to or below 50 dB(A), then the project shall be considered in compliance with this Article. If an arithmetic average of higher than 50 dB(A) is measured, then the project sponsor shall cease operation of the nearest windmill, and the Code Enforcement Officer, or such other designated officer or employee of the Town, shall take another series of three, 15-second L_{eq} measurements. Appropriate places from which to take the sound measurements include areas where background noise is minimized and constant.

Windmill only noise shall be determined based upon the following formula:

$10 \text{Log}_{10}(10^{0.1C} - 10^{0.1A})$

*C = the recorded ambient noise level when the turbine is on;
A = the recorded noise level when the turbine is off.

Windmill only noise levels at non-project property lines may exceed the thresholds set forth herein only if the affected non-project property owner provides written consent to the Town Code Enforcement Officer.

(e) Certifications

(i) Routine Inspection Report

An inspection report prepared by the turbine supplier/manufacturer licensed in the State of New York will be required at the time of installation and every (3) years thereafter. The inspection reports required at the time of installation and thereafter will be for the structure and the electronics and will be given to the Code Enforcement Officer.

(ii) National and State Standards

The applicant shall show that all applicable manufacturers, New York State and U.S. standards for the construction operation and maintenance of the proposed windmill have been met or are being complied with. Windmills shall be built, operated and maintained to applicable industry standards of the Institute of Electrical and Electronic Engineers (EEEE) and the American National Standards Institute (ANSI). The applicant for a windmill special use permit shall furnish evidence, over the signature of a professional engineer licensed to practice in the State of New York, that such windmill is in compliance with such standards.

(iii) Lightning Strike/Grounding

The applicant shall show that all applicable manufacturers, New York State and U.S. standards for the construction, operation and maintenance of the proposed windmills have been or are being complied with.

(iv) Wind Speed

Certification is required by a registered professional engineer or manufacturer's certification that the tower design is sufficient to withstand wind-load requirements for structures as established by the Building Code of New York State.

(f) Surities

i. Performance Bond (Removal)

The owner of a windmills, after such application has been approved and before a building permit is issued, shall submit a letter of credit or other acceptable surety sufficient to ensure the removal if the use of the windmills is discontinued. An Engineer selected by the Town and the Town Attorney shall judge this letter of credit or other surety adequate and satisfactory before a building permit is issued. Said letter of credit shall be forfeited if removal is not completed by the deadline specified herein.

If transmission/distribution service from the windmill is discontinued for a period exceeding six (6) months, the owner of such windmill shall notify the Code Enforcement Officer within (15) fifteen days following the expiration of the (6) six month discontinuance period.

Exhibit 21

UPC Preliminary Permit

APPLICATION FOR BUILDING PERMIT

APPLICATION DATE: December 2005

APPLICANT: UPC Wind Management LLC

MAILING ADDRESS: 100 Wells Avenue Suite 201 Newton, MA 02459

PROJECT SITE LOCATION: Off Lyon, Pine Hill, Kirkwood, Lent Hill, Maple, Rynders, Edmond and Preston Roads

TAX MAP NUMBER: See attached List

TELEPHONE #: Home Work 617-964-3340 119 (REQUIRED)

INSTRUCTIONS: Please completely fill in this application with a ball point pen and submit completed application and required attachments to the Town Clerk. An approved Building Permit **MUST BE** obtained before work may be started. This application is **NOT** the approved Building Permit! A list of required attachments is on page two. Application is non-transferable.

1. Application for: Residential ; Commercial ; Industrial ; Agricultural ; Recreational ; Site Plan Review; Other Wind Power Project
2. Permit for: New Construction; Addition, Alteration, Demolition, Mobile Home, Septic, Heating, SFB Device, Use Change
3. Is this parcel: A corner lot? Yes No Nearest Cross Roads See attached Figure & _____
4. Dimensions of parcel: Frontage _____ X Depth _____ and/or parcel area (acres) Multiple Parcels
5. Set-back (in feet) from property lines to project: front _____; right _____; left _____; rear Multiple Parcels
6. Is the property sub-divided?: Yes ; No . If yes, please provide documentation.
7. Do you give the Officer ***valid consent*** to complete any required inspections? Yes ; No If No, what procedures may be required for ***valid consent***? _____
8. Name of Architect or Engineer (if any): _____
   Address: _____ Telephone # _____
9. Name of General Contractor (if any): _____
   Address: _____ Telephone #
10. Total estimated **value of project (includes materials & labor)**: $ TBD

12.

PROPOSED PROJECT	HEIGHT	LENGTH	WIDTH	SQ. FT.
House				
Garage				
Accessory Building				
Commercial				
Industrial				
Other				

Total footprint of 400,000 acres of construction Total Sq. Ft.

13. Describe the proposed project and use: Approximately 82 MW wind-powered electric generating project to be constructed on land totalling approximately 6,800 acres. See attached Environmental Assessment Form

Use additional sheet(s) for more space and supporting information. (See page 3)

CERTIFICATION: I hereby certify that I have read the instructions **on all three pages** and examined this application and all supporting attachments and know the same to be true and correct. All provisions of law and ordinances covering this type work or use will be complied with whether specified herein or not. The granting of a permit does not presume to give authority to violate or conceal provisions of any other state, local or federal law or ordinance regulating construction, performance of construction, or intended use of project.

Signature of (Applicant) _____ Signature of OWNER (if other than Applicant) _____

(Please print name) _____ (Please print name) _____

OFFICIAL USE ONLY

Action taken by Building Official: Approved Denied

Specific reason(s) for denial: _____

See Attachments or additional sheets for explanation.

Date of Action: _____ CEO Signature: _____

Sent to: Planning Board; Board of Appeals; Date: _____

Zoning: Agriculture ; Residential; Business ; Industrial ; Land Conservation; Interchange

Is Proposed Project in: Wetlands ; Flood Plain ? Circle appropriate item if answer is Yes.

Fees Received: Land Use 10.00 Building _____ Cash ; Check ; Check # _____

APPLICATION Number / PERMIT Number ; _____

Maintenance – Fee Free ☐

1-05-06 Paid

No Site plan

Lead Agency Status

PRINTKEY	TM_OWNAM
006.00-01-005.110	SCHWINGEL DOUGLAS & SUSAN E
006.00-01-017.000	DYCKMAN AUSTIN W INC
006.00-01-016.100	SCHWINGEL DOUGLAS & SUSAN E
006.00-01-018.100	DYCKMAN AUSTIN W INC
006.00-01-016.100	SCHWINGEL DOUGLAS & SUSAN E
018.00-01-009.000	DYCKMAN AUSTIN W & MARY C
018.00-01-001.000	EVANS-JOHNSON SUSAN E & ELHAGE LUCINDA A
031.00-01-017.000	WOLCOTT PAUL K
030.00-01-015.000	WOLCOTT PAUL K
031.00-01-014.100	WOLCOTT CHARLES D & MAUREEN D &
030.00-01-016.000	WOLCOTT PAUL K
030.00-01-015.000	WOLCOTT PAUL K
031.00-01-016.000	WOLCOTT CHARLES D & MAUREEN D
044.00-01-029.000	WOLCOTT CHARLES D & MAUREEN D ETAL
044.00-01-024.000	MEYER PHYLLIS
044.00-01-018.000	TOWNER RICK & CHRISTINE
044.00-01-019.000	MEYER PHYLLIS G
044.00-01-016.120	WALLACE TEDD
044.00-01-019.000	MEYER PHYLLIS G
044.00-01-013.110	JACOBS ROBERT W
044.00-01-013.200	MEYER JOSEPH JOSEPH JR & JOHN
044.00-01-013.200	MEYER JOSEPH JOSEPH JR & JOHN
044.00-01-010.100	HENDRICKSON ROBERT C & JUDITH W
056.00-01-010.200	MEYER JOSEPH JOSEPH JR & JOHN
056.00-01-011.000	MEYER JOHN & JOSEPH
056.00-01-009.000	MEYER JOHN & JOSEPH
057.00-02-001.200	MEYER JOSEPH & JOHN
056.00-01-009.000	MEYER JOHN & JOSEPH
056.00-01-012.210	MCDOWELL DONALD W & DORIS
056.00-01-032.000	MEYER JOHN & JOSEPH
057.00-02-014.120	MCDOWELL DONALD W & DORIS
057.00-02-014.200	PALMITER KAROL L & BONNIE S
083.00-01-027.000	WALTER T EDGAR JR TRUST
083.00-01-033.100	FAIRBROTHER PAUL E
083.00-01-032.000	WALTER THOMAS & CARRIE
083.00-01-014.200	FERRELL RUSSELL A & SUSAN L
018.00-01-003.000	EDMOND RICHARD & SARA
018.00-01-004.000	LEFROIS BEVERLY A
032.00-01-001.000	WOLCOTT ROGER W & LINDA A
032.00-01-003.000	WOLCOTT ROGER W & LINDA A
031.00-01-005.200	WOLCOTT CHARLES D & MAUREEN 1/2 INT &
032.00-01-006.000	GRAHAM JUDITH E
032.00-01-021.100	GRAHAM HAL E & JUDITH S
032.00-01-009.200	WALLACE TEDD R
031.00-01-009.000	DEUSENBERY JERRY T & A R & MATT & HEATHER
032.00-01-010.100	MILLER TIMOTHY R & BARBARA
032.00-01-011.000	WOLCOTT CHARLES D & MAUREEN D
032.00-01-017.100	WOLCOTT CHARLES D & MAUREEN D & PAUL K
032.00-01-025.000	WOLCOTT CHARLES D & MAUREEN D
045.00-01-001.111	WOLCOTT CHARLES D & MAUREEN D &
045.00-01-002.100	WOLCOTT CHARLES D & MAUREEN D &

045.00-01-003.000	MCMAHON ROBERT
044.00-01-007.111	WOLCOTT CHARLES D & MAUREEN D &
044.00-01-007.120	MEYER JOSEPH L JR & JOHN W
045.00-01-001.113	LENT HILL FARMS INC
045.00-01-015.000	DYCKMAN JOSEPH A & SUSAN E
056.00-01-030.100	DYCKMAN AUSTIN W INC
056.00-01-033.110	WILSON WAYNE & SUE & GARY
056.00-01-013.200	MCDOWELL DONALD W & DORIS
056.00-01-046.000	W R & L ASSOCIATES INC
070.00-01-028.000	STEUBEN CO INDUSTRIAL DEV AGY
056.00-01-024.111	KANAVAL REUBEN JR & JACQUELINE
056.00-01-033.120	TOWNER JANE C
056.00-01-024.120	STEUBEN COUNTY OF
070.00-01-028.000	STEUBEN CO INDUSTRIAL DEV AGY
070.00-01-028.000	STEUBEN CO INDUSTRIAL DEV AGY
070.00-01-027.200	FAIRBROTHER PAUL & ROBERTA
070.00-01-011.000	FAIRBROTHER PAUL E & ROBERTA
070.00-01-011.000	FAIRBROTHER PAUL E & ROBERTA
070.00-01-028.000	STEUBEN CO INDUSTRIAL DEV AGY
070.00-01-027.110	SALERNO LOUISE
070.00-01-017.100	HARTER BRADLEY C & KRIS S
070.00-01-014.000	SALERNO LOUISE
070.00-01-016.000	SALERNO LOUISE
083.00-01-008.111	TURNER LETITIA L
083.00-01-010.000	PRESTON PAUL & LUCILLE
083.00-01-028.112	SIMMONS RODNEY F & BERTA M
083.00-01-009.000	SLAYTON WINSTON D & RITA B

Exhibit 22

April 13, 2007

Mr. Gregory Heffner
Steuben County Planning Department
3 East Pulteney Square
Bath, New York 14810

APR 19 2007

Re: Cohocton Wind Project Referral

Dear Mr. Heffner:

Pursuant to a duly adopted resolution of the Town of Cohocton Planning Board on Thursday April 5, 2007, and in accordance with General Municipal Law section 239-m, please find:

1. CPP's letter dated March 1, 2007 with attached Appendices A through I;

2. Letter dated March 21, 2007, supplementing the March 1, 2007 submission for turbines 1 through 12, with all enclosures except revised site plans;

3. Letter dated March 27, 2007, supplementing the March 1, 2007 submission for turbines 13 through 22, with all enclosures except revised site plans;

4. Letter dated March 29, 2007, supplementing the March 1, 2007 submission for turbines 23 through 32, with all enclosures except revised site plans;

5. Letter dated March 30, 2007, supplementing the March 1, 2007 submission relating to noise and additional surveyor certifications for turbines 1 through 12, with enclosures;

5. Letter dated April 3, 2007 to you, supplementing the March 1, 2007 submission for turbines 33 through 36 and the 115 kV transmission line, with all enclosures except revised site plans;

7. Letter dated April 3, 2007 to Mr. Joseph Bob, transmitting copies of letters referenced in items 2 through 6 above, and providing updated Appendices G through I (including only revised Appendices G through I);

8. One complete set of Site Plans, in both CAD and GIS format; and

9. A copy of the Public Hearing Notice.

As the Town's environmental consultant, Dawn Dana of Bagdon Environmental, discussed with your office earlier this week, the County Planning Department has a copy of the Draft Environmental Impact Statement and Supplemental Draft Environmental Impact Statement relating to the Cohocton Wind Project and these materials should also be considered as having been referred to the County.

Thank you.

Very truly yours,

Sandra Riley
Town Clerk

TOWN OF COHOCTON
PLANNING BOARD

COHOCTON WIND PROJECT

PLEASE TAKE NOTICE, the Town of Cohocton Planning Board will hold a joint public hearing on April 26, 2007 at 7:00 p.m. at the Wayland-Cohocton Elementary School, 30 Park Avenue, Cohocton, New York, to receive oral comments concerning the proposed Cohocton Wind Project special use permit and site plan applications. The Cohocton Wind Project is proposed by Canandaigua Power Partners, LLC and consists of 36 Wind Turbines, electrical transmission lines buried and above ground, 3 meteorological towers, gravel access roads, an operations and maintenance building, a collector substation, a 115 kV overhead transmission line and an interconnect substation. The Planning Board is reviewing the Cohocton Wind Project pursuant to the Town of Cohocton Windmill Local Laws, Local Law Nos. 1 and 2 of 2006, and the Town of Cohocton Zoning Law. Any person wanting to be heard should appear at the April 26, 2007 public hearing. Written comments may be submitted to the Secretary of the Planning Board until the close of the public hearing.

DUTCH HILL WIND PROJECT

PLEASE TAKE NOTICE, the Town of Cohocton Planning Board will hold a joint public hearing on April 26, 2007 at 7:00 p.m. at the Wayland-Cohocton Elementary School, 30 Park Avenue, Cohocton, New York, to receive oral comments concerning the proposed Dutch Hill Wind Project special use permit and site plan applications. The Dutch Hill Wind Project is proposed by Canandaigua Power Partners II, LLC and consists of 16 Wind Turbines, electrical transmission lines buried and above ground, a meteorological tower, gravel access roads, an electrical collection system, and a 34.5 KV transmission line. The Planning Board is reviewing the Dutch Hill Wind Project pursuant to the Town of Cohocton Windmill Local Laws, Local Law Nos. 1 and 2 of 2006, and the Town of Cohocton Zoning Law. Any person wanting to be heard should appear at the April 26, 2007 public hearing. Written comments may be submitted to the Secretary of the Planning Board until the close of the public hearing.

Exhibit 23

NIXON PEABODY LLP
ATTORNEYS AT LAW

Omni Plaza, Suite 900
30 South Pearl Street
Albany, New York 12207-3497
(518) 427-2650
Fax: (518) 427-2666

Ruth E. Leistensnider
Direct Dial: (518) 427-2655
Direct Fax: (866) 947-1299
E-Mail: rleistensnider@nixonpeabody.com

March 27, 2007

VIA FEDERAL EXPRESS

Ms. Sandra Riley
Town Clerk, Town of Cohocton
15 South Main Street
Cohocton, New York 14826

Re: ***Canandaigua Power Partners, LLC***
Canandaigua Power Partners II, LLC
Special Use Permit Applications
Cohocton Wind Project
Dutch Hill Wind Project

Dear Ms. Riley:

On behalf of Canandaigua Power Partners, LLC ("CPP"), and Canandaigua Power Partners II, LLC ("CPPII"), enclosed please find a revised set of CAD and color GIS site plans for turbine numbers thirteen through twenty-two for the Cohocton Wind Project, as well as revised CAD drawings for the Dutch Hill Wind Project transmission parcels reflected on CAD drawings sheets eight through ten for consideration by the Planning Board at its meeting of April 2, 2007.

These site plans have been revised to address concerns raised by members of the Planning Board at the March 15, 2007 work session relating to structures and setbacks. I am also enclosing an original certification from Dave Simolo, CPP's surveyor, regarding these turbines.

Specifically, CPP provides the following with respect to the issues raised regarding Turbines #13 through 22 during the work session on March 15:

1. With respect to Turbine #15, the enclosed surveyor's certification confirms that the turbine meets the setbacks from this structure.

2. With respect to Turbine #16, the enclosed surveyor's certification confirms that the turbine meets the setbacks from the Trude structure. In addition, regarding the Deusenbery parcel, this landowner is a participating landowner. CPP has

been advised by the son of the owner that the only "structure" on this parcel is an old hunting camp with a fallen-in roof. According to last year's tax assessment, there are no improvements on this property.

3. With respect to Turbines #18 and #19, and the questions raised regarding noise issues, CPP's consultants will provide a separate report for the Town to document these issues. CPP does not expect any serious impact any homes that might lie along CR9 because of the 4,000 foot horizontal distance (and significant vertical relief). It is anticipated that the sound level from the turbines would be in the low 30 dBA level, or less, under all wind conditions. As a result, even if the background masking is completely ignored, the sound level from the turbines is predicted to be extremely low, if audible at all. When the winds are light at the top of the hill and completely calm in the valley, one may be able to detect, with effort, the swish character of the sound. CPP is in the process of preparing a report regarding these turbines, and anticipates submitting such report to the town this week.

4. With respect to Turbines #19 and #21, and the overlap of the McMahon parcel, CPP notes that of the total of 119 acres owned by McMahon, spread across three parcels, approximately 56 are within the 1,500 foot radius of the turbines.

5. With respect to the three concerns expressed with respect to the set-backs to the Simons property. There is one structure on the east side of the road which is a metal clad pole barn. CPP respectfully submits that this is neither a dwelling, nor a "structures customarily used by the public" within the meaning of Local Law #2 of 2006, as the structure is located on private property. With respect to the dwelling on the Simons property, the enclosed surveyor's certification confirms that the turbine meets the setbacks from this structure. With respect to the setback to the private hunt club, again, surveyor's certification confirms that the turbine meets the setbacks from this structure.

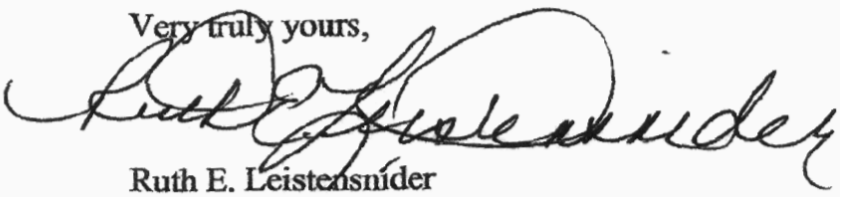
As there were no specific comments raised regarding the transmission parcels referenced above for the CPPII Dutch Hill Wind Project, and only minor revisions to the site plans, CPPII provides the revised site plans for the Planning Board's consideration.

CPP and CPPII will continue to revise the remainder of the site plans to address the concerns raised during the March 15, 2007 work session, as well as to address comments from the Planning Board's consultants and engineers. Revised site plans will be submitted as soon as they become available.

I am, by copy of this letter, providing copies to each of the members of the Planning Board, the alternate members of the Planning Board, as well as to the Planning Board's counsel and its consultant.

Thank you for your consideration in this matter, and please feel free to contact me should you have any questions. We look forward to addressing the Planning Board at its April 2, 2007 meeting.

Very truly yours,



Ruth E. Leistensnider

/rel
enclosures
cc: Raymond Schrader
Freda Feely
Daniel McClure
Arnold Brunswick
Ted Walker
Meredith Weidman
Steve Holley
Dawn Dana
Todd Mathes, Esq.
LaBella Associates, P.C.
Chris Swartley
Elizabeth Weir, Esq.
Richard M. Cogen, Esq.

Exhibit 24

NIXON PEABODY LLP
ATTORNEYS AT LAW

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30 South Pearl Street
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E-Mail: rleistensnider@nixonpeabody.com

April 3, 2007

VIA FEDERAL EXPRESS

Ms. Sandra Riley
Town Clerk, Town of Cohocton
15 South Main Street
Cohocton, New York 14826

Re: ***Canandaigua Power Partners, LLC***
Special Use Permit Application
Cohocton Wind Project

Dear Ms. Riley:

On behalf of Canandaigua Power Partners, LLC ("CPP"), this letter is intended to respond to the issues and concerns raised by members of the Planning Board at the March 15, 2007 work session relating to structures and setbacks, as well as comments received from the consultants to the Planning Board, regarding Turbines 34 through 36 for the Cohocton Wind Project, for consideration by the Planning Board at its meeting of April 19, 2007.

Specifically, CPP provides the following with respect to the issues raised regarding the Cohocton Wind Project during the work session on March 15:

1. With respect to the noise setback (Turbine 34), I provided, under cover of letter dated March 30, 2007, a study from CPP's noise expert regarding this issue.

2. With respect to the setback from the Walter Trust property line (Turbine 35), CPP will be obtaining a release from the property line setback from the Walter Trust.

3. With respect to the setback from the Achroyd structure (Turbine 36), CPP will be obtaining a release from the structure setback from Achroyd.

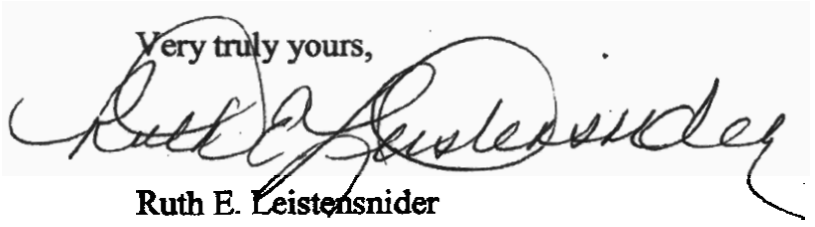
4. With respect to the setback from the Wilson property line (Turbine 36), CPP will be obtaining a release from the property line setback from Wilson.

I am, by copy of this letter, providing copies to each of the members of the Planning Board, the alternate members of the Planning Board, as well as to the Planning Board's counsel and its consultants.

Updated CAD and GIS Site Plans for these turbines, as well as revised GIS maps for the 115 kV transmission line, also scheduled for consideration by the Planning Board at its meeting of April 19, 2007, will be submitted to you, to each of the members of the Planning Board, the alternate members of the Planning Board, as well as to the Planning Board's counsel and its consultants, under separate cover to be sent out via Federal Express or courier tomorrow.

Thank you for your consideration in this matter, and please feel free to contact me should you have any questions. We look forward to addressing the Planning Board at its April 19, 2007 meeting.

Very truly yours,



Ruth E. Leistensnider

/rel
cc: Raymond Schrader
Freda Feely
Daniel McClure
Arnold Brunswick
Ted Walker
Meredith Weidman
Steve Holley
Dawn Dana
Todd Mathes, Esq.
LaBella Associates, P.C.
Chris Swartley
Elizabeth Weir, Esq.
Richard M. Cogen, Esq.

Exhibit 25

Tower Collapse

Although turbine tower collapses are rare, there are reported instances of tower collapse due to various circumstances. The reasons for collapses vary depending on conditions and tower type, but have included blade strikes, rotor overspeed, cyclonic winds, and poor or improper maintenance (torque bolts). In cases where information is available, the majority of the major components (rotor, tower, and nacelle) have fallen to within 1 to 2 hub-height distances from the base. As with turbine fires, members of the public do not typically have access to the private lands on which wind farms are located. As of May 2005, no member of the public has been killed or injured by a failure of a wind turbine.

Ice Shedding

Ice can accumulate on the blades, nacelle, and tower during certain extreme cold-weather conditions. Many times turbines will shut down in icing conditions because the wind vane and/or anemometer sensors become frozen, rendering the turbine inoperable. Ice formation can also reduce power production, which is sensed by the control system that subsequently halts turbine operation. As the ice melts it will fall to the ground in the vicinity of the turbine.

During operable wind speeds and when the turbine has not yet been shut down automatically or manually, ice can break off the blades and be thrown from the turbine (instead of dropping straight down). The distance traveled by a piece of ice depends on the position of the blade when the ice breaks off, the location of the ice on the blade when it breaks off, the rotational rate of the blade when the ice breaks from the blade, the mass of the ice, the shape of the ice (e.g., spherical, flat, smooth), and the prevailing wind speed.

No injuries have been reported as a result of ice throws, however, manufacturers and blade designers continue to research materials and methods that could be employed to reduce the possibility of ice accumulation and subsequent throws. Design features such as the use of black blades and the applications of special coatings have been used at some cold-weather sites. The best practices to reduce the possibility of ice throws include establishment of setback safety zones around the turbines and modifications to the turbine operation during periods of icing, as listed below:

- Turbine Controls – In addition to accumulating on the blades, icing also affects the wind speed and direction sensors on the nacelle that provide information to the control system of the turbine. If the sensors become iced up, the control computer detects no wind speed and/or no change in the wind direction and then stops turbine operation automatically. When ice melts from the sensor, the control computer automatically returns the turbine to operation. Icing on the blades also results in reduced performance, unusual loads, or vibrations that are detected by the control system and trigger an automatic stop. In these cases, the turbine remains off-line until an operator inspects and manually restarts the

turbine. If the turbine is not operating, ice from the blades, nacelle, and tower falls to the ground in the immediate vicinity of the machine.

- Operator Intervention – Project operators can halt operation of certain turbines (or the entire project) during icing events to prevent ice throws and equipment damage. Provided some wind is available, site operators can manually 'bump' the rotor for a few slow rotations to make the blades flex and relieve some of the ice build-up. Under these conditions, the slow rotor speed will again result in ice falling to the ground in the immediate vicinity of the machine.
- Safety Zones – Establishing adequate setback areas from inhabited buildings, roads, and power lines significantly reduces the risk of injury or damage in the event of ice throws. Research into quantifying ice throws is limited, probably due to the fact that there have been no reported injuries associated with these events. The most complete study to date has been performed in the UK by C. Morgan, et al. The study quantified the risk of possible strikes from ice throws, in terms of distance from the turbine. The study does not propose specific setback distances but provides information to help establish setbacks that are comparable to other levels of risk. For moderate icing conditions (5 icing days per year) setback distances of 750 ft to 1150 ft correspond to potential strike risks of 1 in 10,000 to 1 in 1,000,000 per year, respectively. (The probability of being struck by lightning is 1 in 1,000,000 per year). This study assumes a wind turbine with a 50-m (164-ft) rotor.

Another factor to consider when assessing the risk of ice throws from wind turbines is that the power grid is also impacted by ice formation and power to the project may be interrupted by the utility due to repair work or actual outages. Turbine operations stop immediately when grid power is lost, thereby reducing ice throw risks.

The people most at risk from falling ice are the site personnel, as most ice falls from the blades, nacelle, and rotor near the base of the tower. Most project developers have strict rules established for personnel and operations during icing events to prevent worker injury and to protect the public.

Vandalism

Though not unique to wind turbine installations, the potential for vandalism or trespassing can also cause safety concerns. Wind turbines may attract more attention than other structures. Project developers report incidences of unauthorized access on their sites ranging from curiosity seekers to bullet holes in blades. Permits usually require fencing and postings at project entrances to prevent unauthorized access. Other requirements intended to reduce personal injury and public hazards include locked access to towers and electrical equipment, warning signs with postings of 24-hour emergency numbers, and fenced storage yards for equipment and spare parts. Fencing requirements will depend on existing land uses such as grazing. Some communities have established