

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

**Petition of BNE Energy Inc. for a  
Declaratory Ruling for the Location,  
Construction and Operation of a 4.8 MW  
Wind Renewable Generating Project on  
Winsted-Norfolk Road in Colebrook,  
Connecticut (“Wind Colebrook North”)**

**Petition No. 984**

**February 23, 2011**

**FAIRWINDCT, INC.’S ANSWERS  
TO PRE-HEARING INTERROGATORIES, SET ONE**

FairwindCT, Inc. (“FairwindCT”) hereby responds to the Siting Council’s Pre-Hearing Interrogatories, Set One, dated January 28, 2011:

1. When was FairwindCT, Inc. formed?

**ANSWER:** In November, 2010 shortly after the “informational meeting” held by BNE Energy Inc. (“BNE”) at the Colebrook Town Hall, concerned residents began discussing the upcoming applications for two wind farms in Colebrook and how they could have a voice in the process. This led to the incorporation of FairwindCT on December 14, 2010.

2. Describe FairwindCT’s activities undertaken to educate the general public and the community about industrial wind energy projects, to lobby for wind energy regulations, and to advocate for the protection of the environment and the health, safety, and quality of life of Connecticut residents.

**ANSWER:** FairwindCT has worked to educate, lobby and advocate through flyers and mailers to citizens of Colebrook and other nearby towns, letters to public officials, communications with the media, maintenance of a website, appearing at a legislative hearing and participating in the administrative process before the Council in this petition and two related petitions. Specifically, FairwindCT has taken actions including, but not limited to, the following:

- Distributing a flyer entitled “Did You Know?” to attendees of the Christmas Fair in Colebrook to alert residents that two industrial wind turbine facilities were being proposed for residential neighborhoods in Colebrook.
- Mailing a flyer entitled “Your Neighborhood Could Be Next!” to Colebrook residents.
- Mailing “An Open Letter to Colebrook from FairwindCT” to Colebrook residents. This mailing included contact information for many public officials and links to the Connecticut Siting Council and Save Prospect Corp web sites.
- FairwindCT’s president, Joyce Hemingson, sent a letter to the Connecticut Siting Council at the end of December 2010 and copied top officials in the State, as well as local officials and regional organizations in northwestern Connecticut.
- Ms. Hemingson met with Colebrook’s First Selectman.
- In January, 2011, Ms. Hemingson spoke during the public portion of a special meeting of the Colebrook Planning & Zoning Commission, and was on the agenda of the monthly Board of Selectmen’s meeting.
- Other FairwindCT supporters have written to and spoken with state and local legislators, including state representatives and senators, Senator Richard Blumenthal, Congressman Chris Murphy, Congressman John Larson and Governor Dannel Malloy.
- Stella Somers, FairwindCT’s secretary, has reached out to regional and statewide lodging associations and tourism groups to educate them about BNE’s plans for northwestern Connecticut.
- FairwindCT hired legal representation and applied for party status to Petition Nos. 980, 983, and 984. FairwindCT has also engaged experts to assist in opposing the petitions.
- FairwindCT’s website, [www.fairwindct.com](http://www.fairwindct.com), has links to other grassroots organizations, news articles and the Siting Council. The website also contains a petition and posts about FairwindCT’s activities and links about wind energy and other renewable energy sources. Inquiries can be sent to [info@fairwindct.com](mailto:info@fairwindct.com).
- Representatives of FairwindCT met with Attorney General Richard Blumenthal in early January 2011 to discuss the need for appropriate siting of utility-scale turbines and participated in a press conference after the meeting.
- FairwindCT distributes press releases to newspapers throughout the State and regularly responds to questions from reporters.

- On February 3, 2011, FairwindCT held a joint press conference with Save Prospect and Eric Bibler of Save Our Seashore. The press conference took place prior to the start of the Connecticut legislature's Energy and Technology Committee's hearing on H.B. 6249. H.B. 6249 calls for regulations to be adopted for the siting of industrial wind turbines.
- FairwindCT encouraged residents and non-residents who oppose the siting of industrial wind turbines in residential neighborhoods to attend the Energy and Technology Committee's hearing to testify and show support for H.B. 6249.
- FairwindCT submitted written and oral testimony in support of H.B. 6249 that explained the need to develop regulations.
- FairwindCT sent an announcement of the legislative hearing to town officials across Connecticut.
- FairwindCT and Save Prospect Corp compiled a DVD of videos from YouTube showing the noise, flicker, aesthetics, health and environmental impacts of siting industrial wind turbines without regulation.

3. Provide citations for studies of the health effects of wind energy projects on

residents living in close proximity to them.

**ANSWER:** Generally, evidence linking adverse health effects to wind turbines comes in the form of epidemiologic evidence of health effects on residents living near such industrial facilities. This epidemiologic evidence includes numerous adverse event reports (i.e., case studies) and a few systematic studies. Wind turbines produce audible and inaudible noise and flicker, which affect residents' health. The evidence documenting adverse health effects of industrial wind energy projects on residents living in proximity to such industrial facilities includes, but is not limited to, the following:

- Acoustical Ecology Institute (2009). AEI Special Report: Wind Energy Noise Impacts. Available at <http://www.acousticecology.org/docs/AEI%20Wind%20Turbine%20Noise%20report%202009.pdf>.

- Acoustical Ecology Institute (2010). Wind Farm Noise: Public Perception and Annoyance. Available at [http://www.windpoweringamerica.gov/newengland/pdfs/2010/webinar\\_newweep\\_wind\\_turbine\\_sound\\_cummings.pdf](http://www.windpoweringamerica.gov/newengland/pdfs/2010/webinar_newweep_wind_turbine_sound_cummings.pdf).
- Colby WD et al (2009). Wind Turbine Sound and Health Effects: An Expert Panel Review. Prepared for American Wind Energy Association and Canadian Wind Energy Association. Available at [http://www.canwea.ca/pdf/talkwind/Wind\\_Turbine\\_Sound\\_and\\_Health\\_Effects.pdf](http://www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf).
- Frey, B.J. and Hadden, P.J. (2007). Noise radiation from wind turbines installed near homes: Effects on health. Available at <http://docs.wind-watch.org/wtnoisehealth.pdf>.
- Hanning, C. (2010). Wind turbine noise, sleep and health. Available at <http://windvigilance.com/downloads/symposium2010/Wind%20turbine%20noise%20sleep%20and%20health%20November%202010.pdf>.
- Harry, A. (2007). Wind turbines, noise, and health. Available at [http://docs.wind-watch.org/wtnoise\\_health\\_2007\\_a\\_harry.pdf](http://docs.wind-watch.org/wtnoise_health_2007_a_harry.pdf).
- Horonjeff, R.D. (2010). Siting of Wind Turbines With Respect to Noise Emissions and their Health and Welfare Effects on Humans. Available at <http://www.windcows.com/files/HorojeffReportFinal.pdf>.
- Kamperman, G., James, R. (2008). Simple guidelines for siting wind turbines to prevent health risks. Paper presented at Institute of Noise Control Engineering (INCE) NOISE-CON 2008, July 28-31, 2008. Available at <http://docs.wind-watch.org/simple-guidelines-for-siting-wind-turbines-to-prevent-health-risks.pdf>.
- Krogh C et al. Wind Vigilance for Ontario Communities; A Self-reporting Survey: Adverse Health Effects, Industrial Wind Turbines (IWT) and the Need for Vigilance Monitoring. 2011. Available at <http://windvigilance.com>; see poster abstract at [http://windvigilance.com/downloads/symposium2010/swv\\_symposium\\_poster\\_windvoic e.pdf](http://windvigilance.com/downloads/symposium2010/swv_symposium_poster_windvoic e.pdf).
- Minnesota Department of Health, Environmental Health Division (2009). Public Health Impacts of Wind Turbines. Available at <http://www.health.state.mn.us/divs/eh/hazardous/topics/windturbines.pdf>.
- Nissenbaum M. 2010. Mars Hill study, preliminary results. Available at [http://www.windvigilance.com/mars\\_hill.aspx](http://www.windvigilance.com/mars_hill.aspx). (To be published under the title “Adverse Health Effects Related to Industrial Wind Turbines (IWTs) – a Retrospective, Cross-Sectional Epidemiological Study” (presently under submission, to be published 2011).)

- Pedersen E, Wayne KP. Perception and annoyance due to wind turbine noise; a dose-response relationship. *J. Acoust. Soc. Am.* 116(6):3460-3470, 2004. Abstract available at <http://scitation.aip.org/getabs/servlet/GetabsServlet?prog=normal&id=JASMAN00011600006003460000001&idtype=cvips&gifs=yes&ref=no>.
- Pedersen E, van den Berg F, Bakker R, Bouma J. Response to noise from modern wind farms in The Netherlands. *J. Acoust. Soc. Am.* 126(2):634-43, 2009. Abstract available at <http://www.ncbi.nlm.nih.gov/pubmed/19640029>.
- Pedersen E, Persson WK. Wind turbine noise, annoyance and self-reported health and well-being in different living environments. *Occup. Environ. Med.* 64(7):480-6, 2007.
- Pedersen E, van den Berg F, Bakker R, Bouma J. Can road traffic mask sound from wind turbines? Response to wind turbine sound at different levels of road traffic sound. *Energy Policy* 38(5):2520-2527, 2010. Abstract available at <http://ideas.repec.org/a/eee/enepol/v38y2010i5p2520-2527.html>
- Pierpont, N. (2009). *Wind Turbine Syndrome*. Santa Fe, N.M. K-Selected Books.

Experts have also testified on these issues in other fora. For example:

- Evidence of Dr. Robyn Phipps. In the Matter of Moturimu Wind Farm Application. Evidence to the Joint Commissioners, Palmerston North. March 2007. Available at <http://www.ohariupreservationsociety.org.nz/hipps-moturimutestimony.pdf>.
- Prefiled Rebuttal Testimony of Dr. T. Ray Lovko, M.D. on behalf of Albany, Vermont, submitted to the State of Vermont Public Service Board (Nov. 22, 2010), available at [http://energizevermont.org/wp-content/uploads/2010/11/2010-11-22\\_Lovko\\_Rebuttal\\_TestimonyDocket7628.pdf](http://energizevermont.org/wp-content/uploads/2010/11/2010-11-22_Lovko_Rebuttal_TestimonyDocket7628.pdf).
- Carl V. Phillips. *An Analysis of the Epidemiology and Related Evidence on the Health Effects of Wind Turbines on Local Residents*. Prepared at the request of Brown County Citizens for Responsible Wind Energy in Connection with Public Service Commission of Wisconsin Docket No. 1-AC-231, Wind Siting Rules. July 3, 2010. Available for download at <http://www.windaction.org/documents/28175>.

The health effects of living in proximity of industrial wind turbines have been documented in the media. A hearing before the Ontario Environmental Review Tribunal that began on February 1, 2011, and is expected to continue for several weeks has included testimony by several health and noise experts. (See, e.g., G. Rennie. Expert warns ‘province ought not to

proceed' with industrial wind turbines. Windsor Star. Feb. 16, 2011. Available at <http://www.windsorstar.com/technology/Expert+warns+province+ought+proceed+with+industrial+wind+turbines/4298466/story.html#ixzz1EcttUUqw>; L. Greenberg. Court challenge threatens wind power. Ottawa Citizen. Jan. 24, 2011. Available at <http://www.ottawacitizen.com/health/Court+challenge+threatens+wind+power/4153517/story.html>.) Other governments are compiling evidence regarding the adverse health effects. (See, e.g., Parliament of Australia, seeking input on "The Social and Economic Impact of Rural Wind Farms." Results to be reported Apr. 30, 2011. Available at [http://www.aph.gov.au/Senate/committee/clac\\_ctte/impact\\_rural\\_wind\\_farms/info.htm](http://www.aph.gov.au/Senate/committee/clac_ctte/impact_rural_wind_farms/info.htm);

J. Roberts. Canadian Officer Studying Health Effects of Wind Turbine. Top News. Dec. 24, 2010. Available at <http://topnews.us/content/231125-canadian-officer-studying-health-effects-wind-turbine>.)

FairwindCT will present one or more experts to testify on this subject, and reserves the right to supplement this interrogatory and/or provide additional citations at the time of his/her/their testimony.

4. Provide copies of GE literature indicating the distances that the blades of its turbines can throw ice.

**ANSWER:** As the Council should be aware from BNE's interrogatory responses in Petition No. 980, GE considers its setback standards to be confidential and proprietary business information. (See Petitioner BNE Energy Inc.'s Interrogatory Responses to FairwindCT, Inc.'s Interrogatories dated February 9, 2011, Answers to Questions 8 and 12.) GE's documents

available online are labeled proprietary and prohibit copying. Thus, BNE is in the best position to provide a detailed answer to this question.

Based on the limited information that has been made public, GE acknowledges that “[i]ce shedding/ice throw, and other hazards can create risk in the vicinity of the wind turbine park.” (GE Wind, *Setback Considerations for Wind Turbine Siting*, page 5, available at <http://documents.dps.state.ny.us/public/Common/ViewDoc.aspx?DocRefId=%7BF6A567D4-3F56-4125-968F-28CBF62BD6F6%7D>.) GE’s literature acknowledges that “[s]et back considerations depend on many factors such as population density, road usage frequency, land availability, and proximity to other publicly accessed areas and buildings.” (*Id.*) Therefore, GE recommends “[l]ocating turbines a safe distance from any occupied structure, road, or public use area.” GE Energy, *Ice Shedding and Ice Throw – Risk and Mitigation*, page 1, available at [http://www.gepower.com/prod\\_serv/products/tech\\_docs/en/downloads/ger4262.pdf](http://www.gepower.com/prod_serv/products/tech_docs/en/downloads/ger4262.pdf).)

To mitigate the risk of ice throw, GE appears to follow the standard that many wind energy companies believe to mitigate the risk of ice throw, i.e., 1.5 x (Hub Height + Rotor Diameter). (See, e.g., GE Wind, *Setback Considerations*, page 5; GE Energy, *Ice Shedding and Ice Throw – Risk and Mitigation*, page 1.) None of GE’s literature available to FairwindCT indicates the actual physical distance that ice may be thrown from its turbines’ blades (or the distance its turbines’ blades themselves may be thrown).

The 1.5 x (Hub Height + Rotor Diameter) standard has been criticized as “just pulled out of a hat.” (Professor Terry Matilsky, Rutgers University, discussing the ice throw standard of the wind energy (Dec. 31, 2006) available at <http://xray.rutgers.edu/~matilsky/windmills/throw.html>.) Another expert noted, in criticizing state agency presentations made to the public about safety

issues related to wind turbines, that “we simply do not have empirical data the permits predictions or judgments about icing risk to people and property.” (Kenneth Jaffe, Public Health and Safety: Deficiencies of the New York State Department of State Presentation to Local Officials Concerning Wind Turbines, page 11 (June 2006), available at <http://www.windaction.org/documents/3966>; Kenneth Jaffe, A Review of the Science, Literature and Recommendations Concerning Public Safety and Ice Throws from Wind Turbines, page 7 (June 2006), available at <http://www.windaction.org/documents/3673>.)

By promoting the use of this formula, however flawed it may be, GE concedes that ice may be thrown at least as far as 984 feet from the turbines BNE is asking the Council to approve. According to BNE’s own maps, at least eight residential property lines, two other property lines and two roads are within that minimum ice throw zone. (For Petition No. 983, at least three residential property lines, four other property lines, a conservation easement, a driveway and one road are within that minimum ice throw zone.)

**FAIRWINDCT, INC.**

By: \_\_\_\_\_

  
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**CERTIFICATION**

I hereby certify that a copy of the foregoing document was sent via U.S. Mail and e-mail to the following service list on the 23rd day of February, 2011:

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