

MINUTES
LANCASTER COUNTY BOARD OF COMMISSIONERS
COUNTY-CITY BUILDING, ROOM 112
TUESDAY, DECEMBER 18, 2018
9:00 A.M.

Advance public notice of the Board of Commissioners meeting was posted on the County-City Building bulletin board and the Lancaster County, Nebraska, web site and emailed to the media on December 14, 2018.

Commissioners present: Todd Wiltgen, Chair; Jennifer Brinkman, Vice Chair; Roma Amundson, Bill Avery and Deb Schorr

Others present: Ann Ames, Deputy Chief Administrative Officer; Jenifer Holloway, Deputy County Attorney; Dan Nolte, County Clerk; Cori Beattie, Deputy County Clerk; and Monét McCullen, County Clerk's Office

The Chair called the meeting to order at 9:00 a.m., the Pledge of Allegiance was recited and the location of the Nebraska Open Meetings Act was announced.

1) MINUTES:

- A. Approval of the minutes of the Board of Commissioners meeting held on Tuesday, December 11, 2018.**

MOTION: Schorr moved and Amundson seconded approval of the minutes. Avery, Brinkman, Schorr, Amundson and Wiltgen voted yes. Motion carried 5-0.

2) CLAIMS:

- A. Approval of all claims processed through December 18, 2018.**

MOTION: Schorr moved and Amundson seconded approval of the claims. Brinkman, Schorr, Amundson, Avery and Wiltgen voted yes. Motion carried 5-0.

3) SPECIAL PRESENTATION:

- A. Lancaster County Visitors Improvement Fund Grant of \$10,000 to the Lincoln Children's Museum for the American Ninja Warrior Exhibit - Lindsay Bartlett, Director of Community & Learning for the Lincoln Children's Museum; Lynne Ireland, Chair of the Lancaster County Visitors Promotion Committee. (See correlating item 4A)**

The item was held until later in the meeting.

- B. Presentation of the Commissioners' Award of Excellence for November, 2018 to Renee Felder and Taryn Tolliver, Community Corrections, in the category of productivity.**

The Clerk read the nomination into the record.

Kim Etherton, Community Corrections Director, said Ms. Felder and Ms. Tolliver's dedication at Matt Talbot has made a difference in the community and thanked both of them for their hard work.

Commissioners Avery and Amundson presented the awards to the recipients.

Taryn Tolliver thanked all that were involved for the opportunity to serve the community.

C. Recognition of Ken Heusinkvelt, County Engineering, for 40 years of service – Pam Dingman, County Engineer.

Pam Dingman, County Engineer, thanked Mr. Heusinkvelt for his dedication, dependability and strong work ethic.

Ken Heusinkvelt said he has enjoyed the work and his coworkers. He thanked his family and his peers for their support.

4) NEW BUSINESS:

A. Lancaster County Visitors Improvement Fund Grant contract with Lancaster County as the Sponsor and the Lincoln Children's Museum as the Grantee for the American Ninja Exhibit project in the amount of \$10,000. The term of the grant is December 1, 2018 through March 31, 2019. (C-18-0758)

This item was held until later in the meeting.

B. Request for an exceptional circumstances award under Personnel Rule 17.9(b) for Mandy Meyer, Community Corrections Account Clerk III, for a one-step pay increase.

MOTION: Schorr moved and Amundson seconded approval of the exceptional circumstances award. Amundson, Avery, Brinkman, Schorr and Wiltgen voted yes. Motion carried 5-0.

C. Authorizing and directing the Chair of the County Board to correct nunc pro tunc a clerical error in Resolution R-17-0090 by interlineating "2020 through 2022" in place of "2016 through 2018". (R-17-0090)

MOTION: Schorr moved and Avery seconded approval for the Chair to nunc pro tunc the resolution. Amundson, Schorr, Brinkman, Avery and Wiltgen voted yes. Motion carried 5-0.

D. Resolution in the matter of approval of official bonds of elected Lancaster County officers and the County Surveyor. Elected officials include: Joe Nigro, Public Defender; Patrick F. Condon, County Attorney; Rachel M. Garver, County Treasurer; Daniel F. Nolte, County Clerk; Troy L. Hawk, Clerk of the District Court; Robert M. Ogden, County Assessor/Register of Deeds; Pamela L. Dingman, County Engineer; and Terry T. Wagner, County Sheriff. The County Surveyor is Kenneth Schroeder. (R-18-0090)

MOTION: Amundson moved and Schorr seconded approval of the resolution. Schorr, Brinkman, Avery, Amundson and Wiltgen voted yes. Motion carried 5-0.

- E. Resolution in the matter of annual salary increases for appointed directors, assistant directors, bailiffs and the child support referee correcting Attachment A. All salary increases are effective December 20, 2018. (R-18-0091)**

MOTION: Brinkman moved and Amundson seconded approval of the resolution. Brinkman, Avery, Amundson, Schorr and Wiltgen voted yes. Motion carried 5-0.

- F. Resolution in the matter of fixing the date, time and place for a public hearing regarding a request to vacate the west 10 feet adjacent to Lot 6 I.T., more particularly described in Attachment "A", and located in Lancaster County, Nebraska. (R-18-0092)**

MOTION: Amundson moved and Schorr seconded approval of the resolution. Avery, Amundson, Schorr, Brinkman and Wiltgen voted yes. Motion carried 5-0.

- G. Resolution in the matter of designating banks as depositories for Lancaster County for 2019. (R-18-0093)**

MOTION: Amundson moved and Brinkman seconded approval of the resolution. Amundson, Brinkman, Avery, Schorr and Wiltgen voted yes. Motion carried 5-0.

- H. Contract with Galls, LLC to provide Annual Supply - County Corrections Uniforms (Bid No. 18-262). This contract shall be effective January 1, 2019 through December 31, 2019. The cost to the County is not to exceed \$15,000. (C-18-0756)**

MOTION: Brinkman moved and Amundson seconded approval of the contract. Avery, Schorr, Brinkman, Amundson and Wiltgen voted yes. Motion carried 5-0.

- I. Contract with Galls, LLC to provide Annual Supply – Work Clothing (Bid No. 18-266). This contract shall be effective January 1, 2019 through December 31, 2019. The cost to the County is not to exceed \$4,000. (C-18-0757)**

MOTION: Schorr moved and Avery seconded approval of the contract. Brinkman, Amundson, Schorr, Avery and Wiltgen voted yes. Motion carried 5-0.

- J. Memorandum of Understanding (MOU) between the Department of Homeland Security, U.S. Immigration and Customs Enforcement, Homeland Security Investigations, Resident in Charge, Special Agent in Charge, Lancaster County on behalf of the Lancaster County Sheriff's Office, and the Lincoln Police Department to participate in a Criminal Interdiction Task Force. The MOU will become effective for one year upon execution by the Special Agent in Charge. (C-18-0759)**

Terry Wagner, Lancaster County Sheriff, said the MOU discusses terms of reimbursement for Sheriff employees and equitable sharing percentages.

Brinkman asked how the shares were split. Wagner said the County share is about 60% and the remaining shares depend on the agencies involved per case.

MOTION: Amundson moved and Schorr seconded approval of the memorandum of understanding. Schorr, Avery, Amundson, Brinkman and Wiltgen voted yes. Motion carried 5-0.

K. Agreement between Nebraska State Patrol, Lincoln Police Department, and Lancaster County to provide access to the Combined Law Enforcement Information Network (CLEIN) for the Lancaster County Attorney's Office. (C-18-0760)

MOTION: Amundson moved and Brinkman seconded approval of the agreement. Avery, Brinkman, Schorr, Amundson and Wiltgen voted yes. Motion carried 5-0.

L. Memorandum of Understanding (MOU) with SHI International Corporation using the NASPO ValuePoint Master Agreement No. AR2488, State of Nebraska Participating Addendum Contract No. 79380 O4 to provide Strategic Budgeting and Planning (MOU039). The initial term of the MOU is one year beginning December 18, 2018, with the option to renew for four additional one-year periods. The pricing will be pursuant to the NASPO contract, and bill of materials attached as part of the memorandum. The cost to the County is not to exceed \$45,000. (C-18-0764)

Dennis Meyer, Budget and Fiscal Officer, said this contract is piggybacking off another contract to be able to transition to the OpenGov platform for budgeting purposes.

Nate Olson, OpenGov Account Executive, gave a brief background of the company and the goal for their consumers.

MOTION: Brinkman moved and Schorr seconded approval of the memorandum of understanding.

Jenifer Holloway, Deputy County Attorney, said OpenGov has provided their insurance, but they are still waiting on insurance documents from SHI International Corporation and asked that the Board approve the MOU contingent on receiving the insurance.

Brinkman and Schorr confirmed that their motion and second to approve the MOU is contingent upon receiving the additional insurance documents.

ROLL CALL: Brinkman, Schorr, Amundson, Avery and Wiltgen voted yes. Motion carried 5-0.

M. Contract with Great Plains Appraisal Company in the amount of \$4,800 for appraisal services on a right-of-way project on Lot 9, I.T., at North 120th Street and Interstate 80, Lancaster County, Nebraska. (C-18-0761)

MOTION: Amundson moved and Brinkman seconded approval of the contract. Schorr, Amundson, Avery, Brinkman and Wiltgen voted yes. Motion carried 5-0.

N. Interlocal agreement with the Lower Platte South Natural Resources District to provide for the Upper Salt 3-A Watershed Structure Rehabilitation Project and Realignment of Southwest 2nd Street at Stagecoach Road. (C-18-0765)

Dingman said this agreement will be at no cost to the County. The dam in this area needs to be rebuilt to meet current safety standards. The NRD will regrade the road so the future alignment will meet standards (Exhibit A)

MOTION: Schorr moved and Amundson seconded approval of the interlocal agreement. Amundson, Avery, Brinkman, Schorr and Wiltgen voted yes. Motion carried 5-0.

O. Change Order #2 for County Contract C-18-0354 with JJK Construction, LLC for granular backfill for concrete box culvert, substitute erosion control, 1-D for Seeding, Type A, incorporate Fly Ash into embankments, underrun incorporate crushed surface course, subgrade preparation, and remove headwall. This change order decreases the contract amount by \$1,637.96. (C-18-0762)

Dingman said this is for box culvert E-117 on Northwest 84th Street.

MOTION: Amundson moved and Brinkman seconded approval of the change order. Avery, Brinkman, Schorr, Amundson and Wiltgen voted yes. Motion carried 5-0.

P. Resolution regarding County Text Amendment No. 18008 amending the Lancaster County Zoning Resolution to add a new special permit for accessory dwelling units, as provided in Attachment A. (R-18-0094) (Note: Action on this Item will follow correlating item 8A - Public Hearing)

Action on this item was deferred until after the public hearing (See Item 8A).

Q. Resolution regarding County Text Amendment No. 18011 amending the Lancaster County Zoning Resolution, Section 13.048 Commercial Wind Energy Conversion Systems, to add a condition to allow participating properties to have a higher noise level than non-participating properties, as provided in Attachment A. (R-18-0095) (Note: Action on this Item will follow correlating item 8B - Public Hearing)

Action on this item was deferred until after the public hearing (See Item 8B).

- 5) **CONSENT ITEMS:** These are routine business items that are expected to be adopted without dissent. Any individual item may be removed for special discussion and consideration by a Commissioner or by any member of the public without prior notice. Unless there is an exception, these items will be approved as one with a single vote of the Board of Commissioners. These items are approval of:

- A. **Change Order #5 for County Contract C-18-0220 with Constructors Inc. to extend the project completion date from November 15, 2018 to May 1, 2019 due to circumstances beyond the control of the contractor. (C-18-0763)**

- B. **Amendments to the following County Contracts:**
 - 1. **C-18-0486 with Envirotech Services, Inc., using the State of NE Contract No. 14916 OC for the Envirotech Services, Inc. The amendment renews the contract from December 15, 2018 through December 14, 2019. The estimated cost to the County is not to exceed \$6,000. (C-18-0753)**
 - 2. **C-18-0004 with Rixstine Recognition for Annual Supply - Plaques, Trophies and Promotional Items (Bid No. 17-314). The amendment renews the contract from January 7, 2019 through January 6, 2020. The cost to the County is not to exceed \$3,500. (C-18-0754)**
 - 3. **C-11-0724 with Schindler Elevator Corp. dba Eletech, Inc. for Elevator Service, Maintenance and Testing (Bid No. 11-206). The amendment renews the contract from January 1, 2019 through December 31, 2019. The estimated cost to the County is not to exceed \$10,000. (C-18-0755)**

- C. **Utility Permit No. 1736 allowing Unite Private Network to install new underground fiber optic cables from north of Southwest 58th Street and West Panama Road to south of Southwest 42nd Street and West Pella Road. There is no cost to the County. (C-18-0746)**

- D. **Received and placed on file the following:**
 - 1. **Notice of termination of County Contract C-17-0621 from Havelock Physical Therapy.**
 - 2. **Records and Information Management report for November, 2018.**

MOTION: Brinkman moved and Amundson seconded approval of the consent items. Amundson Avery, Brinkman, Schorr and Wiltgen voted yes. Motion carried 5-0.

RETURNING TO ITEM 3A

Lindsay Bartlett, Director of Community & Learning for the Lincoln Children's Museum, said this is a temporary exhibit from March, 2019 through September, 2019 on the lower level of the museum and extending the timeframe would depend on the success of the project.

The Board voted on correlating item 4A.

MOTION: Amundson moved and Schorr seconded approval of the grant contract. Schorr, Amundson, Avery, Brinkman and Wiltgen voted yes. Motion carried 5-0.

- 6) **PUBLIC COMMENT: Those wishing to speak on items relating to County business not on the agenda may do so at this time.**

No one appeared for public comment.

7) ANNOUNCEMENTS:

- A. The Lancaster County Board of Commissioners will hold a staff meeting on Thursday, December 20, 2018 at 8:30 a.m., in the Bill Luxford Studio (Room 113) of the County-City Building (555 S. 10th Street, Lincoln).**
- B. The Lancaster County Board of Commissioners will be in recess from December 21, 2018 through January 7, 2019.**
- C. The Lancaster County Board of Commissioners will hold its next regular meeting on Tuesday, January 8, 2019 at 9:00 a.m., in Room 112 of the County-City Building (555 S. 10th Street, Lincoln) with the Board of Equalization immediately following.**
- D. County Commissioners can be reached at 402-441-7447 or commish@lancaster.ne.gov.**
- E. The Lancaster County Board of Commissioners meeting is broadcast live on LNKTV City. For the rebroadcast schedule visit lincoln.ne.gov (keyword: LNKTV). Meetings are also streamed live on LNKTV and can be viewed on YouTube (LNKTVcity).**

By order of the Chair, the meeting recessed at 9:34 a.m., and reconvened at 9:38 a.m.

8) PUBLIC HEARINGS:

- A. County Text Amendment No. 18008 amending the Lancaster County Zoning Resolution to add a new special permit for accessory dwelling units. (See correlating item 4P)**

The Chair read opening remarks and opened the public hearing.

Tom Cajka, Lincoln-Lancaster County Planning Department, was administered the oath and said this text amendment is to allow a principle dwelling along with an accessory dwelling unit in the agricultural district by special permit. A working group was formed that consisted of seven County residents. He added a number of changes and clarifications were made following the Planning Commission meeting. (Exhibit B)

Avery asked for explanation on the change regarding the square footage. Cajka said the increase from 800 to 1000 was a compromise with the Home Builders Association.

Wiltgen asked all Commissions to disclose any ex parte communication.

Wiltgen stated he had contact with the Planning Department staff and the Home Builders Association.

Brinkman stated she had a meeting with the Home Builders Association on September 21, 2018 and a phone call with Mark Hunzeker on their behalf on December 14, 2018.

The Chair opened the public hearing.

The County Clerk administered the oath to the following individuals who provided testimony in support of Text Amendment 18008:

Matt Kinning, 9711 Murano Court, Lincoln, Nebraska

Mark Hunzeker, on behalf of the Home Builders Association, 1248 O Street, Lincoln, Nebraska

No one appeared in opposition or in the neutral position.

Wiltgen asked whether future County Boards could waive the conditions. Cajka said the requirements that the owner live on the property and there be a single access point are not able to be waived.

Schorr clarified that the Board would be approving the resolution with the changes presented (see Exhibit B). Cajka confirmed the changes include the definition and adding to the permitted special uses.

Brinkman asked about the language change that the Board received. Holloway confirmed they would be approving the resolution with the new language and explained the changes in Exhibit B.

The Chair closed the public hearing and the Board voted on correlating item 4P.

MOTION: Schorr moved and Amundson seconded approval of the resolution with the substitute language.

Schorr and Wiltgen thanked the members of the ADU working group and the Planning Department for their efforts.

ROLL CALL: Brinkman, Schorr, Amundson, Avery and Wiltgen voted yes. Motion carried 5-0.

B. County Text Amendment No. 18011 amending the Lancaster County Zoning Resolution, Section 13.048 Commercial Wind Energy Conversion Systems, to add a condition to allow participating properties to have a higher noise level than non-participating properties. (See correlating item 4Q)

The Chair opened the public hearing and read opening remarks.

Wiltgen asked all Commissioners to disclose any ex parte communication.

Wiltgen said he received a number of emails (Exhibit C) along with a book titled, "Paradise Destroyed" (a copy of which is on file with the minutes). He received a letter at his home address from Curtis and Joetta Schwaninger and had phone calls with David Levy, Josh Moenning and Mark Hunzeker.

Avery said he spoke with the Dabbs family and had a call from David Levy.

Schorr said on November 8, 2018, she attended a meeting at the home of Larry and JoJen Alder which included 25 individuals and on November 20, 2018, she met with representatives of NextEra Energy (Exhibit D). On December 11, 2018 she met with Commissioner Avery and Joe and Samantha Dabbs. She also received a copy of "Paradise Destroyed" from Karen Meyer.

Brinkman said she received emails from Kathy Kroeker, Heather Scott, Darren Compton, Linda Woodward, Jeff Hulburt, JoJen and Larry Alder and Judy Daugherty. On September 25, 2018 she received a voicemail from Roger Holsing, she met with Joe and Samantha Dabbs on December 11, 2018, and had phone calls with David Levy on December 12, 2018 and Mark Hunzeker on December 14, 2018. She also attended an open house on October 10, 2018 hosted by NextEra.

Amundson said she met with Joe and Samantha Dabbs on December 11, 2018. In October, 2018 she attended an open house hosted by NextEra. She met with David Levy and his staff and has received communication from JoJen Alder, Eldean and Diane Hansmeyer, Chris and Carla Hansmeyer, Dennis and Carol Pomajzl, Ray Bloom, Karen Meyer and Michael Fiene.

Schorr said the majority of the emails received were sent to the joint "Commish" email and they all received similar emails from the individuals listed above.

David Kuhn, NextEra Energy, applicant, 700 Universe Blvd, Juno Beach, Florida took the oath and gave an overview of the company and the proposed project. (Exhibit E)

The County Clerk administered the oath to the following individuals who provided testimony in support of Text Amendment 18011:

Larry Oltman, 899 E. Gage Road, Cortland, Nebraska
Russell Miller, 341 S. 52nd Street, Lincoln, Nebraska (Exhibit F).
Rebecca Seth, 1971 Sewell Street, Lincoln, Nebraska (Exhibit G)
Doug Dittman, 17015 NW 70th Street, Raymond, Nebraska

The County Clerk administered the oath to the following individuals who provided testimony in support of Text Amendment 18011:

Laurel Van Ham, 4150 South Street, Lincoln, Nebraska (Exhibit H)
Lu Nelsen, 145 Main Street, Lyons, Nebraska.
Josh Moenning, 1202 W. Norfolk Avenue, Norfolk, Nebraska
Matt Gregory, Clean Energy Advocate, 1305 Plum Street, Lincoln, Nebraska (Exhibit I)

The County Clerk administered the oath to the following individuals who provided testimony in support of Text Amendment 18011:

Ken Winston, 1327 H Street #300, Lincoln, Nebraska (Exhibit J)
Marilyn McNabb, Citizens Climate Lobby, 1701 W. Rose Street, Lincoln, Nebraska (Exhibit K)

By order of the Chair the meeting recessed at 10:45 a.m., and reconvened at 11:02 a.m.

The County Clerk administered the oath to the following individuals who provided testimony in opposition to Text Amendment 18011:

Curtis Schwaninger, 3750 W. Hallam Road, Hallam, Nebraska (Exhibit L)
Larry Alder, Prairie Wind Watchers, 2498 W. Ash Road, Cortland, Nebraska
Joetta Schwanginer, 3750 W. Hallam Road, Hallam, Nebraska (Exhibit M)
Larry Newman, 1500 Pella Road, Martell, Nebraska

The County Clerk administered the oath to the following individuals who provided testimony in opposition to Text Amendment 18011:

Darren Compton, 7800 W. Hallam Road, Hallam, Nebraska
Charlotte Newman, 1600 Pella Road, Martell, Nebraska (Exhibit N)
Daryl Schoenbeck, 2424 SW 14th Road, Cortland, Nebraska (Exhibit O)
Mike Woodward, 2250 SW 14th Road, Cortland, Nebraska

The County Clerk administered the oath to the following individuals who provided testimony in opposition to Text Amendment 18011:

Ann Post, Baylor Evnan Law, appearing on behalf of the Prairie Wind Watchers, 1248 O Street Suite 600, Lincoln, Nebraska
Dan Schmid, 2350 U Road, Dwight, Nebraska.
Mark Hunzeker, Baylor Evnan Law, appearing on behalf of the Prairie Wind Watchers, 1248 O Street Suite 600, Lincoln, Nebraska

Ms. Post asked that the vote on this item be delayed until a new text amendment is proposed. She also discussed concerns regarding trespass zoning. (Exhibit P)

No one came forward in a neutral position.

Tom Cajka, Lincoln-Lancaster County Planning Department, was administered the oath and gave a brief overview of the proposed changes.

Brinkman asked about trespass zoning. Cajka said he does not know much about trespass zoning as that has never been an issue throughout his career with the Planning Department. He added it was not brought up when wind energy was discussed in 2015. Today they measure distance from the dwelling and the property line and the greater of the two is used.

Chris Schroeder, Lincoln-Lancaster County Health Department, was administered the oath and gave a brief presentation on the Health Department's recommendation for approval. (Exhibit Q)

Brinkman asked for clarification regarding participating property owners being paid to endure the negative health effects. Schroeder said as a public health agency, the Health Department would not allow individuals to accept negative health impacts for money.

Amundson referenced section 3.4 of the study that was conducted by the World Health Organization that discussed adverse effects on the noise level (Exhibit R). Schroeder said the Health Department also looked into that study and it was noted that the study did not use the latest health data in making the recommendation. The study also does not differentiate between participating and non-participating.

Schorr asked if impacts other than the annoyance issue were reviewed. Schroeder said the Health Canada year-long study looked into a number of other impacts and the biggest one was sleep disturbance. They did not only rely on self-reported results, but they had individuals wear a device which measured sleep efficiency, awakening and quality. A connection was not found between wind turbine noise levels and sleep disturbance.

Wiltgen asked for information regarding infrasound. Schroeder referenced a slide from Exhibit Q, stating some of the information submitted on health issues from infrasound are not peer reviewed. One report exposed individuals to 110 decibels which is not comparable to wind farms.

Wiltgen referenced the text that was passed in 2015 regarding a noise study. (Exhibit S) Schroeder explained a third-party would perform a noise model. The wind turbine noise model will be monitored conservatively to prevent having to depower a wind turbine.

Avery asked why peer review is important when it pertains to scientific research. Schroeder said for a peer review, typically, papers are submitted into a journal and those journals have standards. The data is then subject to be reviewed by other scientists.

Wiltgen questioned how to proceed with the current text amendment and the request to delay action while waiting on another text amendment to be introduced by another third party.

Jen Holloway, Deputy County Attorney, was administered the oath. She explained that this text amendment has already gone through the process of the Planning Commission and the County Attorney's Office would suggest acting on it to prevent any possible litigation issues in the future.

The Chair invited the applicant to provide a rebuttal.

David Levy, Baird Holm Law, 1700 Farnam Street, Omaha, appeared on behalf of the applicant and was administered the oath. Mr. Levy explained that this project pays over \$550,000 annually in lease payments to the land owners and participants. NextEra will implement aircraft detection lighting systems that have been approved for wind energy projects. He explained that noise modeling was conducted and it shows that to meet the noise level each turbine will need to be about one mile away from a house, but that is also dependent on the model of the wind turbine. Levy stated the American Planning Association does not recognize trespass zoning as an appropriate exercise of municipal authority. Exhibit P ignores the property rights of the participating landowners and it also ignores a protection in the current regulations stating that any non-participating property must have at least a three-acre buildable site and the map would not meet the three-acre decibel level. In regards to delaying action on this item, he felt that would be unfair to the applicant as NextEra has gone through the process and already agreed to a one-month delay per the request of Planning.

Wiltgen asked why NextEra would like to place a wind farm in this location. Levy explained that there are three things needed to have a successful wind farm project: good wind, willing landowners and good access to the transmission grid. This location provides all three.

Schorr asked about the visual component of the wind turbines. Kuhn explained that NextEra has to comply with a shadow flicker restriction of 30 hours per year on any dwelling unit.

Wiltgen referenced the resolution passed in 2015 regarding setbacks (Exhibit T). Levy said GE Manufacturing is the company used and they recommended a distance from the property line of 1.1 times the turbine height or approximately 650 feet. Kuhn added GE has published a setback consideration document and they also provide a noise profile for each turbine.

The Chair closed the public hearing.

The Board voted on correlating item 4Q.

MOTION: Brinkman moved and Avery seconded approval of the resolution.

Amundson said she plans to vote in favor of this item. She noted three years ago when wind energy was considered the primary emphasis was on health and at that time a higher decibel standard was applied to both participating and non-participating properties. Amundson felt this situation is different and her decision will be based off today's testimony and scientific discussion.

Schorr said she is opposed to the item. In her opinion, this was never about supporting wind energy – it was about siting this project in the second most populated county in the State of Nebraska.

Brinkman said this proposal is a simple change that acknowledges the scientific evidence that has been reviewed by the Health Department, Planning Department and Planning Commission. All departments have recommended approval of this project. She added a number of the issues discussed today have nothing to do with the proposal, but some will be examined as the Board reviews the additional text amendment and for these reasons she plans to vote in favor of the item.

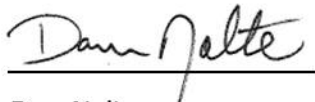
Avery said he also plans to vote for approval. He thanked the Health Department, stating that the research they conducted was impressive.

Wiltgen said he will also support the amendment. He noted a lot of the issues brought forward were similar to those in 2015. There are protections included and there will be opportunity for a special use permit application process. Wiltgen said it is also important to note that decibel levels will not change for those who are not participating and, based off the scientific research, the decibel increase will not adversely affect the health of the individuals who will participate in the project.

ROLL CALL: Amundson, Avery, Brinkman and Wiltgen voted yes. Schorr voted no. Motion carried 4-1.

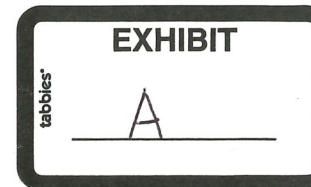
9) ADJOURNMENT

MOTION: Avery moved and Schorr seconded to adjourn the Lancaster County Board of Commissioners meeting at 12:46 p.m. Amundson, Schorr, Brinkman, Avery and Wiltgen voted yes. Motion carried 5-0.

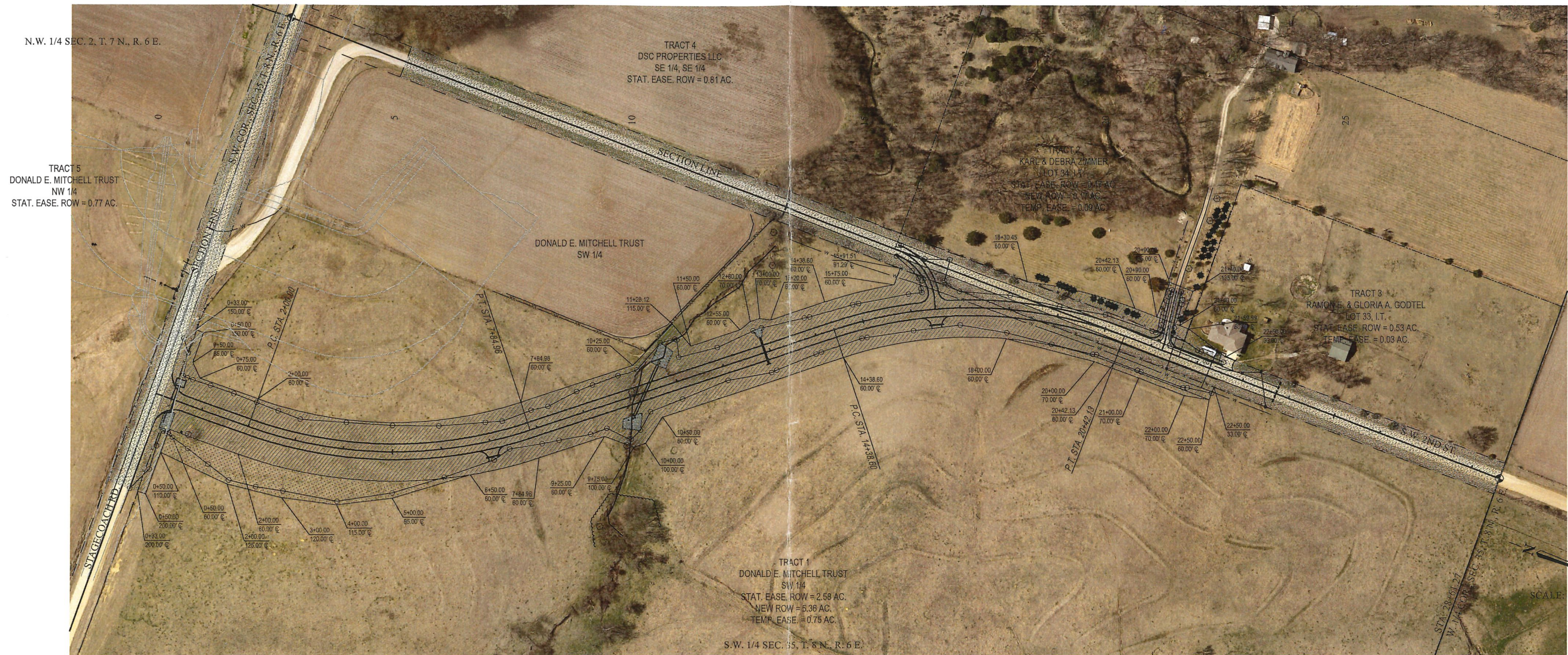


Dan Nolte
Lancaster County Clerk





S.E. 1/4 SEC. 34, T. 8 N., R. 6 E.



- LIMITS OF CONSTRUCTION
- STATUTORY EASE. R.O.W.
- NEW R.O.W.
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

RIGHT-OF-WAY

SUBSTITUTE RESOLUTION

13.049 50 Accessory Dwelling Unit (ADU)

An One accessory dwelling unit per lot may be allowed by special permit in the AG zoning district under the following conditions:

1. The lot area shall be 20 acres or larger. For purposes of determining minimum lot area, abutting County section line and one-half section line road right-of-way is included in the total area.
2. The total square footage of the ADU shall not exceed the lesser of ~~800~~ 1,000 square feet or 40% of the square footage of the principal dwelling, excluding garages, ~~and carports, and space used for mechanical equipment, such as heating, utilities and water heater or pumps. Any other unfinished space in a basement is included in the square footage to allow it to be finished in the future.~~ The calculation for the principal dwelling shall be based on the floor area ~~prior to the construction of the ADU.~~ as of the date the special permit is filed.
3. No more than two (2) bedrooms are allowed in the ADU. Bedroom shall mean any room or space used or intended to be used for sleeping purposes.
4. The owner of the lot is required to live on the property in either the principal dwelling or the ADU. The owner of the lot shall file with the Register of Deeds, a deed restriction agreement against on the property stating that the accessory dwelling cannot be sold separately from the main house principal dwelling. The deed restriction agreement must be to the satisfaction of the County Attorney. This deed restriction agreement shall be filed prior to any building permit for the ADU.
5. The ADU must share the same access point to the public or private street as the principal dwelling.
6. The ADU must meet the same setback requirements as the principal dwelling of the district. The height of the ADU must meet the height limit of the district for a dwelling, but be no higher than the principal dwelling.
7. A detached ADU shall be located a distance no greater than 200 feet from the principal dwelling and must not be closer to the street right-of-way than the principal dwelling.
8. The ADU must share utilities with the principal dwelling unless owner can demonstrate a practical problem with sharing due to topography or other unique site considerations.

The County Board Planning Commission and if appealed, the County Board, may amend any of the above conditions, with the exception of Conditions 4 and 5, or impose additional conditions, upon a showing that such conditions are reasonably related to the interest of public health, safety, and the general welfare. ~~may adjust the conditions, with the exception of Conditions 4 and 5. Conditions 4 and 5 may not be adjusted by the County Board.~~

- aa. Commercial feedlot; (Resolution No. R-17-0040, May 30, 2017)
- bb. Community Unit Plan; (Resolution No. R-17-0040, May 30, 2017)
- cc. Health Care Facilities Non-Residential; (Resolution No. R-17-0040, May 30, 2017)
- dd. Private Recreational Activities; (Resolution No. R-17-0040, May 30, 2017)
- ee. Flood Plain Construction; (Resolution No. R-17-0040, May 30, 2017)
- ff. Personal Wireless Services Facility. (Resolution No. R-17-0040, May 30, 2017)

~~gg.~~ Accessory Dwelling Unit.

hh.

2.001. Definitions - General Provisions.

For the purpose of this title, certain terms and words are hereby defined. Certain chapters contain definitions which are additional to those listed here. Words used in the present tense shall include the future; the singular number shall include the plural and the plural the singular; the word "structure" shall include the word "building" and the word "shall" is mandatory.

Effective on: 1/1/1901

2.002. A.

Academies shall mean education and instruction facilities including but not limited to dance or music academies, gymnastic or martial arts school. Academies shall not include early childhood care facilities, public schools, or private schools that meet the State of Nebraska requirements for elementary or secondary education, or industrial trade schools. (Approved Resolution No. R-17-0040, May 30, 2017)

An **accessory building** is a subordinate building or a portion of the main building, the use of which is incidental to that of the main building or to the main use of the premises. An **accessory use** is one which is incidental to the main use of the premises.

Accessory Dwelling Unit. An accessory dwelling is a subordinate building or portion of the main building for use as a secondary single-family dwelling which is incidental to use of the main building for a primary single-family dwelling.

Agriculture shall mean the use of land for the purpose of raising and harvesting crops; or for the raising, breeding, or management of livestock, poultry, fish or honeybees; or for dairying, truck gardening, forestry, nurseries or orchards; for the non-commercial on-farm storage or processing of agricultural products produced on the premises; or for any other similar agricultural, horticultural, or silvicultural or aquacultural use. (Resolution No. 4921, June 30, 1987)

Airfield. An area of land and/or water, publicly or privately owned, that is used or intended to be used for the landing and takeoff of aircraft, including general aviation aircraft, helicopters, seaplanes and ultra light aircraft or vehicles, but excluding air carrier aircraft, that may be open to the public for commercial or business purposes and shall meet State standards on the basis of Mean Sea Level (MSL) elevations. It may include appurtenant areas, facilities or buildings suitable to house, handle or service aircraft. Any such aircraft or vehicle operating from a private airfield shall attain safe and reasonable clearances over utility lines, poles, towers and appurtenances which may be located in the path of any runway. (Resolution No. 5367, August 26, 1996)

Airfield, Commercial Agricultural An airfield that is the permanent base of operation for an aerial applicator, under land ownership or lease, within the County, the operator of which is a certified applicator under the Rules and Regulations of the State of Nebraska, Department of Aeronautics. The Commercial Agricultural airfield shall be for the exclusive use and operation of the Commercial Agricultural airfield owner or lessee for their aircraft and shall not be open to the public. Any such aircraft or vehicle shall attain safe and reasonable clearances over utility lines, poles, towers and appurtenances which may be located in the path of any runway. (Resolution No. 5367, August 26, 1996)

Todd J. Wiltgen

From: Compton, Darren R <Darren.Compton@BNSF.com>
Sent: Wednesday, October 24, 2018 10:02 AM
To: Todd J. Wiltgen
Cc: Compton, Darren R
Subject: Blue Prairie Wind LL and Nextera - Proposed Wind Amendment

Dear Mr. Wiltgen

The Amendment passed in 2015 should stand "as is" for both participating and non-participating landowners; 40 Decibels during the day and 37 Decibels at night. A lot of time, effort and resources went into research, drafting, re-writing and final approval just three years ago.

Big business should not be able to entice or bribe landowners to assume more risk so they and their investors can make a larger profit. The World Health Organization (WHO) published multiple health advisories about noise impacts on health. Based on their research, cognitive impacts, sleep disturbance, mental health issues, and cardiovascular issues occur at noise levels starting at 42 decibels and exponentially increase as the noise level increases. Toronto Public Health has reviewed the evidence accumulated since the WHO article, and concluded that the old benchmark of 60 decibels is much too high based on this newer evidence, and to protect the public the new benchmark must be set around 40 decibels. It is not the responsibility of the populace to decrease the standard, so big business can make a profit. It is the responsibility of the industry to meet the requirements set forth by the populace.

Nextera is getting all of its information/findings from one study conducted in Canada. There are many more studies out there, that contradict the findings of this study. The health effects from wind turbine noise has not been studied extensively enough to draw a definite conclusion that there are no adverse health issues associated with the noise levels produced by wind turbines. Think of the many health articles that declared an item good or bad for you that was later reversed. A prime example of this is the medical opinion about eggs. This is just one example there are many more medical opinions that have been reversed with further studies. A very detrimental item is asbestos, which was widely used and is now causing countless health issues and even deaths. Plus the study Nextera is using is a L50 study, which means 50 percent of the test population will be affected. Living in a democracy, just one more percentage constitutes a majority; democracies are ruled by majority. Nextera is basically saying we know that 50 percent of the population will be affected at the noise levels we are proposing, but I got the impression they were unconcerned so as their project can move forward. I can't believe we would allow half of the population to have an increased likelihood of health issues to generate some electricity that will be sold on the open market and most likely be going out of state or overseas. The wants of a few cannot outweigh the protection of many.

Plus, if this is a 150 million dollar project, why is a Limited Liability Corporation managing / taking responsibility for this project. Why isn't Nextera (a fortune 200 company) responsible. Nextera is sheltering itself from any claim or law suit and allowing for foreign investors by using a LLC company to construct and manage this project. If something should happen, the LLC will fold with no assets for the injured party or parties to file a claim against or collect any compensation. Nextera walks away with no liability and all of the profits. Bottom line, Nextera and its investors get all of the profit and assume none of the liability/responsibility.

According to the US Department of Energy, it takes more energy to produce and construct the components and turbine themselves, than it will ever produce over the live span of a wind turbine. The only thing that makes Wind Turbines viable as a source of energy right now, is the Federal Subsidies. Without this Federal money, it would not be profitable for companies like Nextera to build commercial wind farms. The populace's pocketbook will get hit multiple different ways; 1st, their taxes pay for the Federal Subsidies, 2nd, they pay the same for power no matter how it is produced and the profit does not stay local and, 3rd non-participating landowners will have the beauty of the land scape destroyed so a few that don't live in Nebraska can profit. It is also predicted if Federal Subsidies stop, aging wind turbines will be abandoned and not decommissioned. The Decommissioning plan is a bond, and a bond is only as good as the company issuing it. If you want to guarantee the money for decommissioning, have the money (entire cost of decommissioning (accounting for inflation) placed in an escrow account controlled by the county treasurer where the turbines are.

Again – the Amendment should stand “as is”, 40 decibels during the day and 37 decibels at night. The needs of the people cannot be outweighed by the wants of a few. The health of the population should not be put at risk by increasing the sound levels for commercial wind farms. Our US dollars should not pay for a project while most or all of the profits go to foreign investors.

V/r
Darren Compton

Todd J. Wiltgen

From: mlmjwoodward@windstream.net
Sent: Sunday, October 14, 2018 7:56 PM
To: Todd J. Wiltgen
Subject: Wind

Mr. Wiltgen,

As a life-long resident of this area, I think it is essential that we prevent industrial wind companies from ruining our health, our countryside and the opportunity to sell our homes for full value.

My husband and I built our home on 4 acres of my family's farm nearly 20 years ago. We have hope that our children may want to build homes here within the next 10 years. That absolutely will not happen if our land is surrounded by 500 foot wind turbines. In addition, we won't be able to sell our home, if we want to, without suffering a huge loss. No one wants to live in community filled with industrial wind turbines.

Please hold firm with the current regulations which were established to protect our health and community. Industrial wind turbines do not belong in this densely populated area.

Thank you for your time.

Linda Woodward
2750 SW 14th Rd
Cortland, NE 68331

Todd J. Wiltgen

From: dmcintosh@neb.rr.com
Sent: Friday, December 14, 2018 2:19 PM
To: Todd J. Wiltgen; Roma B. Amundson; Deb E. Schorr; Bill P. Avery; Jennifer J. Brinkman
Subject: Wind Farm

Lancaster County Board,

A few thoughts on the proposed wind farm.

To begin, these wind mills are not profitable with out government subsidies. At some point sooner than later the debt of the country and the reality that wind and solar are actually more expensive than any traditional source of power we now use when the subsidies are removed will sink in.

These windmills do not pay for themselves during there life span. When it comes time for these windmills to come down there has to be some safe guards put into place to protect the land owner. These companies can file bankruptcy and fade into the sunset at the blink of an eye. When that happens who will pay to remove these monsters? Will they set there until they fall over?

To prevent this a requirement for an up front fund needs to be established to cover the cost of removal and the restoration of the land back to its former self. That money needs to be protected so it is indeed available when needed. Be aware when they do remove windmills the common practice is to remove 4 foot of the concrete base below ground level and the rest of the concrete remains in the ground. Doing so would allow the ground to be farmed but could affect the desirability of doing anything else with it.

Below is a statement from a farmer in north central Iowa. Read that and ask yourself if this is a good thing for any land owner or County for that matter.

Basically the wind company offers you so many \$ per acre for land with in a certain distance of the turbines if you release them from all liability of anything that is related to negative effects of living in the middle of an industrial power plant. You also are giving them easement to do anything they choose to on those acres such as drive equipment run underground lines that sort of thing. You are not allowed to block the wind in any way, have to have permission from them to plant a tree, build a fence, building, grain bin, house, shed, basically anything. You are also not allowed to speak of any negative effects the turbines have on you and your property.

Issues associated with windmills are not only the noise but the flickering of light in some situations that can affect a person usually with headaches. This is similar to when you are driving down a road at a fair speed and the sun is peeking between a shelter belts of trees causing a strobe affect.

I hate to see the waste of land used for these wind mills and what will happen when they wear out and are abandoned.

Please think twice before allowing these things into the county.

Sincerely,
Dale McIntosh

Todd J. Wiltgen

From: Kathy Kroeker <kmkroeker@gmail.com>
Sent: Tuesday, October 30, 2018 5:11 PM
To: Todd J. Wiltgen
Cc: Amy Kroeker
Subject: Wind turbines - Hallam

I cannot believe this is up again to have these turbines in this area. My children live at 2260 W Pella Road. The Power plant is a mile west from their property, and having wind turbines in the area would make it completely unlivable, let alone the decibel level from these turbines.

Also has anyone determined the impact these turbines would have on the wildlife in the area. maybe someone should hire someone to see if he impact it has. I know my son hunts to provide meat for his family, and I'm sure the noise would push the deer away and water fowl.

Please do not allow these these to be built in this area.

thank you

Doug & Kathy Kroeker

Sent from my iPad

Todd J. Wiltgen

From: Jeff Hulbert <jeff.mary.hulbert@gmail.com>
Sent: Friday, November 09, 2018 9:56 PM
To: Todd J. Wiltgen
Subject: Wind Turbines

Todd Wiltgen
620 Cottonwood Drive
Lincoln, NE 68510

Dear Commissioner,

I am a voting home owner in Lincoln, Lancaster, Nebraska.

I am concerned to hear that you are considering changing the current wind regulations. I remember this being an issue back around 2015. At that time, you changed the regulations to accommodate the building of a wind farm. I was not in favor of this change at that time.

I am confused as the need to change them again. The only reason can be that the developer cannot work within the current regulations. Why not? They seemed to accept the previous regulations. What has changed?

Are you now considering making changes for big business instead of supporting the voting land owners of Lancaster and Gage counties? I would think as an elected official you would support the people that elected you to your position.

I would ask that your supporting the land owners and not approve any changes to the current wind regulations. Here are a few of the reasons to not approve any changes:

- Wind developers want to put up taller, more powerful and noisier turbines
 - No reason to change wind regulations to make these turbines fit, instead the developer needs to build ones that will fit within the current regulations
- Protect Property lines by keeping all setbacks measured from the property line
- Southern Lancaster and northern Gage County is no place for wind turbine, too populated of area.
 - This will affect people's health and property values
- They are an eyesore and will stop development in these areas. Would you want one in your backyard?
- There are better/less populated areas for these wind farms

Do the right thing, do not approve any changes to the current wind regulations.

Thank you for your consideration,

Jeff Hulbert
2729 S 44th ST
Lincoln, NE 68506
402-669-4484

Todd J. Wiltgen

From: cowgirlcabin@aol.com
Sent: Sunday, November 11, 2018 2:57 PM
To: Todd J. Wiltgen
Subject: Blue Prairie Wind Project

Hello Commissioner Wiltgen, My name is Judy Daugherty and I live on 3 acres with my husband and two daughters. I live right in the middle of the proposed blue prairie wind project. In 2015 when Volkswind approached the county to get permitting for their wind farm, they had 12 - 500 ft turbines sited in every direction within 1 mile from my home with one only being 800ft from my front door! Nextra has now purchased these same land leases and has submitted text changes to the zoning regulations for your board to reconsider. They are asking for the setback from the non-participating property line to be changed from 2 times the turbine height to 1.1 times the height. Nextra is planning on using general electric wind turbines for this project and this is their recommended setback as they will freely tell you. What they aren't telling you is that this is the setback for a fall zone only! GE states in it's safety manual for technicians to stay 1300ft back while it's operating unless it's necessary. The safety manual also states in case of fire it is necessary to rope of a radius of 500m which is 1640ft for falling debris. As the zoning stands at 2 times the turbine height my property is already in the danger zone for falling debris. Asking that to be reduced any more is putting my family and I at risk. They are also asking for a turbine to be placed 1475 ft to the exterior wall of my house. Again, that puts my house in direct line of falling fire debris. The hard hat zone for their employees is a radius of 1640ft., again allowing the turbine to be within 1475 ft of my home would require me to wear a hard hat any time I go outside. My kids would have to wear a hard hat standing on the road waiting for the school bus. That's just insane, you can't put people and kids in danger like that! You don't want to be known as the commissioner who made kids have to wear hard hats on their property. Setbacks have to remain at the property line, a neighbor should not be allowed to put any part of my land at risk of danger. Then, Nextra is asking for the noise limit for participating land owners to be raised to 50dba. We know that 50 dba is hazardous to your health, that should not be questioned. It comes down to the question of "should you be able to do what you want on your own land or not?" If they want to endanger their health for money that's their right. My question is what about the kids of these landowners, who is protecting them? We can say people have the right to smoke even though they know it's harmful to their health, we can't stop that. But we have been passing law after law protecting people and children from their second hand smoke. Even recently laws have been passed that smoking in a car with a child is now illegal. I wish that law was in effect when I was a child. We need to protect children, we have the obligation to protect children! Leaving the noise level the way it is will continue to do this. No one should be allowed to jeopardize a child's health not even their parents especially for money! That's what raising the noise level to 50dba would be doing, allowing wind developers to put children in harms way. I urge to to stand up and do what is the right thing to do and leave the zoning regulations as they are. Thank you, Judy Daugherty

Reply Reply All Forward

Todd J. Wiltgen

From: Kay <kay@icenergysolutions.com>
Sent: Sunday, November 04, 2018 10:50 AM
To: Bill P. Avery; Jennifer J. Brinkman; Deb E. Schorr; Todd J. Wiltgen; Commish; myron.dorn@gage.nacone.org; matt.bauman@gage.nacone.org; Erich.Tiemann@gage.nacone.org; dennis.byars@gage.nacone.org; gary.lytle@gage.nacone.org; john.hill@gage.nacone.org; terry.jurgens@gage.nacone.org
Subject: WIND TURBINES IN SOUTHERN LANCASTER AND NORTHERN GAGE COUNTY

Southern Lancaster County and Northern Gage County is no place for wind turbines. This is a highly populated area. Wind Turbines will adversely affect too many people's health and property values as well as wildlife. Nebraska has plenty of wind generation now with many more planned. Protect our property lines. All setbacks should be measured from the property line. The only thing that has changed with these turbines since 2015 is that they are taller, more powerful and much noisier. There is no reason to change wind regulations just to make these turbines fit in Lancaster and Gage Counties. They are ugly and will stop any future growth of new homes and businesses being built in the area.

WIND TURBINE FACTS

1. Wind doesn't generally blow reliably, and turbines usually function at about 30% capacity or so. Wind turbines cause noise pollution.
2. The edges of wind turbines can actually be unsafe to natural life, especially birds and other flying creatures that may be in the area.
3. Individuals exposed to wind turbines can experience sleep disturbance, headaches, tinnitus, ear pressure problems, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory. These are caused by a combination of wind turbine noise, infrasound, dirty electricity, ground current and shadow flicker.
4. Wind turbines can be a total and complete pain to install and deal with on a regular basis. Wind turbines make a sound that can be between 50 and 60 decibels.
5. THINK - While most people like how wind turbines look, few people like them but with NIMBY("not in my backyard") attitude, but for the rest, wind turbines remain unattractive.
6. Wind turbines and other supplies needed to make wind energy are extremely costly.
7. Severe storms and high winds can cause damage to the blades of wind turbine. The malfunctioned blade can be a safety hazard to the people working nearby. It may fall on them causing life term physical disability or death in certain cases.
8. Wind energy can only be harnessed at certain locations where speed of wind is high. Since they are mostly setup in remote areas, transmission lines have to be built to bring the power to the residential homes in the city which requires extra investment to set up the infrastructure. It requires a ton of open area to set up wind turbines, and chopping down trees kind of eliminates the whole green thing that you're trying to do with them.

The following links provide information regarding wind turbine hazards.

[https://www.dailymail.co.uk/news/article-2546042/Proof-wind-turbines-thousands-home-value-homes-1-2-miles-wind-farms-slashed-11-cent-study-finds.html?ito=email share article-bottom](https://www.dailymail.co.uk/news/article-2546042/Proof-wind-turbines-thousands-home-value-homes-1-2-miles-wind-farms-slashed-11-cent-study-finds.html?ito=email%20share%20article-bottom)

<https://naturalgasnow.org/green-gangsters-rip-us-off-enriching/>

<https://www.wind-watch.org/news/2018/11/01/you-cant-sleep-wind-turbines-fanning-farmers-fury/#.W94MVZD6O9o.email>

Please protect our health, our property values and our wildlife. Do not cave to special interests groups that are the only ones that benefit from wind turbines. Ask yourself...WOULD I WANT A WIND TURBINE IN MY BACKYARD? I can bet that answer would be NO.

DO NOT APPROVE ANY WIND TURBINES IN SOUTHERN LANCASTER AND NORTHERN GAGE COUNTY.

Thank you,
Kay Zvolanek
Office Manager
IC Energy Solutions
402-480-7999



Todd J. Wiltgen

From: Yvonne Mihulka-Poole <ympoole@aol.com>
Sent: Monday, November 05, 2018 10:33 AM
To: Roma B. Amundson; Bill P. Avery; Jennifer J. Brinkman; Deb E. Schorr; Todd J. Wiltgen
Subject: Fwd: wind turbines

-----Original Message-----

From: Yvonne Mihulka-Poole <ympoole@aol.com>
To: tcajka <tcajka@lincoln.ne.gov>
Sent: Mon, Nov 5, 2018 10:26 am
Subject: wind turbines

We are writing to you to address our concerns about Blue Prairie Wind trying to bring back the wind project that Volkswind tried. A lot of people spent time and money to make sure that sound limits and setbacks were in place to protect all the citizens of Lancaster and Gage counties. We feel that just opening this up to discussion is a major step in the wrong direction.

After attending the public meeting in Hallam we found no change or any new technology that would make these 500 foot towers safer, more visually pleasant to look at, or add to the value of our property.

This area in southern Lancaster county and northern Gage county has had extensive growth since we went through this 3 years ago. People felt that the wind turbines were over and that they could invest in this area. All this new growth will stop if we change the safe setbacks and sound. We personally invested money into our property to save our 100 year old heritage. It was a lot of our savings and time. Now it is all in jeopardy.

Citizens in these small surrounding communities will not step forward to oppose the turbines. The farm community is their livelihood. They do not want to stand against the participating landowners in fear of retaliation.

Going into the future my grandchildren will not see the hills, sunrises, sunsets or the other beauty of the nation or our area without wind towers looming up to the sky taking away the natural beauty. I don't feel these companies are here to save the world but to get their subsidies.

Please stop this project. The safe setbacks and sound limits should not be changed.

Thanks,
Gregg and Yvonne Poole
2331 W. Ash Road
Cortland, Ne. 68331

Todd J. Wiltgen

From: Schmid, Daniel <Daniel.Schmid@united.com>
Sent: Monday, December 10, 2018 9:00 AM
To: Todd J. Wiltgen; Roma B. Amundson; Deb E. Schorr; Bill P. Avery; Jennifer J. Brinkman
Cc: Scott E. Holmes
Subject: Infrasound effects still making the news!

<http://www.advertiser-tribune.com/opinions/letters-to-the-editor/2018/12/infrasound-effects/>

Infrasound effects

Dec 1, 2018

I congratulate Seneca County for being selected to participate in one of the largest experiments to determine the effects of infrasound on human organ systems. With large numbers of massive wind turbines planned in this densely populated county, medical effects on internal organs can be analyzed.

The size of the proposed wind turbines ensures the generation of low-frequency infrasound. The proximity of wind turbines to schools guarantees that as children age, internal organ deterioration can be compared to child control groups from similar demographic locations lacking wind turbines. After 10, 20 and 30 years, researchers can evaluate effects on human internal organs from infrasound. This is important, because western scientific research and medical literature has little written concerning short, or long-term infrasound effects on human organs such as lung, heart and kidney.

However, infrasound effects on internal organ tissue have been studied by numerous researchers in the former Soviet Union. They found that infrasound waves cause significant changes to heart tissue and other internal organs.

In the 1990s, European investigators studied internal organs in animal subjects and human workers exposed to infrasound. They found significant changes in lung tissue and heart pericardium. The authors also were concerned with potential damage to internal kidney structures.

In January 2018, German researchers presented results concerning infrasound effect on cardiac tissue contractility. They found cardiac tissue exposed to infrasound decreased tissue contractility by 25 percent.

Seneca County wind farm companies state that wind farm sound levels will only approach 55dbA. That information is misleading concerning infrasound. The "A" designation is a filtration formula including only audible sound between 20Hz and 20,000Hz. Infrasound is defined as occurring between 0-20Hz and is not identified with the dbA formula.

With multitude turbines planned, decibel level determination may be problematic. Overlapping sound wave energies add together, similar to overlapping ripples on water from multiple stones dropped simultaneously. Some waves cancel out. Other waves enlarge. Wind turbine numbers become directly proportional to infrasound wave energy multiplication. Also, infrasound waves are stable, traveling great distances.

For those interested in their own personal research on infrasound effects, information was obtained for this letter from the PubMed website (Key words: infrasound AND heart, or infrasound AND physiological effects) and the Wikipedia website. Soviet research, translated from Cyrillic, was obtained from the archives at The National Library of Medicine at the National Institutes of Health, Bethesda, Maryland.

Retired Capt. Michael T. Curran,

U.S. Navy,

New Riegel

Sent from my iPad

Todd J. Wiltgen

From: Daniel Schmid <DSchmid54@hotmail.com>
Sent: Thursday, December 06, 2018 11:34 AM
To: Todd J. Wiltgen; Bill P. Avery; Deb E. Schorr; Jennifer J. Brinkman; Roma B. Amundson
Cc: Health
Subject: Text amendment 18011/wind turbines

Dear Lancaster county commissioners:

Though unable to attend the planning open meeting on text amendment 18011, I did watch the video and had a couple of thoughts.

I notice that the health department is still looking at just "annoyance" from commercial wind turbines - no causation health affects. This, evidently, due to no "peer reviewed scientific" literature studied by the health board. Personally, I think this is very short-sighted when the health safety of your constituents is involved. Just because something is not proved, or seen, or heard, does not mean that a threat does not exist. We should use our best judgement whether proved or not, error on the safe side. You can always change later. As a pilot (military and commercial), this is the paradigm I am used to operating in. Example number one: you may remember TWA flight 800, I believe in 1996, exploded after taking off from New York's JFK airport. All killed, over 200, if my recollection serves. The National Transportation Safety Board(NTSB) causation was determined to be an explosion in a fuel tank after the fuel was depleted. I recalled many years of pilot concerns expressed prior to this accident that were disregarded, no "peer reviewed scientific" evidence, if you will accept my correlation. Imagine my surprise when sometime after the NTSB report I read a bulletin concerning the B777 which I was flying (and still fly) stating that inert gas will now be pumped into the empty fuel tank (a standard military practice at the time) to prevent any problems in the future. Example number two: this I know less about, and have done little research. I believe that for years and years, the tobacco companies stated that there are no known "peer reviewed scientific" studies that link cigarette smoking with lung cancer. Even at the time of the big law suits against the tobacco companies, I do not believe there were any such studies. But none today would doubt the validity of the fact. Lesson, at least to me, listen carefully to all that have a say in whether something is happening concerning living among these turbines. Don't just label it as not-in-my-backyard syndrome, annoyance because of political views or preconceived ideas, etc. I do believe that all safety issues are open to discussion under this section I of county zoning regulation 13.048 which is open before the board.

2) The health department talked about "significant finding" the fact that on these studies used (Canadian, etc.) zero aggregate annoyance from participants. This was throughout the staff report. When NextEra was working in my county, they were signing up landowners two years before any of those of us actually residing in the county found out about it. Guess who they target first - absentee land owners. So naturally someone who does not live where they own the land are not going to report any annoyance problems! And certainly no one living in a town with a new community center, probably kilometers away from any wind turbine (Canadian study), would report annoyance. I could have saved the health department many hours of study on this point of "significant finding". A better study would be those participants that actually live under the influence of these turbines. I know we can say that nothing changes for the non-participants, but in actuality, they will now be the ones living under the turbines, not the majority of the participants who will experience 0 dba,c,g or whatever other scale (should be db linear for infrasound) one wishes to reference! They are no where close to the turbines! NextEra, in their filing, spent time rebutting the existence of a health threat from infrasound. Does this not then open the discussion for infrasound health hazard? Since 2015 much new data points to the fact that you should actually strengthen the protection for the non-participants. Most of this is infrasound not measured by the dba scale.

3) NextEra - mentioned before - I have experience with them and the same legal representation. Everything mentioned before the planning commission by residents from Missouri concerning NextEra is true. They like to push their way around - by legal threats (I have a threatening letter sent to our township board prior to a meeting to consider safety regulations concerning wind turbines), they had hush clauses in their 100 year contract, they did not hold any public

meetings prior to signing land owners, mostly absentee, etc, etc - guaranteed to split the community right down the middle. They will build and then ignore and fight complainers(county boards included - we really are all small fry!) afterwards. I would ask them, 1) Why not hold public meetings prior to any contracts being signed? 2) Why the hush clauses (proprietary!)? 3) Do any of you live under wind turbines? Probably outside of the scope of section I. Do not trust them to hire (pay for result!) for post construction compliance. The board hires, the applicant pays. NextEra's core value slide is only for board presentations! My advice, do not dance with the devil.

In our case, we decided that the best game plan was to attempt to get all information made public, good or bad. The result, 94% of five township votes to adopt safety regulations within the township.

Sorry for the lengthy, scattered, thoughts. But important to communicate.

I may try and attend the December 18th board meeting.

I have attached some more infrasound material for your study.

Thanks for the time, call or email with questions.

Dan Schmid
Dwight, NE
DSchmid54@hotmail.com
(402)617-8256

<https://docs.wind-watch.org/Physiological-effects-of-wind-turbine-noise-on-sleep-ICA2016-0440.pdf>

Physiological effects of wind turbine noise on sleep

22nd International Congress on Acoustics, ICA 2016 Buenos Aires – 5 to 9 September, 2016 Acoustics for the 21st Century... 2 Physiological effects of wind turbine noise on sleep

docs.wind-watch.org

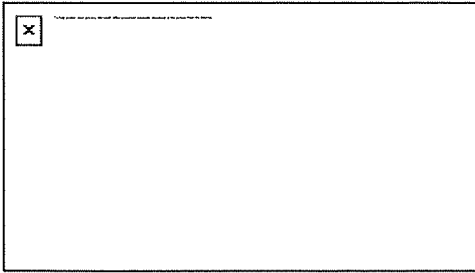
<https://docs.wind-watch.org/infrasound-alters-brain-connectivity.pdf>

Altered cortical and subcortical connectivity due to infrasound administered near the hearing threshold – Evidence from fMRI - docs.wind-watch.org

RESEARCH ARTICLE Altered cortical and subcortical connectivity due to infrasound administered near the hearing threshold – Evidence from fMRI Markus Weichenberger^{1*}, Martin Bauer², Robert Kühler, Johannes Hensel², Caroline Garcia Forlim³, Albrecht Ihlenfeld², Bernd Ittermann², Jürgen Gallinat³, Christian Koch², Simone Kühn³ 1 Department of Psychiatry and Psychotherapy, Charite ...

docs.wind-watch.org

<https://www.youtube.com/watch?v=ZXCZ3OyklrE&feature=youtu.be>



INFRASOUND AND LOW FREQUENCY NOISE - Ljubljana 2018 - youtube.com

Ghosts and Infrasound | Stuff They Don't Want You to Know - Duration: 4:35. Stuff They Don't Want You To Know - HowStuffWorks 187,650 views

www.youtube.com

Todd J. Wiltgen

From: JoJen Alder <jojenalder@gmail.com>
Sent: Sunday, October 21, 2018 4:33 PM
To: Todd J. Wiltgen
Subject: Fwd: New WHO Guidelines

Please take the time to review. Thank You.

----- Forwarded message -----

From: **JoJen Alder** <jojenalder@gmail.com>
Date: Sun, Oct 21, 2018, 4:28 PM
Subject:
To: JoJen Alder <jojenalder@gmail.com>

<https://www.masterresource.org/wind-turbine-noise-issues/wto-wind-turbine-noise-as-a-health-hazard/>

Todd J. Wiltgen

From: JoJen Alder <jojenalder@gmail.com>
Sent: Thursday, October 11, 2018 12:11 PM
To: Todd J. Wiltgen
Subject: Nextera

Let's all Stop and not think about the Money for a moment!

We have a Company. A very smart and Veteran company that is very well trained who is trying to out smart us all! Don't let them fool us! They are used to coming into communities all over the world only to make Money and run the system. They make it look so good! Is this what we want a multibillion dollar company to do to Lancaster and Gage counties!! Everything they need is right in Hallam. Willing land owners (whom initially contacted them through Volskwind) , transmission lines which will save them money, the grid, and some county officials that only see Dollar signs. Why wouldn't they be here! Its ridiculous how we can let them feed on us only so they can recieve subsidies! Don't let them do this to our counties. Who should we listen to? A multibillion money hungry company or our own Health Department who has researched and recommended to keep ALL residents safe? If we do not follow what has been researchedWhy waste Scott Holmes time and energy! Who do you trust more? Keep the present setbacks and sound levels. Don't be told what they want to make them fit in this highly populated area. Once that door is open they will not stop! Five hundred foot tall industrial Wind turbines sitting in an area with fair wind! Operating less than 50% of the time. I was told by a Nextera trained person that Gage county isn't good wind. Don't let this company do this to Nebraska! Prove Lancaster county is proud to protect the people! And not be filled with greed and ruin our landscapes and All persons health and homes. Nextera is so confident their proposal will go through they already have proposed installation dates! I don't know but if I were serving the people as you do and making major decisions as well as research, I would be cautious and hesitant with this company and would not trust them.

Thank You Please Consider Not changing Setbacks and Sound levels! Leave 2 time turbine height! If they can't fit with present guidelines, maybe they belong in a less populated area!
JoJen Alder

Todd J. Wiltgen

From: JoJen Allder <jojenallder@gmail.com>
Sent: Friday, October 05, 2018 12:23 PM
To: Todd J. Wiltgen
Subject: Re: NextEra Proposed admendments

<https://townhall.com/columnists/jeffingber/2018/10/01/the-reality-of-industrial-wind-power-n2524113>

Please take a minute to review this recent article. Thank You.

On Thu, Oct 4, 2018, 10:48 AM JoJen Allder <jojenallder@gmail.com> wrote:

Good Morning Commissioner Wiltgen,

I'm writing you today to urge you to keep what you and the rest of the supervisors voted on a couple years ago. With all the research that was studied and presented at so many meetings. With the research that was presented to us all by Scott Holmes from the County Health Department to keep all safe by setting responsible setbacks and sound limits. What I am asking you today is. "What has changed?" A New Company, thats all, wanting to build an industrial wind farm in a highly populated area, which I might add is growing to the south rapidly! These towers would be seen from Lincoln and Hickman (the fastest growing community in Lancaster county). Why are they needing to change? If they cant fit it in this area by what is in place, then it cant be safe! We have been doing alot of traveling this past year through Nebraska, Kansas, Wyoming and Montana. These turbines are set in Wide open spaces where Wind turbines belong. Not near peoples homes. Please Keep Lancaster County SAFE. I commend You and the rest of the commissioners for placing these safe standards for Lancaster County, Please keep what you all voted on

Would appreciate your feedback when you have time.

Thank You!
JoJen Allder

Todd J. Wiltgen

From: JoJen Alder <jojenalder@gmail.com>
Sent: Thursday, October 04, 2018 10:48 AM
To: Todd J. Wiltgen
Subject: NextEra Proposed admendments

Good Morning Commissioner Wiltgen,

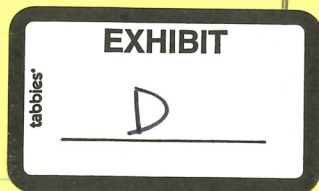
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Would appreciate your feedback when you have time.

Thank You!
JoJen Alder

Home of Jo Jen & Larry
Alder

Nov 8 6:35pm



Name	E-mail
Thomas G. Schwernen	ts75027@gmail.com
Yvonne Mitulka Poole	ympoole@aol.com
Brenda + Bob Leaper	bgriess99@yahoo.com
Gregg B Poole	ympoole@aol.com
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Jo Jen ALLDER	jajenallder@gmail.com

DD Schar
11/20 8AM
my office

Kimberly Dickey
Sr. Community Development
Representative



NextEra Energy Resources, LLC
2601 Bever Ave SE
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400 million



EXHIBIT

tabbles

E

Blue Prairie Wind, LLC

**Proposed Text Amendment to Lancaster County
Zoning Regulations**

December 18, 2018

NextEra Energy Resources is the largest owner and operator of renewable energy in the world

- **NextEra Energy Resources, LLC owns the Blue Prairie Wind project in Lancaster and Gage Counties**
 - Acquired from Volkswind in 2018
 - NextEra and Volkswind are not affiliated
- **NextEra owns a generation fleet totaling over 19,000 megawatts of electric generating capacity across North America**
 - 120 operating wind energy centers consisting of over 10,000 turbines generating more than 13,000 megawatts of power
 - NextEra has invested over \$400 million in Nebraska since 2013
- **Our core values guide our development process**
 - Do the right thing; treat people with respect; strive for excellence
 - In 2018 NextEra Energy was named one of the world's most ethical companies for the eleventh consecutive year

Blue Prairie Wind seeks a single amendment to existing zoning regulations

Proposed Amendment

- **Different sound limitations for participating landowners**
 - Set a maximum limit of 50 dBA for participating landowners
 - Consistent with regulations throughout Nebraska
- **No change to standards for non-participating landowners**
 - Non-participants remain protected by regulations adopted in 2015

The proposed amendment supports the private property rights of participating and non-participating landowners

Basis for the Proposed Amendment

- **The proposed amendment restores property rights to landowners seeking to participate in a wind energy project**
 - Participating landowners should be allowed flexibility to put their land to use and earn income from renewable energy generation
- **Current research supports allowing higher sound levels for participating landowners**
 - Research conclusively demonstrates participating landowners report less annoyance than non-participating landowners subjected to the same sound levels
- **The proposed amendment leaves the existing protections in place for non-participating landowners**
 - Noise levels for non-participants would not change

Public outreach is essential to our development process

Public Outreach in Support of the Proposal

- Landowner Dinner – Beatrice Country Club – September 13
- Open House – Village of Hallam Auditorium – October 9
- Open House – Village of Hallam Auditorium – October 10
- Meeting with Lancaster County Planning and Health Departments – October 2
- Meeting with Lancaster County Planning and Health Departments – November 7
- Growing Gage Communities – Beatrice Library – November 7
- Text Amendment Update to Village of Hallam Board – November 7

The most recent peer-reviewed scientific research supports the proposed amendment

**Lancaster County Planning and Health Department
Staff Recommend Approval**

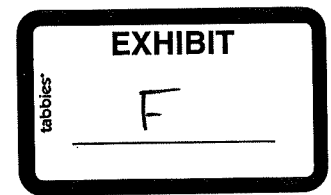
- Scientific research confirms that project participants report much less annoyance than non-participating property owners
- This proposal furthers the County Comprehensive Plan's goals for renewable energy sources, while protecting the public health
- This request does not change any of the protections given to non-participating landowners

Gage County Landowner Experience

“We are landowners in Gage County, and host one wind turbine in the NextEra Steele Flats Wind project. Our experience:

- On average wind days, noise levels are low and very tolerable
- As wind speeds increase, noise levels near the tower increase, but those same winds help to dissipate the noise as you move away from the tower
- Since start up in 2013, I am not aware of any complaints from neighbors about noise
- There have been no groups or organizations formed to complain or protest anything about the wind project
- Taxes paid by NextEra have kept local real estate taxes lower than any neighboring school districts”

Wayne and Lynette Duis



From : Russell Miller
341 S. 52
Lincoln, Nebraska 68510

17 Dec. 2018

To : Lancaster County Commissioners

Subject : Text Amendment 18011 (wind turbine noise limits)

Hello,

I am in favor of this text amendment because of the positive impact it will have on our air quality AND Lancaster County tax base.

During our September public hearing about the chicken barns there were several persons testifying about air quality. It is documented that the coal fired Sheldon power plant (which is in the middle of the proposed wind farm) emits annually 1,400 tons of nitrogen oxides and 1,951 tons of sulfur dioxides. Both pollutants have a very negative effect on a person's breathing, especially those persons with asthma or COPD.

Wind turbines will reduce the amount of time that coal and its resulting pollution will be needed to produce our electrical power. Less air pollution will benefit all of Lancaster County residents.

The property where these proposed wind turbines will be located is in the Norris and Crete school districts. Approximately 70% of our property taxes are going to schools. The larger tax base that will result from wind turbines will have a positive effect on ALL taxpayers in those school districts. A secondary effect is that this increased tax base will not cause an increase in school enrollment that a housing development of equal value would.

Please approve this Amendment.

Thank you,

Russell Miller

Gray R. Bergstrom August 21, 2018 at 3:17 PM
RE: request for Sheldon's power plant air pollution
To: Russell Miller, CC: Elaine Walsh, Scott E. Holmes

Mr. Miller,

The most recent full year of plant-wide emissions from the Nebraska Public Power District's (NPPD) Sheldon Station that we have available is for calendar year 2017. I have provided that information in the table below.

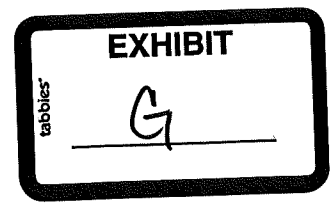
Pollutant	Emissions (tons)
PM10 (particulate matter >10 μm)	7.42
NOx (Nitrogen oxides)	1,406.13
SO₂ (Sulfur dioxide)	1,961.79
VOC (Volatile Organic Compounds)	26.31
CO (Carbon Monoxide)	665.49
HAPs (Hazardous Air Pollutants – Combined)	32.34
Total	4,099.48

Additionally, I do want to correct one misconception on the plant's operations. NPPD Sheldon Station has not yet converted either of its two coal-fired boilers to hydrogen, and that conversion is not anticipated to occur for at least the next couple of years.

We do not have any data on how far the pollutants travel, as air pollution dispersion is heavily dependent on weather patterns. Some emissions may impact the nearby area, while some emissions may be transported hundreds of miles or more.

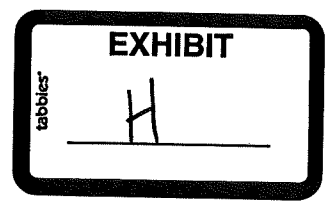
I hope you find this information helpful. Please let me know if you have any questions.

Gary Bergstrom
Lincoln Lancaster County Health Department



My name is Rebecca Seth, (1971 Sewell Street, Lincoln). I am a co-leader of the Lincoln chapter of Citizens' Climate Lobby, a non-partisan group working for action on climate change. Along with many other citizens I am very concerned about this issue and the effect it is already having on our state, nation and world. It seems only prudent to move quickly toward a clean energy economy and the jobs and innovation that will entail. This resolution is a step in that direction and I, along with my fellow volunteers, heartily support it.

Lancaster County Board
18.12.18 re amendment re wind power



Thank you for this opportunity to talk with you. I'm always somewhat in awe of what a privilege it is to participate actively in the processes of our government.

You are probably well aware of our situation, but please indulge me in restating a few basic facts so we can start with a common understanding. The whole earth, including Nebraska and Lancaster County, is currently experiencing significant climate changes. This is due, in large part, to an increasingly dense layer of carbon dioxide in the atmosphere that acts as a blanket, trapping heat and insulating our planet. The growth of that layer, in turn, is due largely to our burning of fossil fuels.

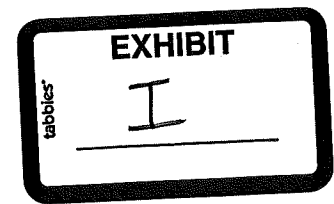
It should be clear to all of us that

Please know that we have good reason to be grateful for fossil fuels. The energy derived from the combustion of oil, coal, and gas fueled the Industrial Revolution and has continued to fuel the decades of phenomenal progress that have followed. But that process now threatens life as we know it. ^{It} It's time for a change.

In October the Intergovernmental Panel on Climate Change released its sixth report with the sobering news that the climate is changing even faster than previously believed. In November, on the heels of this international report, 13 of our nation's own federal agencies released the fourth National Climate Assessment with much the same take on our situation. Climate change is real, and it's serious. It's affecting our health, our national security, our agriculture, and our economy. It's getting worse at an unprecedented rate. And people are concerned.

The Yale Climate Communication project suggests that 72% of Lancaster residents recognize that climate change is happening and 71% ^{even} say that ^{protecting} protecting the environment is more important than economic growth. But fortunately, we don't ~~even~~ have to make such an either-or decision. Multiple studies show that a transition to renewable energy will generate more and better jobs than are currently available in our fossil fuel economy. And opportunities such as the one facing you now will increasingly improve not only the environment, but also the economy, right here in the Midwest.

I strongly encourage you to support this amendment and furthermore to be alert to future opportunities to help Lancaster County assume a leading role and be part of the solution. I believe that's the kind of County we are.



Chairman Wiltgen and Board Commissioners,

My name is Matt Gregory and I am the Clean Energy Advocate for Nebraska Farmers Union, a statewide member-based organization that has been instrumental in advocating for wind energy development in Nebraska. I'm here to ask the Board of Commissioners to support the text amendment to amend the sound regulations for participating landowners for the Blue Prairie Wind Project to 50 decibels all times of day. I would like to stress that wind energy is something Lancaster County citizens want as it creates jobs, leads to economic development, and addresses climate change.

According to the Yale School of Forestry and Environmental Studies nationwide survey on opinions of climate change and renewables, when it comes to Lancaster County, 84% of survey respondents support funding for renewable energy sources, 75% support regulation of CO₂ as a pollutant, 70% support strict CO₂ limits on coal plants, 67% support requiring utilities to produce at least 20% renewables and 70% trust climate scientists about global warming. Far from a small percentage, there's a super majority who care and want to see renewable energy development and climate change in Lancaster County. Looking at the rest of the state, UNL's 2015 rural poll found that 80% agree that more needs to be done to develop wind and solar. Earlier this month the Natural Resources Defense Council released a report on clean energy in rural America. Nebraska was one of the states that it studied and even though more clean energy jobs are in urban

areas, they make out a bigger percentage of the rural economy. That's 1,443 jobs last year in renewable energy in rural Nebraska. And those are well-paid jobs with benefits. And I believe we can do better, and the Blue Prairie Wind project will do that for rural Lancaster and Gage Counties.

You have heard from those who are opposed to wind energy and believe that they will still hear the turbines. There will be tests to keep NextEra in compliance with the law, but I have to say I'm surprised these same folks are not bothered by the sounds of trains and agricultural equipment such as tractors that are much louder than wind turbines. If you don't like wind, you're entitled to that opinion and the great thing about this text amendment is that if you're a non-participating landowner, you won't be affected by this project. A landowner that does not want a wind turbine on their land has the same right as a neighboring landowner to have one.

The Berkeley Lab conducted a national survey of attitudes of wind power on project neighbors looking at the strong correlates to annoyance of wind.

Surprisingly, they were not distance to the turbine, age or chronic health condition. The strongest correlates were your opinion of renewable energy and if you thought the planning process was fair. From what I've seen, NextEra has had an open and transparent planning process and they are trying to be good and engaging neighbors. And if you want good neighbors, be a good neighbor. So, I'm asking the Board to please pass this text amendment for Lancaster's economic development. Thank you

https://journalstar.com/opinion/letters/letter-farmers-produce-energy-too/article_67c95656-8d58-5179-956a-665d8347a316.html

Letter, 12/15: Farmers produce energy, too

Dec 14, 2018

TRY 1 MONTH FOR 99¢



One of 44 turbines included in the Steele Flats Wind Project rises from the ground near Diller in this file photo.

Beatrice Daily Sun file photo

BU

A story that's not often told enough is the impact that renewable fuels have had on our state farm economy.

Demand for corn for ethanol production led up to significant commodity price increases ea this decade. And for as tough as the farm economy is now, can you imagine how much wo would be if there were no existing demand for ethanol?

The fact is that Nebraska farmers, in addition to being food producers, are energy producers well. And it's not just renewable fuels; it's renewable energy. With technologies in wind and solar having developed as rapidly as they have in recent years, a state like Nebraska can produce energy as efficiently as it does food.

In fact, farmers are currently seeing the benefits. Last year, Nebraska farmers collected nearly \$4 million in lease payments to place wind turbines on their land. And that's not to mention indirect benefits of wind farms paying millions to counties and school districts, helping to reduce everyone's property tax burden.

A wind turbine is a part-time job that keeps a farmer on the farm. Like ethanol did, renewable energy opportunities are helping bring new life and new hope to farmers and rural communities.

Matt Gregory, Lincoln

WIND ENERGY IN NEBRASKA



Nebraska is a national leader in wind resource potential.

Nebraska is one of the top states in the country for potential wind energy generation, with a technical potential of approximately 880,000 megawatts (MW) according to NREL. Nebraska now has 1,415 MW of installed wind power, and was the 18th state to join the "Gigawatt Club." Nebraska's wind potential, combined with manufacturing expertise, could make the state a powerhouse for the wind industry while providing savings for electricity customers. The state lies in the Southwest Power Pool (SPP), where wind power saved electricity customers \$1.2 billion in 2013.

BENEFITS Jobs & Economic Benefits

An investment in wind power is an investment in jobs, including jobs in operations and maintenance, construction, manufacturing and many support sectors. In addition, wind projects produce lease payments for landowners and increase the tax base of communities.

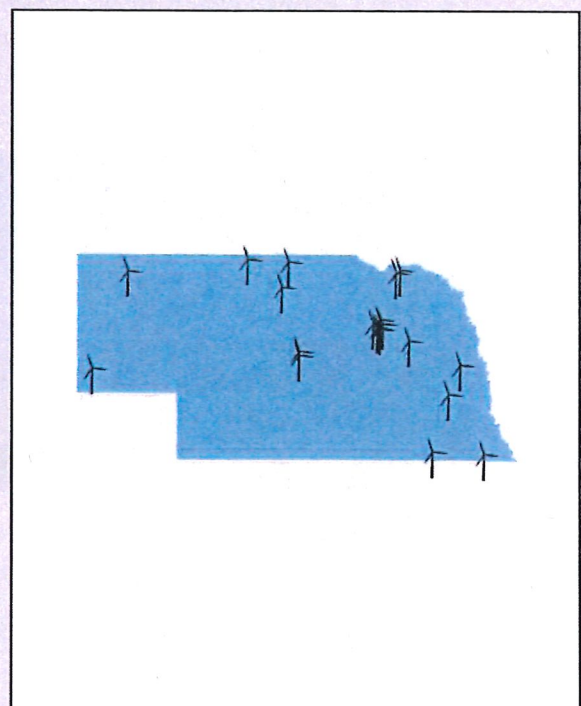
- 2017 direct and indirect jobs supported: **1,001 to 2,000**
- Total capital investment through 2017*: **\$2.6 billion**
- Annual land lease payments*: **\$1 - \$5 million**


*Calculations based on national and state averages.

Wind-Related Manufacturing

The United States has over 500 manufacturing facilities producing products for the wind industry that range from blade, tower and turbine nacelle assembly facilities to raw component suppliers, including fiberglass and steel.

- Number of active manufacturing facilities in the state: **0**



 Online Wind Project



Manufacturing Facility

POWERED BY **WindIQ**

AWEA 

Wind Projects

- Installed wind capacity: **1,415 MW**
 - » State rank for installed wind capacity: **17th**
- Number of wind turbines: **778**
 - » State rank for number of wind turbines: **17th**
- Wind projects online: **22 (Projects above 10 MW: 15)**
- Wind capacity under construction: **732 MW**
- Wind capacity in advanced development: **726 MW**

Wind Generation

During 2017, wind energy provided **14.6%** of all in-state electricity production.

- State rank for share of electricity: **11th**
- Equivalent number of homes powered by wind in 2017: **486,700**

Wind Generation Potential

The DOE Wind Vision Scenario projects that Nebraska could produce enough wind energy by 2030 to power the equivalent of 511,000 average American homes.

- Land based technical wind potential at 80 m hub height: **881,369 MW**
- Land based technical wind potential at 110 m hub height: **471,632 MW** (Source: NREL)

Environmental Benefits

Generating wind power creates no emissions and uses virtually no water.

- 2017 annual state water consumption savings*: **3.0 billion gallons**
- 2017 equivalent number of water bottles saved: **22.4 billion**
- 2017 annual state carbon dioxide (CO₂) emissions avoided: **5.4 million metric tons**
- 2017 equivalent cars' worth of emissions avoided: **1.1 million**

*Based on national average water consumption factors for coal and gas plants



Nebraska

The state of Nebraska does not currently have a renewable portfolio standard or goal set in place to require utilities to generate a certain percentage of electricity from renewable sources.

Growing the Rural Economy with Wind

A Dollars and Cents Look at What 1,451.6 MW of Wind Power Means

- \$5.81 million of new annual income for Nebraska farmers and landowners.
- \$9.43 million of new local tax revenues annually.
- 150 direct and 2000 indirect jobs that are good jobs in rural Nebraska.
- \$2.5 billion of capital investment.

This new annual income and tax income will benefit Nebraskans for many years to come. As long as the wind blows, and the wind projects continue to operate, the income will keep coming.

Nebraska has the potential for far more wind power development. There are 702 MWs of wind projects under construction as of August 2018 and another 726 MW in advanced development. Nebraska is ranked 3rd in the nation in wind potential, and 17th in wind development. Some other states are taking advantage of their wind resources more than Nebraska is, and they are taking advantage of the revenue as well.

Let's take a closer look at the numbers.

Nebraska utilities have contracted for the electricity from several new wind farms over the past few years adding to the capacity for Nebraska wind farms for a total 1,451.6 MW.

At a rate of \$4,000 per MW, 1,451.6 MW's of wind development in Nebraska will yield \$5.81 million of annual revenue for project landowners and farmers.

The 2013 Baird Holm Bluestem study pegged the new property tax revenue realized by local governments at \$6,500 per MW per year for 20 years. These same wind farms will produce \$9,435,400 of new local tax revenues per year.

About 150 new good paying jobs with benefits will be there for the young people who want to stay close to home. Baird Holm uses a rough estimate of 1 job per 15 MW. With real jobs and a more prosperous community Nebraska can look forward to having more young families again.

At an estimated \$1.75 million per MW, wind represents almost \$2.5 billion of capital investment.

Nebraska has the **third** most wind energy development *potential* in the nation, yet is tied for 17th in *actual* development with states that have much less potential. As of today, Iowa has over five times the wind development as Nebraska, yet Iowa has substantially less wind capacity and has

a population of 3.1 million compared to Nebraska's 1.9 million. If Iowa can find a way to balance the interests of wind energy development with their rural residents, so can Nebraska.

Wind energy generation:

- Uses no water
- Emits no carbon emissions
- Improves air quality compared to coal powered electrical generation
- Reduces the rate of climate change
- Creates new farm income
- Creates new property tax bases
- Provides long term, low cost, no regulatory risk electrical energy

Wind energy is good for Nebraska

Sources: American Wind Energy Association, Nebraska Energy Office, 2013 Baird Holm Bluestem study



(402) 476-8815

www.NebraskaFarmersUnion.org
1305 Plum Street, Lincoln, NE 68502

Growing the Rural Economy with Ethanol

What 2 Billion Gallons of Ethanol Means for Rural Nebraska

- \$0.8 billion to \$1.6 billion of additional farm income (50¢ to \$1.00 per Bu of corn)
- 750 million bushels of Nebraska corn utilized - 44% of annual production.
- 1,300 direct jobs producing \$71 million of annual direct income.
- 3,000 indirect jobs producing \$319 million of annual indirect income
- \$15 million of direct local tax revenues annually.
- \$41 million of indirect local tax revenues annually.
- \$5 billion of capital investment.
- \$5 billion of additional economic activity annually.
- \$100 million of cost savings on the price of fuel for Nebraska fuel buyers annually.
- 43% less greenhouse gas emissions compared to gasoline, including land-use emissions.
- **Distillers Grains** and Ethanol feed co-products have helped Nebraska become the top livestock feeding state in the nation.
- *Ethanol development is the most effective rural economic development program that Nebraska has ever pursued.* - John Hansen, Nebraska Farmers Union President

Let's take a closer look at the numbers.

\$ Nebraska workers draw \$71 million in paychecks from the 25 ethanol plants in the state, then spend that in their communities, which induces some of the indirect economic activity. These thousands of paychecks are a great economic stimulus for rural Nebraska.

\$ Likewise, the ethanol plants themselves buy supplies from the communities they are in and that money circulates and enables more economic activity. That activity results in \$41 million of indirect business tax revenues and \$15 million in direct business tax revenues. This new tax base helps rural Nebraska communities that need basic infrastructure like schools and roads, and property tax relief.

\$ The \$5 billion in capital investment that has built the ethanol manufacturing industry contributes to the economic health and vitality of the entire state.

\$ This industry provides a local market for 750 million bushels of corn from Nebraska farmers every year, which is a force for economic stability and farm income in the Nebraska agricultural sector.

\$ When blended with gasoline, ethanol reduces the price of the gasoline for all Nebraska fuel users, resulting in \$158 million in fuel savings annually.

Because ethanol contains 35 percent oxygen, ethanol helps fuel burn more completely. The use of ethanol in automotive fuel:

- Reduces tailpipe carbon monoxide emissions by as much as 30 percent.
- Reduces exhaust VOC emissions by 12%
- Reduces particulate emissions, especially the fine particulates that are especially hazardous to children, seniors and those with respiratory diseases.

Ethanol blended gasoline has helped dozens of American cities comply with federal clean air standards. In fact, the American Lung Association of Metropolitan Chicago credits ethanol-blended gasoline with reducing smog-forming emissions by 25 percent since 1990.

Ethanol is good for Nebraska.

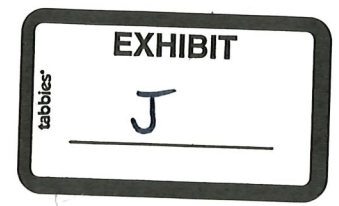
Sources: Economic Impacts of the Ethanol Industry in Nebraska, March 2015; University of Nebraska Department of Agricultural Economics, Bureau of Business Research, Department of Energy's GREET model and Nebraska Ethanol Board



(402) 476-8815

www.NebraskaFarmersUnion.org

1305 Plum Street, Lincoln, NE 68502



December 18, 2018

Todd Wiltgen, Chairperson
Members of the Lancaster County Board

RE: Commercial Wind Text Amendment

Dear Chairman Wiltgen and Members of the County Board:

Nebraska Interfaith Power & Light supports the commercial wind text amendment being considered by the County Board. This amendment represents a common-sense change that will permit wind development to take place in Lancaster County. It recognizes a balance between those who wish to participate in this process and those who do not.

Climate change is the most important moral issue of the 21st century, with the potential to impact every person on the planet. Its impacts will be felt most severely by the earth's poorest citizens, "the least of these" among us. Our faith traditions command us to protect and care for creation and stand up for our most vulnerable brothers and sisters.

Nebraska Interfaith Power & Light is a statewide interfaith, nonpartisan, nondenominational organization providing a moral message on issues related to climate change and care of creation. Action on climate change is now more important than ever. There have been several recent reports that have pointed out the increasing risks of climate change; including one from the Intergovernmental Panel on Climate Change and one prepared by a wide array of scientists on behalf of the United States government. The number of catastrophic events linked to climate change continue to escalate, including devastating fires in California and hurricanes along the coasts. As an agricultural state, Nebraska is particularly susceptible to the negative impacts of climate change, including droughts, heat waves and floods.

The good news is that there are positive responses to climate change. Renewable energy, such as wind development, is a vital component of that response. Significantly, wind generation emits no greenhouse gases and uses no water, unlike fossil fuel generation such as coal. Wind generation also emits no pollutants like mercury, a dangerous neurotoxin, or Sulphur dioxide or nitrogen oxides, all of which have been objectively linked to numerous health problems.

It is unfortunately necessary to proactively respond to negative statements about wind development. We recognize and respect the fact that residents have the right to their own views on wind development for a variety of reasons. We ask that the County Board make its decision based on objectively verifiable information.

The staff report has an extensive discussion of many issues, including the potential of negative health impacts related to wind development. We note that almost all reported negative impacts are related to annoyance, a completely subjective criteria. The proposed text amendment balances the concerns of those who may be annoyed by the sound of wind turbines with those who wish to participate in the project.

For the above reasons, we ask the County Board to approve the proposed text amendment.

Sincerely,

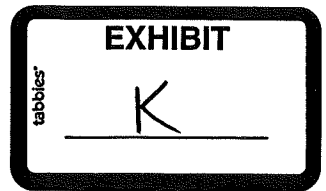
/s/Kenneth C. Winston

Kenneth C. Winston

Director of Policy and Outreach

Nebraska Interfaith Power & Light

kwinston@inebraska.com 402-212-3737



Dec. 18, 2018 Statement to the Lancaster County Board

– Marilyn McNabb, 1701 West Rose St., Lincoln NE 68522

I came today to welcome the possibility of a third clean energy generation project to Lancaster County. We already have LES's two old wind turbines and the new solar project. If you approve the two text amendments to the zoning code—And I hope you will do that—we have at least the possibility of a third project generating clean energy.

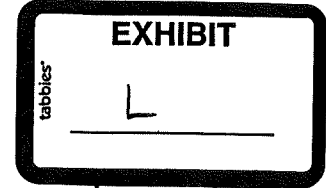
We are living in a time of great changes. One of the things we know humans do pretty predictably is that some of us will fear change. If you google “fear of technology change” or something similar, you’ll find lists of all the kinds of technology that people resisted and were afraid of.

The printing press, electricity, radio, coffee.

A Harvard professor wrote a book about it: Innovation and Its Enemies: Why People Resist New Technologies.

I live in West Lincoln and I am used to hearing train whistles in the middle of the night. When I first moved there 20 years ago they woke me up. I’d even say they annoyed me. They still annoy me, but not because of the sound, it’s because I know they’re carrying coal to be burned and pollute the air.

The scientists are shouting as loudly as they can in their dignified way. We have to move to clean energy. I hope you will take a step in that direction today by adopting rules fair to landowners and that also protect the public health.



Here is your country. Cherish these natural wonders. Do not let selfish men and greedy interests skim your country of its beauty, its riches or its romance.

Theodore Roosevelt 26th President

You have that ability.

Warren Buffett of Berkshire Hathaway is a large wind developer. Warren Buffett told an audience in Omaha, Ne. "On wind energy we get a tax credit if we build a lot of wind farms. That is the only reason to build them. They don't make sense without the tax credit".

I think that is why Nextera is trying to build a wind farm here. Just for the approximate 50 million dollars profit, and at any cost, [health and otherwise], to the acreage people of southern Lancaster county.

A June 19 issue of the Wall Street Journal explained who Nextera is. One of the conclusions was, "they are feeding off American families"

Medivac medical helicopters are very active in the southern Lancaster county area. We don't need a whole bunch of wind towers, and more danger, for them to dodge, especially at night, as they come to rescue people

who really need it, and if it is a life or death situation, time is so important. Lets not put any obstacles in the way of the medivac helicopters.

Federal aviation rules 91-119 says; A helicopter must stay away from buildings, towers and other obstacles by 500 ft.

Is a Wind farm worth the life of a person? I don't think so.

Southern Lancaster County is far to populated for a wind farm .

Put a moratorium on all Wind farm development in southern Lancaster County in order to protect the county and its people from a multitude of issues.

Repeat Roosevelt saying

Infrasound and low-frequency noise – does it affect human health?

Alves-Pereira, Marian; Bakker, Huub; Rapley, Bruce; and Summers, Rachel

On the Engineers Ireland website, a search for 'infrasound' or 'low-frequency noise' yields zero results. A search on 'noise', however, yields 44 results. Why is it that infrasound and low frequency noise (ILFN) is still such a taboo subject? While it is improbable that this particular question will be answered here, an exposé of ILFN will be provided with a brief historical account of how and why ILFN was ultimately deemed irrelevant for human health concerns.

Infrasound and low-frequency noise (ILFN) are airborne pressure waves that occur at frequencies ≤ 200 Hz. These may, or may not, be felt or heard by human beings. In order to clarify concepts, in this report the following definitions are used:

Acoustic phenomena: airborne pressure waves that may or may not be perceived by humans;

Sound: acoustic phenomena that can be captured and perceived by the human ear;

Noise: sound that is deemed undesirable;

Vibration: implies a solid-to-solid transmission of energy.

In the early part of the 20th century, Harvey Fletcher of the Western Electric Laboratories of AT&T, was tasked with improving the quality of reception in the telephone. To generate the sounds in a telephone earpiece, he used an AC voltage and had some of his colleagues rate the loudness of the sound received compared to the quietest tone heard.

The company was already using a logarithmic scale to describe the power in an electrical cable and it made sense to rate the loudness of the sounds also on a logarithmic scale related to the quietest voltage that could just be heard.

Initially he called this metric a 'sensation unit' but later, to commemorate their founder Alexander Graham Bell, they renamed it the 'Bel'. A tenth of a Bel became known as the deciBel, corrupted to decibel, which has stuck with the scientific community to this day.

Fletcher-Munson curves and the dBA metric

To address the problem of industrial noise in the early 20th century, measurement was essential, as was a metric. At that time, researchers were critically aware that the readings on a sound level meter did not represent how loud or intense the sound was with respect to the subject's perception of hearing.

From a biomedical perspective, this concept of perception is subjective, and changes between individuals and over timescales from minutes to decades. These serious constraints notwithstanding, it was acknowledged that some average measure of loudness would have some value for medicine and public health.

Harvey continued his research with Wilden Munsen, one of his team, by varying the frequency of the electricity to give pure tones, to which it is understood 23 of his colleagues listened to different levels of loudness, again through a simple telephone earpiece. (It is assumed they all had good hearing). They were then asked to score the sounds for equal loudness to that generated by an alternating current at 1000 cycles per second.

The level of the sound of course depended on the voltage applied, which could be measured. It is important to note two significant constraints here: The sounds were 'pure' sine waves, which are not common in nature, and the headphones enclosed the ear of the subject. This is a very unnatural way to listen to a very unnatural sound.

The numerical results of this study are known as the Fletcher-Munson Curves (Fig 1). The (logarithmic) units of these curves are known as 'phons' and the inverse of the 40 phon curve forms the basis of the A-frequency weighting scale used everywhere today (Fig 2).

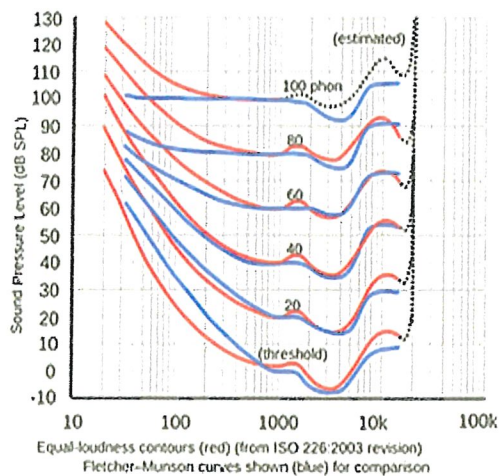


Fig 1: Fletcher Munson curves [2]

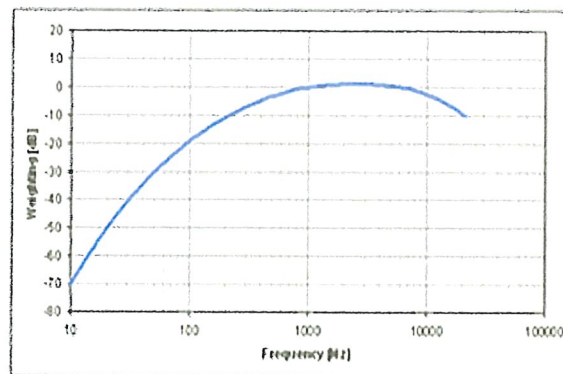


Fig 2: A-weighting frequency response curve [3]

A-Frequency weighting scale

The minimum pressure required for humans to perceive sound at 1000 Hz is considered to be 20 micropascal, or an intensity of 10^{-12} watts per square meter. This corresponds to 0 phon on Figure 1, and 0 dBA in Figure 2. For all its shortcomings, the A-weighting has endured for decades and has become the *de facto* standard for environmental noise measurement. But is the A-weighting sufficient for all circumstances?

The answer is an emphatic 'No'. It relates to the perception of loudness, which heavily discounts all frequencies below 1000 Hz and ends at 20 Hz. This 20-Hz limit was a consequence of equipment limitations of the 1920s and 30s, but has remained as the lower limit of human hearing to this day. The assumption that harm from excessive noise exposure is directly related to the perception of loudness has also remained to this day.

Observe in Fig 2 that, at 10 Hz, there is a 70-dB difference between what is measured and what is, *de facto*, present in the environment. In other words, three-and-a-half orders of magnitude of energy are discounted at this frequency.

The implications for public health are considerable, and within this line of reasoning, any event below 20 Hz becomes of no consequence whatsoever – and more so because it is not implicated in the classical effects of excessive noise exposure: hearing loss.

There are also issues of time and frequency resolution. Acoustic phenomena are time-varying events. A 10-minute average of acoustic events can hide more than it reveals. Similarly, segmenting frequencies into octave or 1/3-octave bands for analysis can also hide much that needs to be seen.

Today, affordable and highly portable equipment can record acoustical environments, and allow for post-analysis in sub-second time increments and 1/36-octave resolution. Waveform analysis from the sound file directly can achieve an even better resolution.

Field studies in Ireland

The following results, recently obtained in field-studies conducted in Ireland (July-November 2017), show why such resolution is needed to understand ILFN-rich environments. The classical metric (in dBA, 10-min averages and 1/3-octave bands) will be contrasted with what is needed for human health-related concerns (in dB with no frequency weighting, and resolutions of 0.2s and 1/36-octave bands), and not merely compliance with regulations.

Equipment and methods

Acoustical environments were recorded with a SAM Scribe FS recording system, a 2-channel recorder with sampling rates up to 44.1 kHz at 16-bit resolution and linear response down to almost 0.1 Hz [4-6]. Recordings were saved as uncompressed WAV files including the 1000 Hz/94 dB reference calibration tone prior to and after measurements. Windshields were placed on both microphones during the entire measurement sessions. Microphones were attached to tripods at approximately 1.5 m above the ground.

Location

Five homes located around the same industrial wind turbine (IWT) development have been the object of study. The data presented here refers to Home 1 (Fig 3). Table 1 shows the dates and times of all recordings that have been made to date in this home. The recordings selected for analysis and presentation herein were chosen on their educational value.

Table 1: Dates and times of recordings

Home No.	Date	Time	Blue Channel	Red Channel
1	04 Jul	04:05–06:48	In child's bedroom, 1	In child's bedroom, 2
	05 Jul	15:33–17:50		
	10 Oct	17:40–18:43		

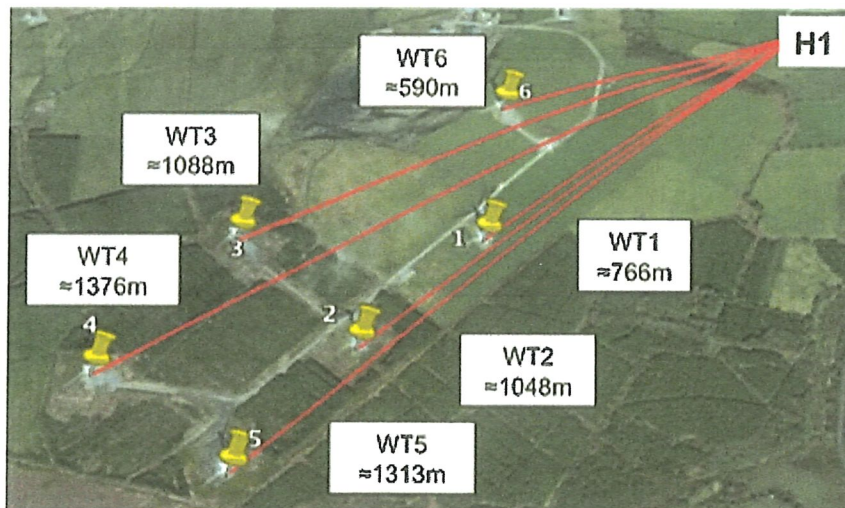


Fig 3: Reconstruction using a Google Earth image and showing the relative position of Home 1 and each of the six industrial wind turbines

The information classically obtained with the dBA metric, 1/3-octave bands and 10-min averaging (on 10 October, 2017, at 18:30) is given in Figs 4 and 5. Weather conditions obtained from Met Éireann for the closest weather tower at this time were as follows: air temperature: 14°C, precipitation: 0.1 mm, mean sea-level

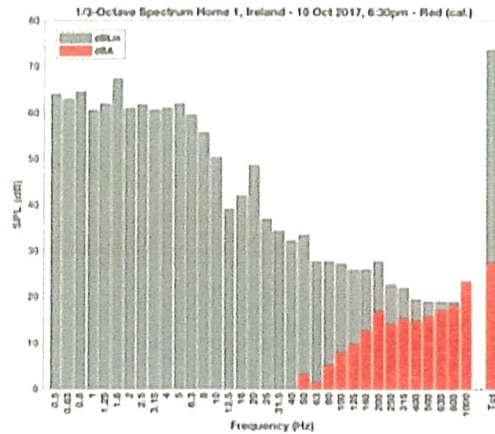


Fig 5: Data covers a 10-minute interval analysed between 0.5-1000 Hz, in 1/3-octave bands, as recorded in Home 1, on 10 October 2017, at 18:30 (red microphone, i.e. inside child's bedroom-2). The red bars are A-weighted values, while the gray bars indicate the acoustic energy that is, *de facto* present, in dBLin. In this environment, the human being would perceive through the ear an overall A-weighted pressure-level of approximately 26 dBA (Tot - red bar), while being simultaneously exposed to an overall acoustic pressure-level of approximately 74 dBLin (Tot - grey bar).

Figure 6 shows the sonogram corresponding to the same 10-min period. This visual representation of time- and frequency-varying acoustic events provides much more information than the classical approach (Figs 4 and 5).

Here, short-term events can be seen in the region of 20-50 Hz (Fig 6). Tonal components can be seen at 10 Hz and 20 Hz that are not steady in amplitude and may be amplitude modulated, i.e., where the amplitude of the pressure is not continuous and varies periodically with time. The 10-minute averages, used in almost all legislation, hide these variations and are representative only of tonal components that are essentially unvarying over the 10-minute period in question.

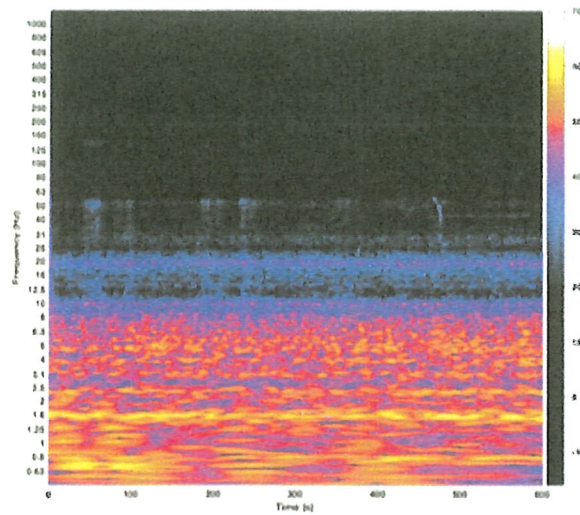


Fig 6: Sonogram that covers the same 10-minute interval (600 s) as in Figs 4 and 5 showing time-varying features. The colour-coded bar on the right indicates sound pressure level values in dB Linear (no weighting). The horizontal line seen at 20 Hz is not a continuous tone because over the 600 s, its pressure level (colour-coded data) varies. A strong (yellow) acoustic phenomenon can be seen to exist at 1.6 Hz and also at 0.8 Hz. Home 1: No weighting, 1/36 octave bands (0.5-1000 Hz), 0.2 s average – Red Channel

The periodogram (Fig 7) over the same 10 minutes shows that there are distinct tonal components that form a harmonic series. When IWTs are the source of ILFN, the rotating blades generate repeated pressure waves as each blade replaces the previous one at any position.

A harmonic series is formed with the 'blade pass frequency' as the fundamental frequency (0.8 Hz here). These harmonics constitute what is called the *wind turbine signature* [7], which is impossible to identify using the classical dBA, 1/3-octave, 10-minute averaging methodology.

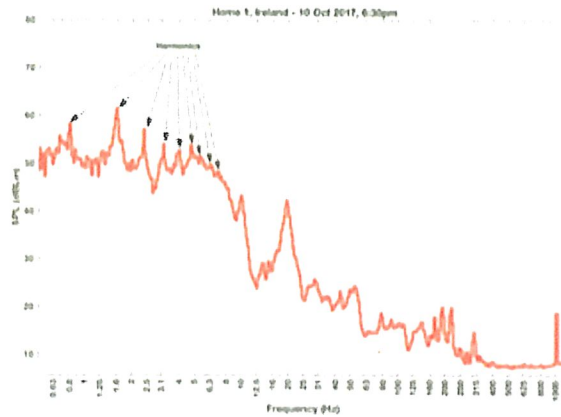


Fig 7: Periodogram covering the same 10-minute interval (600 s) as in Figs 4-6, and analyzed between 0.5-1250 Hz. The blade pass frequency of the IWT is 0.8 Hz. Harmonics of this fundamental frequency are shown in the figure. Each frequency band composing the harmonic series has a well-defined peak, e.g., the horizontal line seen in Fig 7 at 20 Hz is represented here as a peak at 20 Hz.

Final thoughts

Health concerns associated with excessive exposure to ILFN in the workplace have been around since the industrial boom in the 1960s [8]. In recent years, however, residential neighbourhoods have also begun to be flooded with ILFN [9-14]. The family living in Home 1, for example, has abandoned their residence due to severe health deterioration in all family members.

Accredited acousticians cannot ascertain compliance levels for ILFN because there are none – the vast majority of regulations worldwide do not cover this part of the acoustic spectrum. Nevertheless, public health officials and agencies should fulfil their job descriptions by becoming aware of the limitations of current noise guidelines and regulations.

Alternatives exist to gather the acoustic information relevant to the protection of human populations, in both occupational and residential settings. Noise regulations and guidelines need urgent updating in order to appropriately reflect ILFN levels that are dangerous to human health.

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Engineers Journal, 25 January 2018 ^[1]

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URL to article: <https://www.wind-watch.org/documents/infrasound-and-low-frequency-noise-does-it-affect-human-health/>

URLs in this post:

[1] Engineers Journal, 25 January 2018:

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Facts about Industrial Wind Turbine Noise

5/2/2017

- Wind farm proponents; (wind developers, participating landowners, and government officials); often rely on an industry-backed study to deny health problems. One often cited is the Massachusetts Department of Environmental Planning (DEP) "Wind Turbine Health Impact Study, which has been under a great deal of criticism, with one scientist (Raymond S. Hartman, PhD) saying it "fails to rise to the level of reliable scientific research, is incomplete, biased, distorted, without scientific merit, and not to be used as the basis for public policy." Meanwhile, there are peer-reviewed papers and studies that find links between turbine noise and ill health. Because this is currently not settled, proven science, no one, including governments can claim certainty. Because it is uncertain and involves public health and safety, government must maximize safety measures such as noise limits and setbacks to protect its citizens.

- **The FACTS are:**

- The closer people are to wind turbines, the greater the negative impacts to them. Close proximity increases exposure to noise pollution, and other risks and annoyances.
- Not all, but some more sensitive people suffer adverse health effects as a result of living near large wind turbines. This is a result of exposure to the audible and inaudible sound industrial wind turbines produce.
- Scientific studies show wind turbines disturb sleep, and sleep disturbance is proven to cause impaired health.

+ ○ Peer-reviewed scientific studies have proven the existence of infrasound (McPherson), and how it physically affects people (Salt and Kaltenbach), (Salt and Lichtenhan). "Large wind turbines generate very low frequency sounds and infrasound (below 20 Hz) when the wind driving them is turbulent. The amount of infrasound depends on many factors, including the turbine manufacturer, wind speed, power output, local topography, and the presence of nearby turbines (increasing when the wake from one turbine enters the blades of another). Infrasound cannot be heard and is unrelated to the loudness of the sound that you hear. Infrasound can only be measured with a sound level meter capable of detecting it (and not using the A-weighted scale)." - Alec N. Salt, PhD.

x ○ It is known that infrasound causes health problems. And it is now being established through sound studies in Brown County, Wisconsin and the Cape Bridgewater Wind Farm in Australia that large wind turbines create infrasound that can be measured in nearby homes. These are facts. The only debate is what safety measures must be taken for mitigating this. LFN and infrasound must be included in zoning regulations.

last p3

- **What a Few of the Peer Reviewed Studies are Saying:**

- **Ambrose - Wind turbine acoustic investigation - Infrasound and low-frequency noise - A case study 2012** An acoustical study was conducted to investigate the presence of infrasonic and low-frequency noise emissions from wind turbines located in Falmouth, Massachusetts, USA. During the study, the investigating acousticians experienced adverse health effects consistent with those reported by some Falmouth residents. The authors conclude that the rapid onset of adverse health effects during the study confirms that wind turbines can harm humans if placed too close to residents.
- **Hanning - Turbine Noise Seems to Affect Health Adversely 2012** In a survey of people residing in the vicinity of two US wind farms, those living within 375-1400 meters (1,230 – 4,593 feet) reported worse sleep and more daytime sleepiness, in addition to having lower summary scores on the mental component of a health survey than those who lived 3-6.6 km (1.9 – 4.1 miles) from a turbine, with a sharp increase in effects between 1 km and 2 km. A New Zealand

survey showed lower health related quality of life, especially sleep disturbance, in people who lived less than 2 km from turbines. A large body of evidence now exists to suggest that wind turbines disturb sleep and impair health at distances and external noise levels that are permitted in most jurisdictions.

- **Jeffery - Adverse health effects of industrial wind turbines - 2013** Industrial wind turbines can harm human health if sited too close to residents. Harm can be avoided if IWTs are situated at an appropriate distance from humans. Owing to the lack of adequately protective siting guidelines, people exposed to IWTs can be expected to present to their family physicians in increasing numbers. The documented symptoms are usually stress disorder-type diseases acting via indirect pathways and can represent serious harm to human health.
- **Nissenbaum - Effects of industrial wind turbine noise on sleep and health - 2012** We conclude that the noise emissions of IWTs disturbed the sleep and caused daytime sleepiness and impaired mental health in residents living within 1.4 km of the two IWT installations studied. Industrial wind turbine noise is a further source of environmental noise, with the potential to harm human health.
- **Phillips - Properly interpreting the epidemiologic evidence about health effects of industrial wind turbines on nearby residents 2011** There is overwhelming evidence that wind turbines cause serious health problems in nearby residents, usually stress-disorder-type diseases. It is always possible that further research will reveal that, under certain circumstances, turbines can be sited near people's homes with minimal health risk. Such is always possible for any exposure, given the nature of science (open to additional information) and changing technology. But our current knowledge indicates that there are substantial health risks from the existing exposure, and we do not know how to reduce those risks other than by keeping turbines several kilometers away from homes. Dismissal of health effects cannot be seen as honest disagreements about the weight of the evidence.
- **Salt - Infrasound from wind turbines could affect humans 2011** Based on our current knowledge of how the ear works, it is quite possible that low-frequency sounds at the levels generated by wind turbines could affect those living nearby. We can conclude that based on well-documented knowledge of the physiology of the ear and its connections to the brain, it is scientifically possible that infrasound from wind turbines could affect people living nearby.


Don't Ignore New Information

- Knowledge about this is changing fast. A groundbreaking study by sound engineer Stephen Cooper completed at the Cape Bridgewater Wind Farm in Australia proves the connection between large wind turbines and its effects on people. It found a link between an operating wind farm and the sensations of 6 residents in 3 of the nearest homes. The results of this study have prompted a senate inquiry in Australia.
- Cooper's is the first study of effects on people that included a cooperating wind farm operator, in conjunction with a researcher that does not work exclusively for wind farms. Six subjects, 3 couples from different homes, were participants in this study. They were self-selected as being particularly sensitive and susceptible to wind farm acoustic emissions, so much so that one couple has abandoned their house. Cooper found that these six subjects are able to sense attributes of the wind turbine emissions without there being an audible or visual stimulus present, and that these responses correlate with the wind turbine power being generated but not with either the sound or vibration.
- It finds that something is coming from the wind turbines to affect these people and that something increases or decreases as the power output of the turbine increases or decreases. See <http://www.pacifichydro.com.au/pacific-hydro-releases-cape-bridgewater-wind-farm-acoustic-study/>

- Events in Brown County, Wisconsin support the Cape Bridgewater study. A study was done at the Shirley Wind farm involving four acoustical consulting firms and included Hessler Associates, who derives significant income from wind development projects. The study found “sufficient evidence to classify LFN and infrasound emanating from the turbines as a serious issue, possibly affecting the future of the wind industry”. It “showed unequivocally that low level infrasonic sound emissions from the wind turbines were detectable...” The long-term response for inhabitants at one residence studied was severe for the wife and child, causing the family to move, while the husband has experienced no ill effects. This illustrates the complexity of the issue.
- After this independent sound study was done and with careful consideration, the Brown County Board of Health declared industrial wind turbines a human health hazard. See <http://bccrwe.com/index.php/8-news/16-duke-energy-s-shirley-wind-declared-human-health-hazard>

These studies mean that: (1) wind farm operators cannot say there are no known effects and no known people affected. (2) Local governments charged with protecting the health and welfare of citizens cannot say any longer that they know of no adverse effects.

The Only Proven Safety Measure is a Safe Setback

-  Setbacks must be measured from a non-participant's property line. A setback measured from a dwelling limits the non-participating landowner's use of their property, and greatly reduces protections for non-participants from noise pollution and its proven ill effects, shadow flicker, property devaluation, and potential property damage from blade failure or fire.
- All landowners should have the right to do with their land what they choose as long as it doesn't harm or impede a neighboring land owner. A setback for safety reasons, regardless of its distance, must be maintained. Any zoning that allows a wind turbine to be built next to a non-participant's property line eliminates that property owner from safely using that land. It creates an easement over the neighboring, non-participating property that eliminates the owner from any further developments. This amounts to an uncompensated taking of private property rights.
- Because of widespread concerns about health and safety, many jurisdictions scattered around the United States and Canada have adopted larger setbacks in recent years.

<i>Government Entities</i>	
Catarunk, Maine	7,920 ft.
Moscow, Maine	7,920 ft.
Haut-Saint-Laurent, Montérégie, Québec	6,562 ft.
Fayette County, Pennsylvania	6,000 ft.
Carteret County, North Carolina	5,280 ft. from all abutting property lines
Frankfort, Maine	5,280 ft. from property line
Umatilla County, Oregon	5,280 ft. from "unincorporated community"
Mason County, Kentucky	5,280 ft. from property line
Trempealeau County, Wisconsin	5,280 ft. from inhabited structures
Hillsdale County, Michigan	5,280 ft. from residences
Sumner, Maine	5,280 ft. from property line
Newport, North Carolina	5,000 ft. from neighboring property lines
Ellis County, Kansas	4,921 ft. from rural residences
Rumford, Maine	4,000 ft. from property line
Clifton, Maine	4,000 ft. from occupied structures
San Diego, California	3,937 ft. from residences
Halifax, Nova Scotia	3,281 ft. from habitable building

Claybanks Township, Michigan	3,000 ft. from property line
Cape Vincent, New York	2,953 ft.
Potter County, Pennsylvania	2,900 ft.
Wareham, Massachusetts	2,800 ft. from residences
Goodhue County, Minnesota	2,700 ft. from non-participants
Roanoke County, Virginia	2,640 ft. from residences
Tipton County, Indiana	2,640 ft. from residences
Union Township, Wisconsin	2,640 ft. from residences
Perry, New York	2,640 ft. from residences
Rock County, Wisconsin	2,640 ft.
Buckland, Massachusetts	2,640 ft. from residences
Granville, Pennsylvania	2,500 ft. from property line
Charlton, Massachusetts	2,500 ft.
Allegany, New York	2,500 ft.
<i>Advisory Boards</i>	
UK Noise Association	5,280 ft.
French Academy of Medicine	4,921 ft. from residences
National Research Council	2,640 ft.
<i>Turbine Manufacturers</i>	
Volkswind	1,640 ft. (US) 3,280 (Germany)
Vestás Safety Manual	1,300 ft.

One Mile = 5,280 feet ½ Mile = 2,640 feet ¼ Mile = 1,320 feet
 1,000 ft = 305 meters 1,000 meters = 1 km = 3,281 ft = 0.62 mi

RECOMMENDATIONS

✕ Any zoning change that reduces the protections provided under the current Lancaster County limit of 35dBA at night significantly impacts the health of non-participating land owners.

The appropriate setback distance must be measured from the non-participant's property line, not their residence. To ensure citizen health, safety, and property rights, the setback should correspond to a distance of ten rotor heights, or not less than one mile from the non-participant's nearest property line, (unless agreed to).

LFN and infrasound must be included in zoning regulations, and the zoning specify that all post construction sound measurements can be requested by a nonparticipant, and be measured with C-weighted sound measurements to ensure that it is not excessive. The costs of all such testing should be paid by the wind developer, not the county.

The Lancaster County Health Department was provided information from Brown County, Wisconsin regarding wind turbines causing health risks. Based on responses from the Health Department, it appears this information was ignored. Ignoring this information is dangerous for our citizens.

✕ If there is no clear scientific consensus about safety, the county must err to the side of caution and have strict sound limits and significant setbacks.

On Friday, September 14, just before 10am, Britain's 3,500 wind turbines broke all records by briefly supplying just over four gigawatts (GW) of electricity to the national grid. Three hours later, in Germany, that country's 23,000 wind turbines and millions of solar panels similarly achieved an unprecedented output of 31GW. But the responses to these events in the two countries could not have been in starker contrast.

In Britain, the wind industry proclaimed a triumph. Maria McCaffery, the CEO of RenewableUK, crowed that "this record high shows that wind energy is providing a reliable, secure supply of electricity to an ever-growing number of British homes and businesses" and that "this bountiful free resource will help drive down energy bills". But in Germany, the news was greeted with dismay, for reasons which merit serious attention here in Britain.

Germany is way ahead of us on the very path our politicians want us to follow – and the problems it has encountered as a result are big news there. In fact, Germany is being horribly caught out by precisely the same delusion about renewable energy that our own politicians have fallen for. Like all enthusiasts for "free, clean, renewable electricity", they overlook the fatal implications of the fact that wind speeds and sunlight constantly vary. They are taken in by the wind industry's trick of vastly exaggerating the usefulness of wind farms by talking in terms of their "capacity", hiding the fact that their actual output will waver between 100 per cent of capacity and zero. In Britain it averages around 25 per cent; in Germany it is lower, just 17 per cent.

The more a country depends on such sources of energy, the more there will arise – as Germany is discovering – two massive technical problems. One is that it becomes incredibly difficult to maintain a consistent supply of power to the grid, when that wildly fluctuating renewable output has to be balanced by input from conventional power stations. The other is that, to keep that back-up constantly available can require fossil-fuel power plants to run much of the time very inefficiently and expensively (incidentally chucking out so much more "carbon" than normal that it negates any supposed CO2 savings from the wind).

Both these problems have come home to roost in Germany in a big way, because it has gone more aggressively down the renewables route than any other country in the world. Having poured hundreds of billions of euros in subsidies into wind and solar power, making its electricity bills almost the highest in Europe, the picture that Germany presents is, on paper, almost everything the most rabid greenie could want. Last year, its wind turbines already had 29GW of capacity, equivalent to a quarter of Germany's average electricity demand. But because these turbines are even less efficient than our own, their actual output averaged only 5GW, and most of the rest had to come from grown-up power stations, ready to supply up to 29GW at any time and then switch off as the wind picked up again.

title

Germany's wind power chaos should be a warning to the UK

Germany has gone further down the 'renewables' path than any country in the world, and now it's paying the price.

Now the problem for the German grid has become even worse. Thanks to a flood of subsidies unleashed by Angela Merkel's government, renewable capacity has risen still further (solar, for instance, by 43 per cent). This makes it so difficult to keep the grid balanced that it is permanently at risk of power failures. (When the power to one Hamburg aluminium factory failed recently, for only a fraction of a second, it shut down the plant, causing serious damage.) Energy-intensive industries are having to install their own generators, or are looking to leave Germany altogether.

In fact, a mighty battle is now developing in Germany between green fantasists and practical realists. Because renewable energy must by law have priority in supplying the grid, the owners of conventional power stations, finding they have to run plants unprofitably, are so angry that they are threatening to close many of them down. The government response, astonishingly, has been to propose a new law forcing them to continue running their plants at a loss.

Meanwhile, firms such as RWE and E.on are going flat out to build 16 new coal-fired and 15 new gas-fired power stations by 2020, with a combined output equivalent to some 38 per cent of Germany's electricity needs. None of these will be required to have "carbon capture and storage" (CCS), which is just an empty pipedream. This makes nonsense of any pretence that Germany will meet its EU target for reducing CO2 emissions (and Mrs Merkel's equally fanciful goal of producing 35 per cent of electricity from renewables).

In brief, Germany's renewables drive is turning out to be a disaster. This should particularly concern us because our Government, with its plan to build 30,000 turbines, to meet our EU target of sourcing 32 per cent of our electricity from renewables by 2020, is hell-bent on the same path. But our own "big six" electricity companies, including RWE and E.on, are told that they cannot build any replacements for our coal-fired stations (many soon to be closed under EU rules) which last week were supplying more than 40 per cent of our power – unless they are fitted with that make-believe CCS. A similar threat hangs over plans to build new gas-fired plants of the type that will be essential to provide up to 100 per cent back-up for those useless windmills.

Everything about the battle now raging in Germany applies equally to us here in Britain – except that we have only fantasists such as Ed Davey in charge of our energy policy. Unless the realists stage a counter-coup very fast, we are in deep trouble.

Only warmists could pass this A-level

While Michael Gove tries valiantly to remedy our dysfunctional exam system he might take a look at some recent papers, such as that set last June for A-level General Studies students by our leading exam body, AQA. Candidates were asked to discuss 11 pages of "source material" on the subject of climate change. Sources ranged from a report of the UN's Intergovernmental Panel on Climate Change to The Guardian, all shamelessly promoting global warming alarmism. One document from the Met Office solemnly predicted that "even if global temperatures only rise by 2 degrees C, 30-40 per cent of species could face extinction". A graph from the US Environmental Protection Agency showed temperatures having soared in the past 100 years by 1.4 degrees – exactly twice the generally accepted figure.

The only hint that anyone might question such beliefs was an article by Louise Gray from The Daily Telegraph, which quoted that tireless campaigner for the warmist cause, Bob Ward of the Grantham Institute, dismissing all sceptics as "a remnant group of dinosaurs" who "misunderstood the point of science".

If it were still a purpose of education to teach people to examine evidence and think rationally, any bright A-level candidate might have had a field day, showing how all this "source material" was no more than vacuous, one-sided propaganda. But today one fears they would have been marked down so severely for not coming up with the desired answers that they would have been among the tiny handful of candidates given an unequivocal "fail".

By Christopher Booker
7:00 pm BST 9/22/12

[Print](#)[Close](#)

Dering setback info

From: **thederings@reagan.com**
Sent: Thu 4/30/15 5:46 AM
To: Curtis (cjschwan@hotmail.com)

Curtis,

The project construction and operation we endured in Oklahoma is called the Blue Canyon project. It has grown into a significant industrial project with what must by this time be over 75 turbines. As the issue of setbacks is discussed let me state for the record that our personal experience with living through the construction phase was not positive. The company was not responsive to the needs of our neighborhood. Not abusive, but generally not responsive.

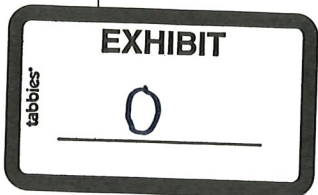
Once the project was in operation we realized the fully intrusive nature of the industrial plant that had just been dropped on our horizon. Our once clear dark night skies were now and forever dominated by the flashing red hazard beacons atop each tower. The most intrusive aspect of living near these structures was the constant noise. When the breeze was out of the NW-NE the constant drumming noise that the towers produce penetrated into our home. Closing doors and windows offered no relief. It was an intrusion from which you could not escape.

Please share with those concerned that the distance from our house to the base of the nearest tower is 6,311.86 ft as measured with the Google Earth computer application. Anyone is welcome to verify this measurement as the source is freely accessible. These industrial plants should not be constructed in settled areas.

I will make every effort to be at Cortland this evening. If I am delayed please submit this information on my behalf.

Sincerely,

Joel Dering



- Daryl and Pat Schoenbeck
2424 SW 14th Rd
Cortland, NE 68331
Gage County

family's

I am here to express my concerns regarding the Blue Prairie Wind Project and the zoning changes being considered.

Members of the planning ~~commission~~ ^{board} talked about how they found a balance for participating and non-participating entities. ~~Next Era refers to it as distinction~~

And its been mentioned have today also who live in
I would like to point out that there is no such thing as a "balance" between residents of the area of this wind generation project.

People that live in the area of this wind project will be participating whether they signed an agreement or not.

They will be participating due such large machines being placed in the vicinity of their homes.

If the wind turbines are considered agricultural or industrial makes no difference, the effect is the same.

forever
The landscape will be changed for a very long time.

Wild life will be affected.

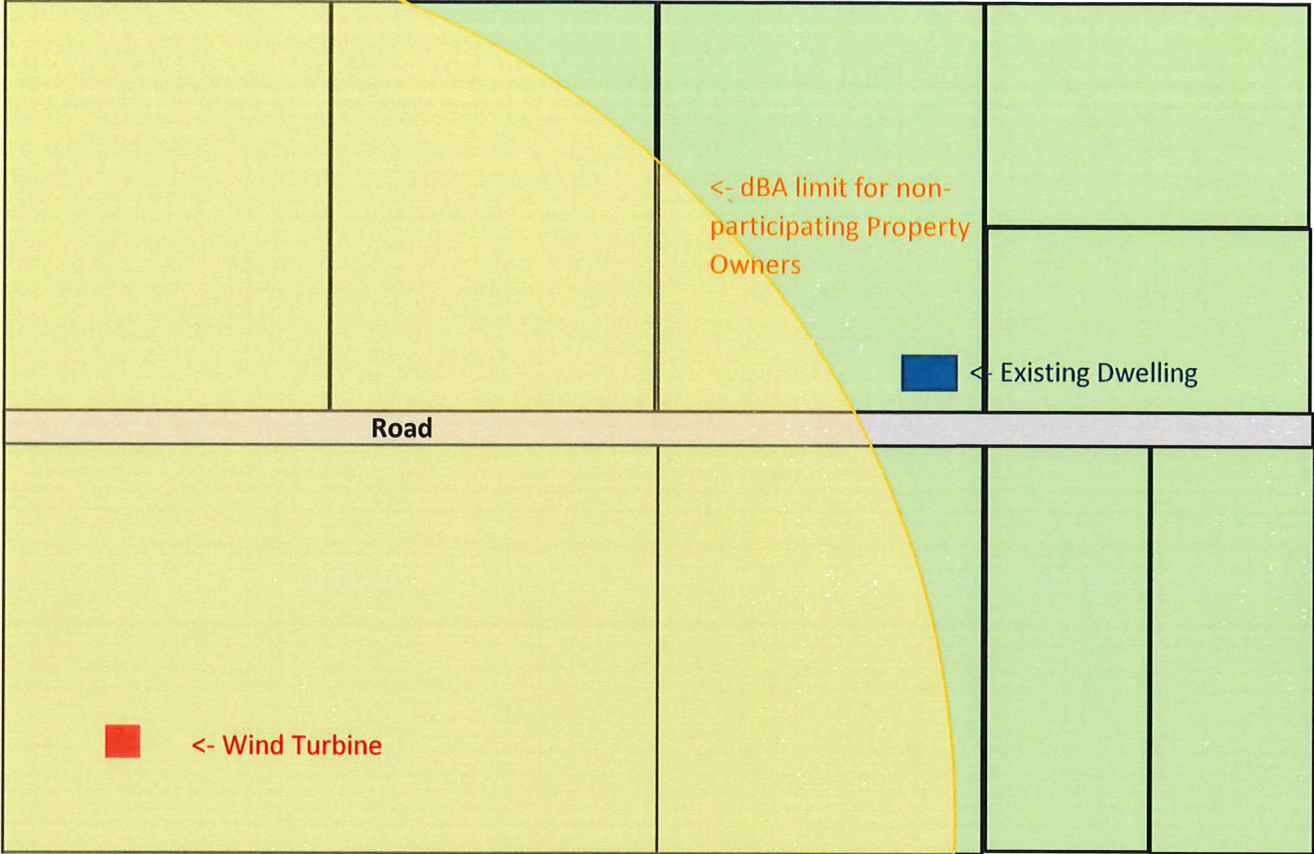
Common sense tells me that property values will be affected. Many people do not want to live in a wind generation area.

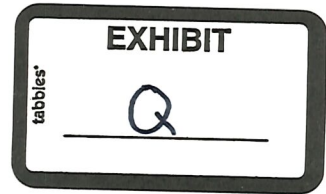
There are also health concerns present for many people.

This wind farm does not belong in southern Lancaster/northern Gage County. Setbacks cannot be set great enough in this area to protect homes and property due to the number of residents who live here.

We have been through this before and considerable time and effort was spent creating zoning that protects all residents. Is changing zoning for an out- of- state company with deep pockets good for all residents of this area? No it is not.

I am against any changes in the current zoning that increase sound limits.





Basis for Approval Recommendation Text Amendment #18011

Lancaster County Board of Commissioners

Chris Schroeder, MCRP
Environmental Health Supervisor

December 18, 2018



Proposed Text Change

- Two main questions...
 1. Does the peer-reviewed science-based literature support that participating properties report much less annoyance?
 2. Is the proposed WTN level for participating properties supported by scientific WTN noise data?
- Reviewed multiple peer-reviewed science-based papers
- Focused on papers examining influence of economic/personal benefits

Health Canada WTN & Health Study

- Large epidemiological study – examined impacts of WTN on health and well-being
- 1238 randomly selected participants

Health Canada WTN & Health Study

- Focused on information for participants that received personal benefit – includes benefits through rent, payments or other indirect benefits.¹
- Significant finding – participating respondents effectively reported (o) zero aggregate annoyance¹

¹Michaud DS, Marro L, McNamee J. The association between self-reported and objective measures of health and aggregate annoyance scores toward wind turbine installation. Canadian Journal of Public Health (2018) 109:252-260

Health Canada WTN & Health Study

TABLE IV. Perception of community noise and related variables. ²

Variable	Wind Turbine Noise (dB)					Overall	CMH <i>p</i> -value ^a
	<25	[25–30)	[30–35)	[35–40)	[40–46]		
<i>n</i>	84 ^b	95 ^b	304 ^b	521 ^b	234 ^b	1238 ^b	
Perceived benefit from having wind turbines in the area <i>n</i> (%)							
Personal	3 (3.9)	2 (2.2)	11 (4.0)	47 (9.2)	47 (20.3)	110 (9.3)	
ON	0 (0.0)	1 (1.2)	6 (2.7)	44 (10.0)	36 (21.4)	87 (9.0)	<0.0001 ^d
PEI	3 (15.8)	1 (11.1)	5 (9.8)	3 (4.3)	11 (17.2)	23 (10.8)	0.1700 ^d

²Michaud DS, Feder K, Keith SE, Voicescu SA, Marro L, Than J, Guay M, Denning A, McGuire D, Bower T, Lavigne E, Murray BJ, Weiss SK, van den Berg F. 2016a. Exposure to wind turbine noise: Perceptual responses and reported health effects. *J Acoust Soc Am*. 2016 Mar;139(3):1443-54

Health Canada WTN & Health Study

- We reviewed WTN data relative to proposed noise limit of 50 dBA for participating properties. Table 1 from 2018 Michaud paper.³
- WTN up to 46 dBA – year long average

³Michaud DS, Marro L, McNamee J. Derivation and application of a composite annoyance reaction construct based upon multiple wind turbine features. *Canadian Journal of Public Health* (2018)109:242-251.

Table 1 Sample exposure characteristics

Sample characteristics	Calculated distance between dwelling and nearest wind turbine (km)					Chi-square ^a <i>p</i> value
	≤0.550	(0.550, 1]	(1, 2]	(2, 5]	> 5	
ON						
dBA mean [min, max]	41.13 [37.40, 44.60]	38.43 [31.80, 43.60]	33.21 [26.30, 40.40]	27.36 [22.60, 30.90]	8.69 [0.00, 18.20]	
dBc mean [min, max]	58.35 [55.00, 63.00]	56.49 [52.00, 61.00]	53.58 [47.00, 58.00]	50.21 [47.00, 54.00]	32.41 [0.00, 45.00]	
SFm mean [min, max]	33.76 [0.00, 79.00]	15.73 [0.00, 68.00]	5.78 [0.00, 23.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	
Response rate <i>n</i> (%)	34 (72.3)	488 (80.1)	396 (78.7)	42 (82.4)	51 (77.3)	0.7009
Personal benefits ^b <i>n</i> (%)	15 (44.1)	55 (11.5)	16 (4.3)	1 (2.6)	0 (0.0)	< 0.0001
Visible ^c <i>n</i> (%)	34 (100.0)	474 (97.1)	348 (88.3)	32 (78.0)	6 (11.8)	< 0.0001
Audible ^d <i>n</i> (%)	26 (76.5)	325 (66.6)	111 (28.0)	5 (11.9)	1 (2.0)	< 0.0001
PEI						
dBA mean [min, max]	42.87 [39.40, 46.10]	38.95 [34.30, 43.20]	32.47 [29.10, 37.20]	22.26 [14.60, 29.90]	11.10 [0.00, 18.20]	
dBc mean [min, max]	60.92 [58.00, 63.00]	58.20 [55.00, 62.00]	53.19 [51.00, 57.00]	45.44 [36.00, 54.00]	32.08 [0.00, 43.00]	
SFm mean [min, max]	40.11 [0.00, 78.00]	18.08 [0.00, 47.00]	1.69 [0.00, 20.00]	0.00 [0.00, 0.00]	0.00 [0.00, 0.00]	
Response rate <i>n</i> (%)	37 (77.1)	95 (79.2)	67 (75.3)	16 (64.0)	12 (100.0)	0.1666
Personal benefits ^b <i>n</i> (%)	8 (21.6)	6 (6.4)	5 (8.5)	3 (23.1)	1 (10.0)	0.0651
Visible ^c <i>n</i> (%)	34 (94.4)	94 (98.9)	59 (88.1)	2 (12.5)	2 (16.7)	< 0.0001
Audible ^d <i>n</i> (%)	30 (83.3)	73 (76.8)	15 (22.4)	0 (0.0)	0 (0.0)	< 0.0001

Health Canada WTN & Health Study

- Data represents year-long average WTN levels
- Respondents with personal benefit were in the highest WTN categories
- Proposed WTN level for participating properties – short-term 10 minute Leq

Health Canada WTN & Health Study

- Wind turbines do not operate all the time and not always at the same power output
- Wind direction is not constant throughout year which influences year-long average WTN levels at dwellings
- Year-long WTN averages of 40-45 dBA contain short-term 50 dBA WTN levels.

Bakker Paper⁴

- Examined research study conducted in Netherlands – WTN exposure and annoyance. Table 1 – 159 in 41-45 & >45 dBA

Table 1

Percentage of respondents in three area types and different immission levels.

	Sound pressure level, in dB(A)											
	<30		30-35		36-40		41-45		>45		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Built-up area	68	37	84	38	28	17	18	19	1	2	199	23
Rural with main road	50	27	70	32	59	38	36	38	30	46	245	36
Rural without main road	67	36	65	30	75	47	40	43	34	52	281	41
Total	185	38	219	37	162	38	94	38	65	33	725	100

⁴Bakker RH, et al, Impact of wind turbine sound on annoyance, self-reported sleep disturbance and psychological distress, Sci Total Environ (2012), doi:10.1016/j.scitotenv.2012.03.005

Bakker Paper

- Examined the influence of economic benefit relative to WTN exposure and reported annoyance

Bakker Paper

Table 3

Response to outdoor wind turbine sound among economically benefitting and non-benefitting respondents.

	Response											
	Do not notice		Notice, not annoyed		Slightly annoyed		Rather annoyed		Very annoyed		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
No economical benefit	255	44	184	31	78	13	41	7	28	5	586	100
Economical benefit	15	15	68	69	13	13	2	2	1	1	99	100

Table 4

Response to indoor wind turbine sound among economically benefitting and non-benefitting respondents.

	Response											
	Do not notice		Notice, not annoyed		Slightly annoyed		Rather annoyed		Very annoyed		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
No economical benefit	394	68	98	17	46	8	21	4	20	4	579	100
Economical benefit	53	54	39	39	7	7	0	0	0	0	99	100

Bakker Paper

- WTN exposure data – long-term averages
- 41-45 dBA average levels would include and support a 50 dBA short-term WTN level for participating properties
- Not included in Table 1 data – WTN exposure up to 54 dBA

Janssen Paper

- Examined 2000 (N=341) and 2005 (N=754) studies in Sweden & 2007 study in the Netherlands (N=725)⁵ Exposure-response relationship between WTN exposure and annoyance
- Finding: “respondents with economical benefit hardly reported any annoyance despite living primarily in the highest exposure categories,”⁵
- Study results support participating property owners report less annoyance

⁵Janssen SA, Vos H, Pedersen E. A comparison between exposure-response relationships for wind turbine annoyance and annoyance due to other noise sources. J Acoust Soc Am (2011) 130:3746-53.

Low frequency noise/ infrasound

- Reviewed current scientific peer-reviewed literature
 - Weight of scientific evidence – no adverse health effects from low frequency noise/infrasound generated by wind turbines
- Additional materials reviewed
 - Many not peer-reviewed
 - Sound levels (decibels/dose) not comparable
 - Study sample size – often very small
 - Occupational/ experimental exposures not WTN exposures
 - Inadequate length of study

Conclusions

- LLCHD reviewed current peer-reviewed science-based research relative to establishing a higher noise limit for participating property owners.
- Most compelling evidence - studies published after 2015 by Health Canada that further analyzed data collected in the Health Canada Wind Turbine Noise and Health Study.
- Recommending approval of TX #18011 - LLCHD believes that peer-reviewed scientific studies support that participating property owners can be exposed to WTN levels up to 50 dBA (10 minute Leq) and not experience significant levels of annoyance.



3.4 Wind turbine noise



Recommendations

For average noise exposure, the GDG **conditionally** recommends reducing noise levels produced by wind turbines below **45 dB L_{den}** , as wind turbine noise above this level is associated with adverse health effects.

To reduce health effects, the GDG **conditionally** recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure. No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.



3.4.1 Rationale for the guideline levels for wind turbine noise

The exposure levels were derived in accordance with the prioritizing process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to wind turbine noise, the process can be summarized as follows (Table 36).

Table 36. Average exposure levels (L_{den}) for priority health outcomes from wind turbine noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD Incidence of IHD could not be used to assess the exposure level.	5% increase of RR	No studies were available
Incidence of hypertension Incidence of hypertension could not be used to assess the exposure level.	10% increase of RR	No studies were available
Prevalence of highly annoyed population Four studies were available. An exposure–response curve of the four studies revealed an absolute risk of 10%HA (outdoors) at a noise exposure level of 45 dB L_{den} .	10% absolute risk	Low quality
Permanent hearing impairment	No increase	No studies were available
Reading skills and oral comprehension in children	One-month delay	No studies were available

In accordance with the prioritization process, the GDG set a guideline exposure level of 45.0 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. The GDG stressed that there might be an increased risk for annoyance below this noise exposure level, but it could not state whether there was an increased risk for the other health outcomes below this level owing to a lack of evidence. As the evidence on the adverse effects of wind turbine noise was rated low quality, the GDG made the recommendation conditional.

Next, the GDG considered the evidence for night noise exposure to wind turbine noise and its effect on sleep disturbance (Table 37).



(h) ~~Any single~~ The turbine(s) shall not impact a non-participating lot, (vacant or occupied; of any size), to the extent that, because of the location of turbine(s), the lot owner is left with less than 3 acres of land outside of the CW ECS setbacks and ~~or~~ the noise impact area in Section (i) below, unless they are part of an agreement with the CW ECS owner/operator.

(i) Noise: No CW ECS or combination of CW ECS turbine(s) shall be located as to cause an exceedance of the following as measured at the closest exterior wall of any dwelling located on the property. If a turbine violates a noise standard on a dwelling unit, constructed after the turbine is approved, then the turbine becomes a non-conforming use. For both participating and nonparticipating properties:

(1) From the hours of 7 am to 10 pm:

- o Forty (40) dBA maximum 10 minute Leq or;
- o Three (3) dBA maximum 10 minute Leq above background level as determined by a pre-construction noise study. The background level shall be a Leq measured over a representative 15 hour period.

(2) From the hours of 10 pm to 7 am:

- o Thirty-seven (37) dBA maximum 10 minute Leq or;
- o Three (3) dBA maximum 10 minute Leq above background level as determined by a pre-construction noise study. The background level shall be a Leq measured over a representative 9 hour period.

(j) A professional pre-construction noise study shall be conducted which includes all property with a dwelling within one mile of a tower support base. The protocol and methodology for such studies shall be submitted to the Lincoln-Lancaster County Health Department for review and approval. Such studies shall include noise modeling for all four seasons and include typical and worst case scenarios for noise propagation. The complete results and full study report shall be submitted to the Lincoln-Lancaster County Health Department for review.

(k) Prior to the commencement of construction of any turbine, pre-construction noise monitoring may be conducted to determine ambient sound levels in accordance with procedures acceptable to the Lincoln-Lancaster County Health Department.

(l) Prior to the commencement of construction of any turbine, the applicant shall enter into an agreement with the County Engineer regarding use of County roads during construction.

(m) At the discretion of the County Board, post-construction noise level measurements may be required to be performed in accordance with procedures acceptable to the Lincoln-Lancaster County Health Department.

of decommissioning or revocation of the special permit. Upon removal of the tower, there shall be a minimum of five feet of soil between the average surrounding ground level and former tower's cement base.

(h) Said CW ECS shall meet all Federal, State and local rules and regulations.

(d) Any proposed turbine which is within half mile of any non-participating dwelling shall provide shadow flicker modeling data showing the expected effect of shadow flicker on non-participating properties. Shadow flicker shall not fall upon any non-participating dwelling, or other building which is occupied by humans, for more than 30 minutes in any one day, nor a total of 30 hours per any calendar year. If shadow flicker exceeds these limits, measures shall be taken to reduce the effects of shadow flicker on buildings, which may include shutting the turbine down during periods of shadow flicker. If a turbine violates this standard on a non-participating dwelling unit, constructed after the turbine is approved, then the turbine becomes a non-conforming use.

(e) Construction and operation shall not adversely impact identified State or Federal threatened or endangered species such as saline wetlands, or rare natural resources such as native prairie and grasslands.

(f) No turbine shall obstruct or impair an identified view corridor or scenic vista of public value, as mapped on the Capitol View Corridors map in the Lincoln/ Lancaster County Comprehensive Plan. The views from prominent environmental areas, such as Nine Mile Prairie and Spring Creek Prairie, shall also be protected from adverse visual or noise impacts. Any application which, upon initial review, poses a possible impact to these views will be required to be relocated or provide view shed mapping, and visual simulations from key observation points for review.

(g) Setbacks to the turbine base:

- 1) For the purposes of this subsection, "turbine height" shall be equal to hub height plus the rotor radius.
- 2) For a non-participating lot, the setback shall be 2 times the turbine height measured to the property line, or 3 ½ times the turbine height, measured to the closest exterior wall of the dwelling unit, whichever is greater, but at a minimum 1,000 feet to the property line.
- 3) For participating dwelling units, the setback shall be 2 times the turbine height measured to the closest exterior wall of the dwelling.
- 4) The setback to any public right-of-way or private roadway shall be no less than the turbine height.
- 5) Setbacks to the external boundary of the special permit area shall be no less than as stated above, except that the owner of the adjacent property may sign an agreement allowing that setback to be reduced to the rotor radius plus the setback of the zoning district.

MINUTES
LANCASTER COUNTY BOARD OF EQUALIZATION
COUNTY-CITY BUILDING, ROOM 112
TUESDAY, DECEMBER 18, 2018
IMMEDIATELY FOLLOWING THE LANCASTER COUNTY
BOARD OF COMMISSIONERS MEETING

Advance public notice of the Board of Commissioners meeting was posted on the County-City Building bulletin board and the Lancaster County, Nebraska, web site and emailed to the media on December 14, 2018.

Commissioners present: Todd Wiltgen, Chair; Jennifer Brinkman, Vice Chair; Roma Amundson, Bill Avery and Deb Schorr

Others present: Scott Gaines, Assessor/Register of Deeds; Ann Ames, Deputy Chief Administrative Officer; Jenifer Holloway, Deputy County Attorney; Dan Nolte, County Clerk; Cori Beattie, Deputy County Clerk; and Monét McCullen, County Clerk's Office

The Chair called the meeting to order at 9:34 a.m., the Pledge of Allegiance was recited and the location of the Nebraska Open Meetings Act was announced.

1) MINUTES:

A. Approval of the minutes of the Board of Equalization meeting held on Tuesday, December 4, 2018.

MOTION: Amundson moved and Avery seconded approval of the minutes. Avery, Brinkman, Schorr, Amundson and Wiltgen voted yes. Motion carried 5-0.

2) ADDITIONS AND DEDUCTIONS TO THE TAX ASSESSMENT ROLLS

MOTION: Schorr moved and Avery seconded approval of the additions and deductions. Brinkman, Schorr, Amundson, Avery and Wiltgen voted yes. Motion carried 5-0.

3) PUBLIC HEARING:

A. Motor Vehicle Tax Exemption Applications (See correlating item 4)

Wyuka Cemetery & Funeral Home	Great Plains Community Church
St. Mary's United Methodist Church	Our Lady of Guadalupe Seminary
Boys & Girls Clubs of Lincoln/Lancaster County	CenterPointe, Inc.
Community Action Partnership of Lancaster and Saunders County	Indian Center Inc.

The Chair opened the public hearing.

No one appeared in support, opposition or in the neutral position.

The Chair closed the public hearing.

4) ACTION ON MOTOR VEHICLE TAX EXEMPTION APPLICATIONS

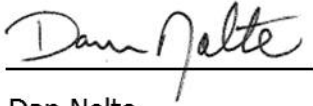
MOTION: Brinkman moved and Schorr seconded approval of the motor vehicle tax exemption applications. Schorr, Amundson, Avery, Brinkman and Wiltgen voted yes. Motion carried 5-0.

5) PUBLIC COMMENT: Those wishing to speak on items relating to County Board of Equalization business not on the agenda may do so at this time.

No one appeared for public comment.

6) ADJOURNMENT

MOTION: Schorr moved and Amundson seconded to adjourn the Lancaster Board of Equalization meeting at 9:37 a.m. Amundson, Avery, Brinkman, Schorr and Wiltgen voted yes. Motion carried 5-0.



Dan Nolte
Lancaster County Clerk

