

**BOONE COUNTY PLANNING & ZONING COMMISSION WORK SESSION**  
 BOONE COUNTY GOVERNMENT CENTER, COMMISSION CHAMBERS  
 801 E. WALNUT, COLUMBIA, MISSOURI  
 (573) 886-4330

<b>Minutes</b>	<b>5:00 P.M.</b>	<b>Thursday, May 27, 2021</b>
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I. The work session was called to order at 5:00 p.m.

II. Roll Call:

a. Members Present:

Boyd Harris, Chairperson	Centralia Township
Eric Kurzejeski, Vice Chairperson	Missouri Township
Michael Poehlman, Secretary	Rock Bridge Township
Gregory Martin	Katy Township
Rhonda Proctor	Perche Township
Steve Koirtyohann	Rocky Fork Township
Fred Furlong	Bourbon Township
Jeff McCann	County Engineer

b. Members Absent

Bill Lloyd	Three Creeks Township
Daniel Mings	Columbia Township
Randal Trecha	Cedar Township

c. Staff Present:

Bill Florea, Director	Thad Yonke, Senior Planner
Uriah Mach, Planner	Cece Riley, Planner

VII. New Business

Wind Farm Regulations Public Comment Review – Continued from 5/20/21

Only sections of the WECOD that received comments and were addressed during this work session will be included in the minutes. Public comments received are in color.

**SECTION 29 WIND ENERGY CONVERSION OVERLAY DISTRICT (WECOD)**

29.8.1.1 The noise level caused by the operation of the project, measured at five feet (5') above ground level at the property line coincident with or outside the district boundary, shall not exceed 65 decibels (A-weighted) and shall not exceed 50 decibels (C-weighted) if it is determined that a pure tone noise is generated by the project.

Boone County's current draft specifies sound shall not exceed 65 decibels. Yet the World Health Organization says that outside noise levels of just 30-40 decibels at night cause body movements, awakening, sleep disturbance, and arousal, with chronically ill and elderly populations affected to a greater degree. In 2018 the WHO updated their guidelines, now saying wind turbine noise levels

shall be kept below 45 db daytime, 40 evening, and 35 at night. So why are we looking at 65 db for Boone County? That needs to be corrected. Even NextEra, a prominent wind company, has this to say on their website: "The Ontario Ministry of Environment's sound guidelines for rural areas establish maximum permissible sound levels at 40 decibels, which is consistent with the standards set by the United States Environmental Protection Agency." If a wind company and the EPA can both agree on 40 db maximum, Boone county should also adopt 40 db maximum daytime, 35 at night.

In the section regarding noise management, everything talks about decibel levels and what is allowed. I would like to consider for the people that do have to live in close proximity it seems like the majority of complaints regarding sound aren't so much about the noise level but the consistency and the inability to get away from it. I wonder if we could consider an option where those people that are in a certain designated area that have any level of constant noise be allowed some type of relief where the power generation of the turbines are shut down for a designated amount of time on schedule to give them some relief from the constant noise.

Unacceptable noise levels, what are the consequences if unacceptable noise levels continue? Should those turbines causing issues be turned off until they are fixed? Several of the requirements in the regulations do not list any consequences if requirements are not followed. Should a statement be added to the regulations indicating what the consequences should be, including a county-initiated shutdown or permanent shutdown, especially when issues affect health and safety?

Staff Comment: At the last meeting staff indicated they would try to come back with alternative language on this section based on the World Health Organization (WHO) guidelines; staff is still doing research on noise. Staff might bring in alternative language or they might come back with the WHO language, primarily because it is well documented and it is based on an ISO standard which is an internationally adopted standard.

Chairperson Harris: Where did we come up with 65 db?

Cece Riley: That was from a county in Kansas; a lot of our regulations seem to have been based on that county's regulations.

Chairperson Harris: The first paragraph states the wind company and the EPA can both agree on 40 db so Boone County should also adopt that.

Bill Florea: The WHO standard is 45 dB – L<sub>den</sub>; den stands for day, evening and night. It is a formula, that over time they take sound measurements in the day, evening and night. There is a 5 dB penalty for evening hours, a 10 dB penalty for night hours, the daytime hours are taken as whatever the sound reading is. There is a formula for combining all of those and coming up with an index number or dB L<sub>den</sub>; technically the operator can exceed the sound limits at certain time and be below at certain times and maintain compliance with the standard by averaging their sound generation over time. It is an accepted international standard. If we were to adopt that it is not something new, it is something that is accepted on the International scale.

Chairperson Harris: I don't know how to compare what makes a comparable noise for 65 dB or 40 dB; how loud is that?

Bill Florea: Each 10 dB doubles the sound pressure level so 55 is twice as loud as 45.

Cece Riley: You can compare the decibels to household appliances. A new dishwasher runs at about 40 or 45 dB, a dishwasher from the 1990's is more around 60 db. A refrigerator usually runs in the 40-50 range, an air conditioner runs about 50-60.

Commissioner Martin: If we set some kind of standard is that something that could come back to haunt us later from other projects? Can it be taken from here and applied to a manufacturing facility? Will we end up with complaints that we are allowing a manufacturing facility to have 65 dB but on this application we have said we will use this standard? I feel if this is something we are going to apply we should do it county-wide.

Bill Florea: Not necessarily, you could do that but this is a unique zoning district so you can adopt unique standards within that district.

Thad Yonke: We don't generally measure sound.

Bill Florea: Given the example of a manufacturing facility, that is industrial zoning, you expect some noise. You aren't dropping that factory in a residential neighborhood. The wind turbines are going to be in rural residential areas. In a planned development, if there was a need to regulate noise on a certain proposal to make it fit in with the area, maybe you could set noise standards.

Commissioner Martin: That is why I am for a standard.

Bill Florea: If we are going to address noise we have to have a standard.

Commissioner Furlong: Is there a cap on it? They take three readings a day, what would keep them from shutting it down during the day and running it at night 100 dB, it would still be under the 65.

Bill Florea: You could probably have a single occurrence limit such as not exceeding a certain level at any time. Maybe the 65 dB is appropriate for that. Keep in mind it is going to be 1750-feet from the property line. Staff could work up some numbers to get a feel for the formula in the scenario that Commissioner Furlong mentioned.

Chairperson Harris: To look at it from the proponent side, how can the energy company change the sound that the turbines make? Isn't that going to be more relative to how fast the wind is blowing? How do they make their machine less noisy because it is dark?

Bill Florea: That is up to the wind company to figure out. I am pretty sure they have already figured it out.

Chairperson Harris: What if we just adopt those standards and roll them back to the 45, 40 and 35 db according to the WHO guidelines?

Bill Florea: That is probably what we would come back with if the Commission is comfortable with that. If so, staff can come up with language that incorporates that.

Chairperson Harris: At least it would be an acceptable standard.

Bill Florea: Yes, we have the WHO study and the ISO standards that the WHO recommends.

The Commission agreed that Staff should come back with the WHO standard or alternative standards.

### 29.8.3 Visual Impacts

The proposed regulations impose a maximum turbine height restriction of 400 feet. Technology in

the wind industry continues to change and improve to capture more natural wind resources at higher levels and to improve the productivity of each turbine so that fewer turbines will be needed to produce the same amount of power.<sup>2</sup> These regulations should allow for changes in technology over time without a need to modify the regulations. The median turbine height in the United States is now 420 feet<sup>3</sup> therefore it would seem reasonable to start off with a greater height in the regulations. In 2019, the average utility-scale wind turbine had a nameplate capacity of 2.55 MW. The average rotor diameter was 121 meters (397 feet), and the average hub height was 90 meters (295 feet)<sup>4</sup>, resulting in an average total height of 692 feet; therefore, a maximum height restriction of 400 feet would restrict wind development in the county as it may not be feasible or economical to use smaller turbines.

As technology is changing, it may be reasonable to allow variations between clusters of wind turbines within a WECOD as long as they meet other requirements such as noise characteristics. Additionally, once minimum spacing is met the spacing should be based on the effectiveness and efficiency of the wind turbine performance versus the visual uniformity. The reasons for requiring more distance between clusters than between individual turbines is unclear.

Staff Comment: The Commission has been very clear and consistent with the height standards that are being proposed.

Thad Yonke: The height standards being proposed are also tied into the scientific stuff about the distance for the throw of a broken blade.

Bill Florea: That number is an average number of several sizes of turbines; it is all interrelated.

The Commission agreed that no action was necessary.

29.8.3.3 Distinct groupings or clusters of machines shall be limited to no more than 12 machines per cluster. Each cluster must be greater than 1.25 times the minimum spacing distance from another cluster.

Regarding the definition of cluster on the first page. I believe you mean for it to match the information on page 14, changing the wording from “less than 1.25 times the minimum spacing distance from the least one other WECS in the group” to “no greater than 1.25 times the minimum spacing distance..”

Distinct groupings or clusters of machines shall be limited to no more than 12 machines per cluster. Each cluster must be greater than 1.25 times the minimum spacing distance from another cluster.

If we are still talking about turbines, use the word “turbines” instead of “machines.” The second sentence may be missing words. Should it be “Each cluster must be located more than 1.25 times the minimum spacing distance from another cluster?”

Staff Comment: This is another comment regarding clustering; the Commission addressed it at the last meeting, that the language is written as intended. Staff recommends changing “machines” to “turbines”.

The Commission agreed that no action was necessary regarding the first paragraph and also agreed to change “machines” to “turbines”.

29.8.3.6 If turbines become inoperable for any reason, they shall be repaired within 90-days unless the

County Commission approves an extension upon request of the operator and showing of good cause why such extension should be granted.

What are the consequences if they aren't repaired within 90 days? Is it considered abandoned and subject to reclamation?

Staff Comment: The turbine is considered to be abandoned if they aren't repaired within 90 days and there is a process in 29.9.2.1 that takes over to reclaim that site.

Chairperson Harris: If it is considered abandoned that kicks in the provision that it has to be dismantled?

Bill Florea: Yes.

The Commission did not specify that any action was needed.

29.8.3.11 The maximum height of the turbines shall be 355 feet. Greater height, but not in excess of 400 feet, may be considered on a case by case basis if the applicant can sufficiently demonstrate that the increased height will result in increased energy efficiencies, thereby reducing the overall number of turbines in the project. However, in all cases, due consideration shall be given to the scale of the turbines in relation to the surrounding landscape.

The proposed regulations impose a maximum turbine height restriction of 400-feet, however since 2012 the median turbine height has been 420-feet. As of 2019 utility scale wind turbines were closer to 499-feet with many commercial wind turbines reaching 695-feet by this year. Taller wind turbines are more efficient making it possible to cost effectively capture the stronger wind resources at higher levels, therefore fewer turbines are needed on the landscape. As technology advances and the industry innovation grows it is important that regulatory frameworks allow for flexibility and height. A maximum height restriction of 400 feet is not consistent with current industry growth and would restrict wind development in the county.

I am pleased with the proposed turbine height limit for Boone County at 355-feet, the equivalent of 25-stories but I have reservations

The proposed height restrictions are too low and the buffer zone for potential machine failure is too restrictive.

Chairperson Harris: Is there a conflict between this section and section 29.8.3 that indicates a maximum height of 400-feet.

Cece Riley: The 400-feet was someone's comment.

Bill Florea: In order to go to 400-feet they have to show that it increases the energy efficiency to the point that it will reduce the overall number of turbines in the project. For example, nine, 400-foot turbines as opposed to ten, 355-foot turbines.

The Commission did not specify that any action was needed.

29.8.5 Safety

I don't think the 1750-foot setback is far enough, that is only 583 yards, people hunt at that range. A wind turbine with blades is about 500-foot tall, if it falls that leaves 1200-feet. Wind turbine blades are 100-180 feet long, they spin at 200 mph at the tip, if anything comes off or fails I've heard other people talk about how far that goes, I didn't read the data but simple logic tells you that will fly quite a way.

Setback requirements are designed to protect a wind turbine's neighbors in the extremely rare event of a tower failure, blade failure, and ice shedding from a blade. As such, setbacks should be based on health and safety. A setback equal to or slightly greater than the tower height is sufficient to protect public health and safety from the rare event of a tower failure.

A section of a sample ordinance from Pennsylvania is noted below that utilizes setbacks based on turbine height from property lines, occupied buildings and roads.

Setback requirements like the one proposed of 1,750 feet would impede wind energy development in the county and unnecessarily restrict landowners and residents who wish to install wind turbines on their land.

Property owners should be able to agree to waive these setbacks and such waiver should be recorded.

The setback number of 1,750 feet is inadequate, given the adverse health and safety issues that wind turbines entail. Lawmakers in Kansas have proposed the Wind Generation Permit and Property Protection Act that would require turbines be placed 1 mile from any property line of nonparticipating real property, 1.5 miles from a residence and 3 miles from an airport, federal wildlife refuge, public park, or hunting area. Any industrial wind turbine that is installed may not generate noise levels that exceed 40 decibels. Only one turbine would be allowed per square mile, in addition to other restrictions on sound and light emitted. Any industrial wind turbine that is installed may not generate noise levels that exceed 40 decibels. I propose similar setbacks, decibel levels, and a maximum of one turbine per square mile in the proposed overlay districts, in these Boone county regulations.

Staff Comment: Some people think 1750-feet is not enough, others think it is too much. The Commission has spent a lot of time on the setback and have the documents to rely on their decision making.

The Commission agreed that no action was necessary.

29.8.5.1 Individual wind turbines shall be set back 1,750-feet from all property lines of the single discrete undivided lot of record upon which it is located. Lease, easement, or other ownership interest of adjoining discrete lots does not remove the property lines between discrete lots from which the measurements are made.

Longer setback requirements, like the 1750' proposed, would impede wind energy development and unnecessarily restrict landowners who wish to install wind turbines on their property. The setback equal to or slightly greater than the tower height is sufficient to protect public health and safety from the rare event of equipment failures. Wind companies manage risks through detailed study and analysis, careful engineering and cautious standard operating procedures. To date, there has not been one report of injury to a member of the public from a wind turbine failure. Most jurisdictions across the US have a setback requirement of 1.1 to 1.5 times the total turbine height from a non-participating property owner's property line and also from public right of ways.

Suggestion: All Wind Turbines shall be set back from the nearest property line a distance of not less than the normal setback requirements for that zoning classification or 1.1 times the Turbine Height, whichever is greater. The setback distance shall be measured to the center of the Wind Turbine base.

Staff Comment: Comments were again pro and con. Staff discussed where that would be measured from. Cell towers are measured to the nearest point on the base of the tower to the property line.

The Commission agreed that no action was necessary.

29.8.5.5 Individual wind turbine heights and markings shall comply with Federal Aviation Administration (FAA) regulations. If lighting of turbines, or other structures, is required, “daytime white-nighttime red” shall be the only type of lighting allowed unless prohibited by law. All turbines and towers shall be a shade of white in color.

“Individual wind turbine heights and markings shall comply with Federal Aviation Administration regulations. If lighting of turbines, or other structures, is required, ‘daytime white-nighttime red’ shall be the only type of lighting allowed unless prohibited by law.”

Section states that individual turbine heights and markings shall comply with FAA regulations. If lighting of turbines or other structures are required, daytime white, nighttime red shall be the only type of lighting allowed unless prohibited by law. Mr. Weislocher stated one of the big complaints that homeowners near the wind farms have is that the night sky is ruined by the constant, unsynchronized flashing of red lights. There are already several FAA approved solutions to this problem, most commonly involving a system that keeps the lights off at night and uses radar within the turbines to detect approaching aircraft and automatically activates the flashing red lights only while aircraft are in the area.

Staff Comment: There is an FAA standard for radar or infrared triggered lighting systems; staff recommends writing that into the regulations as a preferred option. If they get a letter from the FAA saying they can’t do that then the daytime white-nighttime red would be the backup standard.

The Commission agreed to the proposed change.

29.9.1.3 Form of Security. Such Security shall be in the form of a letter of credit, a cashescrow account, a performance bond, or other form of Security which is acceptable to the County. The entity providing the letter of credit or the performance bond must be authorized to provide such security instruments in the State of Missouri. The Security must be written in a form that is acceptable to the County and must contain such provisions, terms or conditions as the County deems to be necessary, including, but not limited to, those set out herein, unless specifically waived in writing by the County.

This wind company has withheld a letter of credit when it was called to be used for road repairs in another project. It looks like letters of credits should not be accepted, since it has been proven it’s possible to be withheld from the county.

Staff Comment: The county’s standard form for an irrevocable letter of credit has an auto-pay feature where if we don’t release it by the due date it automatically pays to the county. Staff would anticipate the county will approve these for a period of time and then reapprove it for a period of time. If we don’t release it by the

due date then it automatically transfers to the county.

Bill Florea: We have never gotten the money that way before and some of them have expired. I spoke with the County Counselor about this and asked if it is doing any good if the banks aren't doing it. He said the bank is contractually obligated whether they give you the money on the due date or not; all we have to do is go to court and get the money. At that point they are acting similar to a bonding company, they are guaranteeing that the money will be available to the county.

The Commission agreed that no action was necessary.

29.9.2.2 Entire Project. An entire project shall be considered to have been abandoned when at least fifty percent (50%) of the individual turbines in any WECOD are abandoned or considered to be abandoned in accordance with 29.9.2.1, and there is no demonstrated viable plan to restore the equipment to operating condition. An extension of the 6-month time period may be granted by the County Commission upon the presentation of sufficient justification by the project owner. All underground equipment and foundation systems of WECS-C shall be removed to a depth of at least four feet (4') to allow for the cultivation of crops, restoration of pasture, or installation of underground utilities.

Abandonment, the 4-foot removal of underground equipment and foundation systems does not seem adequate accordingly so you might want to change that to say take it all out when it is time. I was worried about that when I read that it goes 6 to 30 feet in the ground

Staff Comment: Staff's opinion is if there is 30-feet of concrete in the ground, getting that out is going to cause more damage and disturbance than taking it down to a reasonable level.

Bill Florea: We originally had it at 3-feet but the Commission stated that it should be 4-feet in case water lines needed to be installed. Maybe it should be five or six feet to get a little bit of a safety factor.

Commissioner Koirtyohann: I believe four is adequate, they are going to know that something was there, that is typically what it ends up at without having to worry about it.

The Commission agreed that no action was necessary.

## REVIEW OF COMMENTS NOT RELATED TO A PARTICULAR SECTION

### **Comment: Preparing for winter conditions**

Given the recent winter storm energy disaster in the state of Texas and the unpredictable of future winter weather as the climate changes, all wind turbines and wind farms in Boone County should be required to be built to operate in winter conditions of temperatures to -40 °F, which is the coldest temperature ever recorded in Missouri. Scientists theorize that the warming conditions in the Arctic are causing destabilization in the jet stream resulting in increasingly erratic temperature shifts and extreme weather conditions.

Commissioner Martin: That is up to the company that installs and maintains them.

Bill Florea: It is also an issue of dependence. The utility company that buys the power would bear some responsibility to ask those kinds of questions as to whether it is a reliable source of energy when it is negative 40 degrees.

Chairperson Harris: I don't see how we can deal with that without chasing your tail.

Bill Florea: Agreed. We don't know enough and it is not our area.

Chairperson Harris: Government should not make sure your machine works.

The Commission agreed that no action was necessary.

**Comment: Where does the power go?**

Part of the attraction of this area to commercial wind developers is the proximity to power transmission lines. Yet I've heard no mention from any potential developer of intent to sell power to any utility within Boone County. More likely it would be transmitted up the line to the highest bidder. Given that City of Columbia Ordinance Section 27-106 mandates that 30% of electric retail usage come from eligible renewable energy sources by year 2028, I think the county regulations should require the project owner give first option to purchase power at competitive rates to utilities within Boone County. It would be a shame to allow destruction of our rural landscape and not be able to reap the benefit of any of the energy produced.

Staff Comment: The Commission has talked about this previously and decided that it is not within the County's purview.

The Commission agreed that no action was necessary.

**Comment: Reduction of property values**

I propose that the developer shall provide Additional Security to Boone County to be escrowed by the County for the purpose of compensating property owners who are not leasing land to the developers in the event that:

- a. Their property becomes substantially unlivable due to hazard of sound, blade glint, shadow flicker, or other proximity hazard,
- b. Their property incurs a verifiable reduced resale value, as determined by independent appraisal, due to the presence of the wind turbines. Such compensation would be awarded to qualifying applying property owners at the discretion of the County. If no such compensation was deemed by the County to be due any property holder who has requested it within a specified amount of time, then such escrowed monies would be returned to the project owner.

Staff Comment: The Commission has talked about property values. This comment is suggesting there be an escrow account to compensate owners for loss of property value.

Bill Florea: I don't believe the County will want to be in the business of managing that account and I am not even sure it is something we can do.

Chairperson Harris: How do you regulate it and how do you determine what is legitimate? What is the evidence to say it is legitimate and how long does this payment go on? That is not something the County should oversee.

Bill Florea: That is something we tried to address through the WECOD, to get more people involved in it so the compensation comes from the energy company up front in order to get them to sign on to the application. The smart move on the energy company would be to get everyone to sign on rather than the minimum of

67%. If the company came to the Commission with 100% of property owners signed on in the WECOD and the buffer area will the Commission say no? There still may be other extenuating circumstances.

The Commission agreed that no action was necessary.

**Comment: Ripple Effects**

The proposed regulations are a complex system of inter-related moving parts. Changing any one thing would send ripples throughout the workings and would necessitate other changes. For example, if a developer should request approval to build a turbine taller than the 355 ft. maximum, then that would entail a corresponding proportional increase in the 1,750 ft. setback distance.

Staff Comment: The comment states that the regulations are a complex system and if you start tinkering with one aspect you impact another aspect of it. The Commission is aware of that and has been pretty conservative in looking at things that need to be addressed.

The Commission agreed that no action was necessary.

**Comment: Hazardous Materials during construction and operation phases:**

Each turbine typically has a pad mounted transformer containing up to 500 gallons of mineral oil. These are shipped empty and filled onsite. In addition, each substation transformer where the project connects to the grid may contain up to 12,000 gallons of mineral oil. Once online, each wind turbine requires copious amounts of hazardous fluids on an ongoing basis, such as a glycol, hydraulic oil, and lubricating oil. All these fluids must be drained and replaced on a regular basis. If kept onsite, whether above ground or below ground, they present a risk of soil, stream, and ground water contamination. I propose that no onsite storage of hazardous fluids, new or used, should be allowed

Staff Comment: We have Missouri Department of Natural Resources, EPA and the stormwater regulations that prohibit illicit discharges of pollutants and any one of those substances mentioned in the comment could be a pollutant. Staff's recommendation is that there is adequate regulation in this area.

Commissioner Martin: There are plenty of state regulations in place. If there is a spill DNR is called and a hazmat crew comes out to clean it up and it is billed to whoever spilled it. Any spill over 50 gallons has to be reported.

Chairperson Harris: The comment seems to implicate that fluids will be stored on site. Unless they are stored in the base of the tower I don't know where they would be kept.

Bill Florea: They will probably have a utility building in the area where everything is stored.

The Commission agreed that no action was necessary.

**Comment: Enforcement**

If the County detects wind turbines out of compliance due to noise levels, location, public hazard, or other item specified in the WECOD regulations, and issues an order to repair, modify, or cease and desist, and that order is not complied with within a specified amount of time, then the county shall retain the authority to shut down, remove power to, or otherwise take the offending turbine(s) offline. Considering that there may be foreign ownership of the industrial wind projects and the county could have difficulty enforcing compliance once turbines are constructed and online, the county shall reserve this right to pull the plug as a means of enforcement.

Staff Comment: Staff doesn't believe we have administrative authority to do this; we would probably have to go to court. The County has a process for doing that.

The Commission agreed that no action was necessary.

**Comment: Light Mitigation**

Light mitigation systems add to the cost of constructing wind turbines, so in absence of regulations mandating them, they will not happen out of the good will of a wind company. The current regulation draft specifies ""daytime white - nighttime red"" as the only type of lighting allowed, and that would seem to prohibit light mitigation systems both now and in the future, and have the effect of perpetuating exactly what nobody wants, the constant blinking red lights at night.

There are several types of light mitigation systems, but the most developed ones appear to be those involving the use of radar to detect nearby aircraft, turning on lights at that time, while having dark skies at other times.

Staff Comment: This has already been discussed by the Commission.

The Commission agreed that no action was necessary.

**Comment: Fire Protection**

A plan for fire protection for the proposed facility that is prepared by or in consultation with a fire safety expert; and an assessment of the risks that determines whether the proposed facility will interfere with the weather radars used for severe storm warning or any local weather radars.

The regulations should require automatic fire suppression systems in the nacelles. There are no fire apparatus in Boone County or surrounding jurisdictions that can reach the nacelle to mount a manual attack on a fire.

Staff Comment: This has already been discussed by the Commission.

Cece Riley: In researching this it does look like there isn't any industry standard to have fire suppression within the turbine, however, there is data from the National Fire Protection Association (NFPA) about the electronic equipment that indicates that localities can require turbine companies to adopt NFPA Chapter 850 and they would have the best suited mitigation techniques but the industry itself does not do that because there is an additional cost. Unless they are required to do it, they don't.

Thad Yonke: It is a best practice. We are not prohibited from requiring that if the Commission wants to.

Commissioner Koirtyohann: Why wouldn't we want to require it?

Bill Florea: I don't see a downside to it.

Commissioner Martin: Me either, that is typically protecting something the best you can.

The Commission agreed to add NFPA 850 to the regulations.

**CONDITIONAL USE PERMIT REGULATION COMMENTS**

**SECTION 15 ADMINISTRATION**

G. CONDITIONAL USE PERMITS FOR COMMERCIAL WIND ENERGY  
CONVERSION SYSTEMS (WECS-C)

3.1 Limited Number of Applications per Month:

Regarding the application process for a WECS-C: Why is the project owner required to submit applications for only 2 to 6 wind turbines at a time? The restriction on the number of wind turbines in one application would negate the benefits that could be achieved through economies of scale. If they know they want more wind turbines on a site, it is more efficient for everyone involved to be able to consider the full scope of the project in its entirety including all the associated and extensive documentation like environmental impact studies, visual simulations and traffic plans.

Staff Comment: The Commission discussed this at length. Review of the applications is very time consuming. If this is not adequate to the wind turbine company they can come in and negotiate a schedule for bringing in applications and we could work something out.

Bill Florea: If we have three applications by the same owner per month and each application can contain up to two WECS-C and we can allow groups of up to six, that is 18 turbines per month.

Commissioner Koirtyohann: That is more than we can realistically do.

Bill Florea: Unless they are uniquely identical and uniform. With the terrain in Boone County that would be difficult. We would expect a great deal of testimony at each one of these conditional use permit hearings.

Chairperson Harris: If they are looking to make this project work they may need 50 turbines; that will take them three trips before the Commission. Is that asking too much?

Thad Yonke: It would take three trips if they only had clusters.

Chairperson Harris: They may be looking to see if they can even get 50 turbines because if they can't get 50 they might not try for one.

Thad Yonke: The time it will take them to get the individual towers approved is not relevant when they have to deal with whether they will even be able to get the WECOD established.

Chairperson Harris: I just want to make sure that we don't put something in the regulations that they can challenge.

Bill Florea: If the energy company is able to meet the standards of the WECOD then it is pretty likely that all of the conditional use permits are approvable. The WECOD is a path to approval if they are willing to do the work. Maybe a few of the turbines won't work in their proposed locations or maybe they need to be adjusted a little bit. It is a conditional use permit so conditions can be placed on it. If staff finds that the location won't work that can be the opening for a negotiation with the energy company to find how they will mitigate the impacts on that particular tower and at that time staff may recommend approval.

Thad Yonke: If they object to how long it takes to get the individual CUPs that is pretty presumptuous that they are going to be approved anyway. They have to go through the process; they may not be approved for any of them. It is unlikely after the WECOD process but you can't just assume that they will all be approved.

Bill Florea: I can't see 50 turbines being built in a year but I don't know enough about them.

Chairperson Harris: The wind farm in Kirksville has about 75 turbines and it didn't take them much over a year to build them all.

The Commission agreed that no action was necessary.

#### REGARDING ROADS

Bill Florea: Commissioner Aldred spoke with one of the County Commissioner's in Adair County and he confirmed that they didn't have a road use agreement so all of the damage that was done on the roads is on the public dollar to repair.

Thad Yonke: All of the revenue generated from the build-out there, you would have to take however much the tax dollars are going to be spent to fix the roads to see if there was really any net gain.

Bill Florea: All of us are paying that bill because a lot of the roads there are MoDOT maintained.

Bill Florea: It was suggested that the Commission take a road trip to Adair County to see their wind farm. If anyone is interested in driving up there to take a look, the County will reimburse the Commissioners for their mileage. There is a property owner there, Carrie March, that has contacted us; she has 80 wind turbines within two miles of her house and she offered to meet anyone who wants to go up there. If anyone wants to do that is also important to see the other side. I would be willing to contact Carolyn Crisman, who is the Executive Director of Kirksville REDI (KREDI), to see if there is someone on the pro side that would want to show us their side of it too. The Commission should not just view it from one side; it is only fair to see both sides of the issue. It would be good if multiple people go on the same day. I haven't spoke with Ms. Crisman yet, but I assume she would be willing to do it, but the property owner seemed very open to have people come up and visit her property. Let me know and I can make those contacts.

Staff showed pictures sent from Carrie March, Kirksville area resident.

During the last work session the Commission asked about painting one of the blades black and how it can affect birds.

Cece Riley: Staff looked into this; this was a single study done up until July 2020 and it involved eight total turbines, four of which had a single blade painted black and four that weren't. It was studied over a ten-year period, for seven of those years there was nothing painted black. For three years one of the blades on four turbines was painted black. In those ten years, a total of 42 birds died. This was from eight turbines over ten years. Within the three years of the single blade painted black there was a 70% difference. The study hasn't been repeated; it was a single wind farm in Norway.

Chairperson Harris: The study showed that in a ten-year period 42 birds died?

Cece Riley: Correct. Part of the reason that this wasn't studied further is that it is prohibited by the FAA to paint turbines that color.

Thad Yonke: Staff will make the recommended changes and get back with the Commission.

Chairperson Harris: Is the plan to look at the final draft at the regular June meeting?

Bill Florea: Yes.

Minutes prepared by Paula Evans.