

**In The Matter Of:**

*McLEAN COUNTY ZONING BOARD OF APPEALS MEETING*

---

*WIND FARM*

*January 4, 2018*

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1 McLEAN COUNTY ZONING BOARD OF APPEALS  
 2 MEETING  
 3  
 4 Thursday, January 4, 2018  
 5 6:00 p.m.  
 6  
 7 at  
 8 Heartland Community College  
 9 1500 West Raab Road  
 10 Normal, Illinois  
 11  
 12 Case Number SU-17-11  
 13  
 14 ZONING BOARD MEMBERS PRESENT:  
 15 Brian Bangert  
 16 Chris Carlton - 1st Alternate  
 17 Rick Dean  
 18 James Finnigan - Chairman  
 19 Michael Kuritz  
 20 Mary Beth Taylor - 2nd Alternate  
 21 Julia Turner  
 22 Drake Zimmerman  
 23  
 24 Court Reporter:  
 Brenda Zeitler, CSR-RPR  
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1 APPEARANCES:  
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 10 On Behalf of the Applicant  
 11  
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 13 Assistant States Attorney  
 14 104 West Front Street  
 15 Room 605  
 16 Bloomington, Illinois 61701-5005  
 17 (309) 888-5400  
 18 On Behalf of McLean County.  
 19  
 20 ALSO PRESENT:  
 21 PHILIP DICK, Director of Building & Zoning  
 22 JERRY STOKES, Assistant County Engineer  
 23  
 24

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1 MR. FINNIGAN: We're going to call the  
 2 meeting to order tonight. This is a continuation of  
 3 Invenergy's case -- I got to get the number here --  
 4 SU-17-11 from Tuesday night. It was continued to  
 5 tonight at 6:00.  
 6 Where we're at in this process, if you  
 7 follow this and as you pick one up and come in, is the  
 8 first paragraph. The Applicant is still putting on  
 9 their witnesses, and every witness they have can be  
 10 asked questions at this point.  
 11 So you'll have a chance to come back later  
 12 to give testimony, stuff like that. That's where we  
 13 are at this point. As long as there's no questions,  
 14 we're going to call the roll and continue on.  
 15 MR. DICK: Mark Judd?  
 16 (No response.)  
 17 MR. DICK: Brian Bangert?  
 18 MR. BANGERT: Here.  
 19 MR. DICK: Michael Kuritz?  
 20 MR. KURITZ: Here.  
 21 MR. DICK: Rick Dean?  
 22 MR. DEAN: Here.  
 23 MR. DICK: Julia Turner?  
 24 MS. TURNER: Here.

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1 **MR. DICK:** Drake Zimmerman?  
 2 **MR. ZIMMERMAN:** Here.  
 3 **MR. DICK:** Jim Finnigan?  
 4 **CHAIRMAN FINNIGAN:** Here.  
 5 **MR. DICK:** Chris Carlton?  
 6 **MS. CARLTON:** Here.  
 7 **MR. DICK:** Mary Beth Taylor?  
 8 **MS. TAYLOR:** Here.  
 9 **CHAIRMAN FINNIGAN:** We have a quorum; so we  
 10 can conduct business. The staff has been affirmed,  
 11 and I think we're ready to ask for our next witness.  
 12 If it goes past tonight, we are going to  
 13 continue this to Tuesday night at the Law and Justice  
 14 Center -- Government Center -- that's what I meant --  
 15 where we always meet. That will be at 7:00. So that  
 16 will be our next meeting if we do not get done  
 17 tonight. We'll announce that again at the end in case  
 18 people come in late. Tonight will not go past 10:00.  
 19 **MR. ZIMMERMAN:** If we meet Tuesday, will it  
 20 be 6:00 again?  
 21 **CHAIRMAN FINNIGAN:** 7:00. Are we ready? I  
 22 think we're ready for the next witness.  
 23 **MR. GRIFFIN:** Thank you, Mr. Chairman.  
 24 Before we call the next witness, I do have a number of

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1 exhibits that I want entered into the record. I  
 2 believe the Board has copies of those, but I'd like to  
 3 go through those briefly, if I may.  
 4 The first would be Applicant's Exhibit  
 5 Number 6. This is a letter from the Project to  
 6 Mr. Dick and to the County responding to the IDNR  
 7 consultation letter. That letter is dated January 4,  
 8 2018. I would ask that be entered into the record as  
 9 Applicant's Exhibit Number 6.  
 10 The next document we have that I ask be  
 11 entered into the record is Applicant's Exhibit Number  
 12 7. It is a one-page document that is correcting the  
 13 parcel identification information for two of the  
 14 participating parcels in the project. The correct  
 15 information was provided in the public notice that was  
 16 published and mailed, but there was some incorrect  
 17 information that was provided in the application.  
 18 Again, these parcels were both identified, but some of  
 19 the legal descriptions for them were not correctly  
 20 distinguished between the two parcels. So I'd ask  
 21 that that correction be entered as Applicant Exhibit  
 22 Number 7.  
 23 Next we have Applicant Exhibit Number 8,  
 24 which we'd ask to be entered. This is a revised

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1 Decommissioning Plan and Decommissioning Obligation  
 2 Cost Evaluation.  
 3 As you may recall from Tuesday's hearing,  
 4 the gentleman from the Farm Bureau pointed out that  
 5 the Decommissioning Plan that had been submitted in  
 6 the application was based upon the requirements in the  
 7 County Ordinance. Subsequent to that being filed, we  
 8 entered into the Agricultural Impact Mitigation  
 9 Agreement with the Department of Agriculture. That  
 10 provided some slightly different decommissioning  
 11 requirements, including removal of the foundation to a  
 12 greater depth for the wind turbines to a five foot  
 13 depth.  
 14 So we had our decommissioning consultant  
 15 revise their study, and that's Applicant's Exhibit  
 16 Number 8. You will note that the per turbine  
 17 decommissioning cost increased to \$52,809, and that  
 18 would be what we would propose to post as security as  
 19 a per turbine decommissioning security amount. So  
 20 that increased.  
 21 Finally, Applicant's Exhibit Number 9 that  
 22 we would ask to be entered is correspondence from the  
 23 Illinois Department of Natural Resources Historic  
 24 Preservation Office which is responding to

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1 correspondence from the Applicant concerning the  
 2 project. It's dated December 14, 2017, and simply  
 3 asks that the -- this is the Department asking -- that  
 4 the project continue with the consultation process,  
 5 which we are doing.  
 6 So I'd ask that those be entered into the  
 7 record. And certainly if there are questions about  
 8 those documents, we'd be prepared to answer those  
 9 tonight. If they are not any, we're ready to call our  
 10 next witness.  
 11 **CHAIRMAN FINNIGAN:** I think we're fine with  
 12 the exhibits; so you can bring your witness, and we'll  
 13 swear him in.  
 14 **MR. GRIFFIN:** Very good. Our next witness  
 15 is Mr. Michael Hankard. He is sitting here next to  
 16 me, and he's ready to be sworn in. He also has a  
 17 PowerPoint presentation that goes along with his  
 18 testimony.  
 19 (Michael Hankard sworn.)  
 20 **CHAIRMAN FINNIGAN:** Would you state your  
 21 name and address.  
 22 **MR. HANKARD:** My name is Michael Hankard.  
 23 My address, business address, is 211 East Verona  
 24 Avenue in Verona, Wisconsin.

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1       **MR. DICK:** Could you spell the last name,  
 2 please?  
 3       **MR. HANKARD:** H-a-n-k-a-r-d.  
 4       **MS. TURNER:** Do we have this exhibit in our  
 5 book?  
 6       **MR. ZIMMERMAN:** This one. It's a new one.  
 7       **MR. GRIFFIN:** If we could get the PowerPoint  
 8 presentation up, please?  
 9       Mike, go ahead and introduce yourself and  
 10 identify yourself first.  
 11       **MR. HANKARD:** Sure, but that messes with my  
 12 flow. I was going to get into my credentials in a  
 13 little bit.  
 14       All right. My name is Mike Hankard. I am a  
 15 noise control engineer or acoustician whose profession  
 16 it is to measure and analyze, predict and research and  
 17 testify on noise from industrial sources such as wind  
 18 turbines.  
 19       I'm here tonight to describe the results of  
 20 the study that I conducted which shows that, when  
 21 operational, the McLean Wind Energy Center, the noise  
 22 from it, will be in compliance with the Illinois  
 23 Pollution Control Board regulations, which is what the  
 24 County Zoning Ordinance requires.

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1       There's some technical jargon and terms and  
 2 whatnot that we have to cover tonight. I'm going to  
 3 do my best to simplify that. I'm here to provide you  
 4 with a framework to understand this, not to befuddle  
 5 you with numbers and what have you. If at any time  
 6 I'm not being clear and you need a little more  
 7 explanation, feel free to let me know.  
 8       For those of you with the PowerPoint in  
 9 front of you, if you could turn now to -- well, it's  
 10 the second slide, the first one after my introduction.  
 11 For the audience who doesn't have the benefit of this,  
 12 we'll be coming back to this slide a couple of times;  
 13 so you're not completely missing any ground yet.  
 14       This chart shows you the nighttime noise  
 15 limits of the Illinois Pollution Control Board. Some  
 16 of you may or may not be familiar with this. Illinois  
 17 has a little bit more of a robust and complex noise  
 18 standard. A lot of times you'll just hear about a  
 19 one-number standard, dBA. In Illinois, they limit it  
 20 in these nine different frequency bands.  
 21       So these limits here are for noise being  
 22 emitted from a Class C land, such as an agricultural  
 23 property, onto Class A land, which is a residential  
 24 property. Furthermore, these limits are the nighttime

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1 limits. There are many other limits contained in the  
 2 Illinois regulation, but they are higher, for example,  
 3 during the daytime. So this project is being designed  
 4 to meet the most stringent limits 24/7.  
 5       If you go to the next slide, I've added a  
 6 piano keyboard here because I think everybody kind of  
 7 understands a piano keyboard and what it sounds like.  
 8 We need to understand a little bit the concept of  
 9 frequency.  
 10       The lower band, labeled 31.5 hertz, that's  
 11 the lower end of the piano. So if somebody was to  
 12 play the Jaws theme, that's what you'd hear. If I was  
 13 to lay on the bottom ten keys or so of the keyboard,  
 14 that first red bar would go up. So Illinois has a  
 15 limit for that band of frequencies and all of the  
 16 other eight bands up the scale.  
 17       One thing that will become evident in my  
 18 presentation later is that it's that 500 hertz band,  
 19 the one roughly in the middle, with the limit of 47 --  
 20 that's what it's all going to come down to. So while  
 21 we may have all of these numbers here, at the end of  
 22 the night, for various reasons that I will explain in  
 23 a minute, it's that 500 hertz band that really  
 24 matters.

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1       One other note about this -- oh, there we  
 2 go.  
 3       (PowerPoint up now.)  
 4       I'll back up one moment for the benefit of  
 5 the audience. Illinois has these nine different  
 6 limits, and they all pertain to a certain band of  
 7 frequencies. It's that one kind of in the middle of  
 8 the keyboard, the 47 dB limit at 47 hertz, that's  
 9 going to be controlling.  
 10       The other thing, you know, if you got a  
 11 bunch of people together and we pressed all the keys  
 12 on this keyboard together, that total sound, that's  
 13 the total sound. So when you hear of a one-number  
 14 limit, that's what they're talking about. Again, in  
 15 Illinois, it limits each of these little bands.  
 16       Next slide, please.  
 17       So a little bit about my qualifications.  
 18 Why am I qualified to be sitting here in front of you?  
 19 I've been doing this for about 27 years as my sole and  
 20 dedicated career to acoustics. I've been involved in  
 21 about 500 or so projects located across the United  
 22 States. I've even had the fortune to do some  
 23 international work.  
 24       I've worked in multiple industries: power,

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1 highway, mining, all kinds of different things. I  
 2 think it's a benefit. It gives me some good  
 3 perspective on these projects.  
 4 I also conduct research. I keep active in  
 5 my professional society. And I provide expert  
 6 testimony to boards such as this.  
 7 Next slide, please.  
 8 All right. So one more crazy frequency  
 9 graph. Just to give everyone an idea of this, you may  
 10 have heard that humans can hear from 20 hertz to  
 11 20,000, or maybe you haven't. That's the audible  
 12 frequency range.  
 13 The stuff way up high, wind turbines do not  
 14 produce much above 10,000. What does gets absorbed  
 15 into the atmosphere before it ever gets to a  
 16 residence; so that's not of our concern. Our concern  
 17 lies somewhere in the 20 to 10,000 hertz range.  
 18 You will hear sometimes with regard to wind  
 19 turbine noise about low frequency noise. That's why  
 20 I've highlighted that here. That's that lower third  
 21 of the keyboard, those low notes. And I'll come back  
 22 to low frequency noise in a minute.  
 23 Next slide, please.  
 24 I went over this presentation this morning,

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1 and I just kind of reorganized a couple of things in  
 2 my mind to make it flow better; so I'm going to skip  
 3 over this and then come back to my measurement  
 4 experience and why that's important later.  
 5 All right. So back to the main event, these  
 6 regulations. Next slide, please.  
 7 We need to demonstrate compliance with this,  
 8 but there's no project constructed right now; so we  
 9 can't go out and measure anything. We have to predict  
 10 it or use a model.  
 11 Next slide, please.  
 12 The model we use is essentially a  
 13 mathematical model. It's produced by the  
 14 International Standards Organization, Method Number  
 15 9613. It's used by virtually every acoustical  
 16 consultant in the country. It's used for wind  
 17 turbines. It's used for other power plants and,  
 18 again, gravel pits, what have you.  
 19 The way the model or the method works is you  
 20 get a emission factor. Emission factor is how much  
 21 sound, in this case, does a wind turbine produce.  
 22 Wind turbine manufactures, General Electric, Vestas  
 23 who have you, they measure -- in a test environment,  
 24 they measure the noise from their turbines and hand

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1 that data over to someone like myself.  
 2 Then we use this -- so we plug that into our  
 3 model. We also want to know: Is the sound directed?  
 4 Does it produce its noise only in one direction?  
 5 The model also covers divergence. When  
 6 sound comes off of a wind turbine, it spreads out in  
 7 all directions, and it loses energy as it spreads; so  
 8 we model that.  
 9 Atmospheric absorption. When sound waves  
 10 travel through the air, they actually get converted  
 11 into minute amounts of heat, believe it or not. So  
 12 some energy is lost due to atmospheric absorption.  
 13 There's also the ground. Sound travels  
 14 along the ground. Some of it is absorbed, and some is  
 15 reflected. So the type of ground impacts how loud  
 16 wind turbine noise is going to be at a residence.  
 17 There are also barriers, which, in the case  
 18 of wind turbines, are not applicable due to their  
 19 height.  
 20 Vegetation can absorb noise, but we largely  
 21 ignore that.  
 22 And then meteorology or the weather or the  
 23 atmosphere is very important on this subject. I'll  
 24 get back to that in a minute.

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1 Next slide.  
 2 This is a graphical picture of our model.  
 3 We actually physically model these facilities.  
 4 Invenergy will tell us exactly where they intend to  
 5 place the turbines. We know exactly where the  
 6 residences are located via maps. We plug all of this  
 7 information into our model, and this is just a  
 8 graphical representation of it.  
 9 Every single turbine is represented as an  
 10 emitter of noise. Every residence is represented as a  
 11 receiver of noise. And, again, it's all to scale,  
 12 including the height. The model knows where the  
 13 ground is, all of that.  
 14 Next slide, please.  
 15 All right. So this is, to me, a very  
 16 important concept in wind turbine noise prediction and  
 17 predicting compliance with the Illinois Pollution  
 18 Control Board regulations.  
 19 The atmosphere is critically important.  
 20 During the daytime, the sun is heating up the air, and  
 21 it's kind of roiling all around. Sound waves don't  
 22 propagate through that very well. So a lot of times  
 23 during the day, you won't even hear that distant  
 24 highway or that distant grain drier or the distant

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1 turbine in this case.  
 2 But a lot of times, at night, the atmosphere  
 3 calms down once the sun goes down, and you can get  
 4 what is called a "temperature inversion." You can get  
 5 certain wind conditions.  
 6 It's these nights that are kind of calm that  
 7 sound propagates the best. Those are the nights when  
 8 the turbine noise would be louder than during the  
 9 daytime or during a stormy night. So it's really  
 10 these times that I key in on as a professional because  
 11 I want to make sure that I'm telling you it's the  
 12 loudest. I want to report the loudest. I don't want  
 13 to report the average. You know what I mean? We have  
 14 to make sure that, under any conditions, these  
 15 turbines will not exceed the Illinois Pollution  
 16 Control Board limits. That's what I shoot for, if you  
 17 will.  
 18 In order to achieve that, we assume that,  
 19 first of all, of the turbines are operating at full  
 20 capacity. At times they can, not always, but that can  
 21 occur; so we model that.  
 22 And we assume, like I said, that the  
 23 atmosphere is calm. We assume that there is either a  
 24 temperature inversion or that a receiver is down wind.

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1 Again, maybe you can relate to this if you live near  
 2 these highways that are in your county. Some nights  
 3 you hear them. That's typically when the wind is  
 4 blowing from the highway toward your house. Sometimes  
 5 you don't. Same highway, same traffic, same distance,  
 6 different atmosphere. It can make a lot of  
 7 difference. We assume it's one of those nights where  
 8 you can really hear it.  
 9 So now, if I can go back up to a couple of  
 10 slides up -- I guess I have control here -- to this.  
 11 I want to talk for just a minute about my measurement  
 12 experience because I think this is very important.  
 13 Not to be disparaging, but I think some acoustical  
 14 consultants are desk jockeys. I'm a desk jockey  
 15 sometimes. But then, for a good number of projects, I  
 16 have been out in the field measuring for days, weeks,  
 17 months; and even on one project, it went on for years.  
 18 A lot of times I'm out there in the field all night  
 19 long listening, measuring. So I have a really good  
 20 firsthand understanding of what these things sound  
 21 like.  
 22 Better yet, I take my model -- so when I do  
 23 a measurement project, at the end of that project, I  
 24 say: What's the loudest I ever measured of these

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1 turbines? And then I build a model of that, and I  
 2 compare the two.  
 3 I have found that how I have my model set  
 4 up, I know that it replicates the very loudest that  
 5 we're ever going to experience. I'm obviously  
 6 belaboring this point, but I think it's very  
 7 important.  
 8 So finally I get to the point. This graph  
 9 shows -- I've now plotted on top of the Illinois  
 10 Pollution Control Board regulations the noise level  
 11 predicted at the one residence where we expect it to  
 12 be the loudest. Everything else is less. So this is  
 13 the worst-case level.  
 14 As you can see, due to the shape of the  
 15 limits versus the shape of the predictions, the 500  
 16 hertz limit becomes the pinch point, if you will. If  
 17 you meet the limit in that band, everything else will  
 18 be compliant. So you'll notice that we are predicting  
 19 at this closest receptor to be at the limit, just  
 20 below, but at the limit.  
 21 If you remember all that I just talked to  
 22 you about, the conservative nature of our predictions,  
 23 this is the worst case. Everything else is going to  
 24 be less. So on nights when the atmosphere is not as

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1 conducive to sound propagation, the levels will be  
 2 lower. For the houses that are located further from  
 3 turbines, the levels will be lower.  
 4 Also keep in mind that the daytime limits  
 5 are about 5 dB higher, but we are designing to meet  
 6 the nighttime at all times.  
 7 Just real quick back to this graph, I want  
 8 to talk again about low frequency noise briefly  
 9 because you will hear about that with regards to  
 10 turbines.  
 11 So here I've just highlighted -- it's the  
 12 same chart, the same information. I've just  
 13 highlighted the low frequency portion of the Illinois  
 14 limits. As you can see, we are a couple, 2, 3  
 15 decibels below those limits in the low frequency  
 16 bands.  
 17 So if I could just summarize, the analysis  
 18 that I conducted shows, demonstrates -- and you have  
 19 our report as part of the permit submittal -- that  
 20 wind turbine noise levels at all nonparticipating  
 21 residences will be below the Illinois limits. Some of  
 22 the limits are close to the limit, but that is for the  
 23 worst case. And at a majority of the residences, the  
 24 levels will be far below the limits.

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1 We've validated our model. So we're not  
 2 just using some mathematical model that we're not  
 3 comfortable with. This is a model that I've used on  
 4 dozens of projects and that I've compared against some  
 5 of the most robust measurements that exist on this  
 6 subject.  
 7 Noise levels a majority of the time will be  
 8 lower due again to the atmosphere. I had a project  
 9 recently where we were trying to find those nights  
 10 when it was -- when the noise would really propagate  
 11 well. And over the course of a couple of -- I think a  
 12 combined six weeks in the field, we might have had one  
 13 or two of those nights. I'm not saying that that's  
 14 going to be the rate here in McLean County, but this  
 15 does not happen every night. So a majority of the  
 16 nights, the levels will be much less than what I've  
 17 predicted.  
 18 And finally, as I've just mentioned, in  
 19 terms of low frequency noise, the predicted levels are  
 20 below the Illinois limits.  
 21 That is all I have for a presentation, and  
 22 I'm happy to answer any questions from you or the  
 23 public.  
 24 **CHAIRMAN FINNIGAN:** I think we're ready for

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1 questions from the Board.  
 2 **MR. GRIFFIN:** Mr. Chairman, I'd ask that  
 3 Mr. Hankard's PowerPoint be entered into the record as  
 4 Applicant's Exhibit Number 10.  
 5 **CHAIRMAN FINNIGAN:** That will be done.  
 6 **MR. BANGERT:** For Illinois winds, the  
 7 predominant direction of the wind during the summer  
 8 for your studies, what was the finding there, or does  
 9 that enter into your studies?  
 10 **MR. HANKARD:** It does not because we assumed  
 11 that every residence was down wind of every turbine at  
 12 all times. Obviously that can't exist, but it's the  
 13 worse case. Again, just really trying to make sure  
 14 that we have modeled the worst case.  
 15 So we don't have to worry about wind  
 16 direction because we're not taking a correction for  
 17 it, if you will. We're assuming down wind all the  
 18 time.  
 19 **MR. BANGERT:** Okay. If a person was to  
 20 consider the predominant winds, because people are  
 21 going to be outside their residence -- I'm going off  
 22 of recollection, but most of our summer winds would be  
 23 out of the northwest. If we were to choose the  
 24 location for -- and I'm not saying myself, but if a

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1 location for a wind turbine was to be situated on the  
 2 down-wind side of a residence, that would be obviously  
 3 even better yet; is that correct?  
 4 **MR. HANKARD:** Yeah. If it was a single  
 5 turbine controlling the noise level. If you have  
 6 turbines in different directions, then you can't  
 7 really avoid any one direction. But if you have a  
 8 residence where there's one turbine that's the  
 9 controlling factor, then having it down wind of the  
 10 house would result in a lower noise level, yes.  
 11 **MR. BANGERT:** Thank you.  
 12 **MR. DEAN:** So for your study, you  
 13 differentiated between participating and  
 14 nonparticipating residences?  
 15 **MR. HANKARD:** That's correct.  
 16 **MR. DEAN:** Thank you.  
 17 **MS. TURNER:** Can you give me an example of  
 18 what types of nights generally the sound travels more?  
 19 I know these cold, frigid nights where we have our  
 20 windows closed, it seems to travel more. But what  
 21 type of nights when it's nice out, when people would  
 22 have their windows open or be outside, would the noise  
 23 travel? Can you describe that type of night?  
 24 **MR. HANKARD:** Sure. I guess I would say,

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1 overall, it tends to occur in the -- it can occur at  
 2 any time, but in the spring and in the fall. Because  
 3 in the summer, you have just a long day of heating.  
 4 And, again, the atmosphere is very turbulent, and it  
 5 takes a bit of time after sunset.  
 6 So in the spring and the fall, you can get  
 7 these evenings where -- it would not be a windy night.  
 8 It would be relatively calm. And, you know, a  
 9 temperature inversion will set up -- which is where --  
 10 usually it gets colder as you go aloft, but there's  
 11 certain conditions that can occur where it gets a  
 12 little warmer aloft. That causes sound waves to bend  
 13 back down towards the earth. So sound energy that  
 14 ordinarily would have gone up, up, and away kind of  
 15 stays down; and therefore, it's a little louder at the  
 16 residences.  
 17 That's not something that you really even  
 18 hear on the 6:00 news. They never really talk about  
 19 temperature inversion; so that's not something you're  
 20 going to know exists. But, again, it's just those  
 21 nights where -- I don't know -- you walk outside, and  
 22 it's kind of nice because it's not blustery.  
 23 **MS. TURNER:** So more frequent in the spring  
 24 and fall?

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1       **MR. HANKARD:** That's correct.  
 2       **MS. TURNER:** You said you've done a lot of  
 3 field measurements, and you're using this based on  
 4 modeling that you've done.  
 5       Have you taken models of these types of  
 6 turbines that they are using? Have you done field  
 7 work on these type of models to prove in the field  
 8 that these models are good, you yourself?  
 9       **MR. HANKARD:** Yes, I have. I've been  
 10 involved with six or eight of some of the longer --  
 11 with wind turbines, you can't just go out for a night  
 12 and stick your sound level meter in the air and  
 13 measure. Well, you can. But you have some data  
 14 that's of dubious quality.  
 15       What you really need to do is either spend  
 16 night after night in the field yourself, or you leave  
 17 the equipment there. It runs all night for weeks and  
 18 weeks, and then you analyze the data. Again, these  
 19 nights where you're asking me how often do they occur,  
 20 we want to get data on those nights. We tend to leave  
 21 our equipment out for weeks to months, and then we'll  
 22 be able to review and see, aha, it was that night.  
 23       To your question about these types of  
 24 turbines, yes, the GE turbine is one that Invenergy

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1 has utilized on many of its previous projects; so I do  
 2 have a lot of direct experience with these similar  
 3 turbines.  
 4       **MS. TURNER:** And you obviously find your  
 5 models to represent them well, then?  
 6       **MR. HANKARD:** They do indeed. And I'll  
 7 mention one project we did in Illinois a number of  
 8 years ago. We found that the model was actually  
 9 underpredicting a little at 500 hertz; so we actually  
 10 -- once the model gives us our numbers, we add one to  
 11 the 500 hertz. It's just another way we're trying to  
 12 be as conservative as we can.  
 13       **MS. TURNER:** Thank you.  
 14       **MR. ZIMMERMAN:** On the turbines that you  
 15 monitored, what size were they?  
 16       **MR. HANKARD:** I've monitored a number of  
 17 different-sized turbines, everything from 1.5  
 18 megawatts up to 2.5 megawatts.  
 19       **MR. ZIMMERMAN:** What is the difference in  
 20 terms of the decibels coming out of the higher ones,  
 21 which is what we're considering here?  
 22       **MR. HANKARD:** With wind turbine noise, it's  
 23 like real estate; it's location, location, location.  
 24 And we don't often measure from one turbine. So to

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1 say that I got louder levels on one project versus  
 2 another, it may not have been because the turbine  
 3 itself was louder but because there were more of them.  
 4 So it's always a balance between those two things.  
 5       Again, the louder levels may or may not have  
 6 been related to any given turbine.  
 7       **MR. ZIMMERMAN:** Were the larger turbines  
 8 noisier?  
 9       **MR. HANKARD:** You know, it's not a question  
 10 of a larger turbine. Really it comes down to tip  
 11 speed. This is getting to the physics of a wind  
 12 turbine. It produces noise primarily as the blades  
 13 cut through the air. Yeah, there's a gear box, and  
 14 there's that inside the nacelle, the hub; but that's  
 15 not what is reaching the residence. It's the blades  
 16 cutting through the air.  
 17       The tip speed is a function of the how wide  
 18 the rotor is times, with a few factors involved, the  
 19 rotational speed. So you can have a larger turbine;  
 20 but if it's turning slower, it won't be as loud.  
 21       It's not just a direct relationship between  
 22 size. It's actually primarily tied to tip speed.  
 23       **MR. ZIMMERMAN:** Aren't the larger turbines  
 24 -- don't they have larger diameters and larger radii?

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1       **MR. HANKARD:** They do have larger --  
 2       **MR. ZIMMERMAN:** So they would therefore be  
 3 going faster.  
 4       **MR. HANKARD:** If they rotate at the same  
 5 speed. So you can have a turbine with a larger rotor  
 6 diameter, but it doesn't turn as fast.  
 7       **MR. ZIMMERMAN:** What I'm trying to get to  
 8 is, on these turbines which go a little faster, how do  
 9 the models -- how does your model line up with what  
 10 we're going to be seeing if these were approved?  
 11       **MR. HANKARD:** Well, all of the data that was  
 12 provided to us from the manufacturer is either  
 13 directly measured by them or based on their experience  
 14 of measuring their own turbines for years.  
 15       So these larger turbines that are being  
 16 employed today in the industry are really just a  
 17 slightly larger -- the noise levels do go up as the  
 18 tip speeds go up, but it's a fairly well-understood  
 19 phenomenon.  
 20       **MR. KURITZ:** You mentioned that they're  
 21 using, on some of the rotors, these new  
 22 noise-dampening blade tips. What kind of difference  
 23 in sound will they produce, and how do they do that?  
 24       **MR. HANKARD:** Right. With GE, it's called



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1 low-noise trailing edge blades, LNTE. So what people  
 2 like myself have found through detailed measurements  
 3 is that a lot of the noise comes off the back end of  
 4 the blade.  
 5 So as the blade, on the downstroke in  
 6 particular, is sweeping through the air, it's causing  
 7 turbulence. And they studied, honestly, owls' wings,  
 8 and perhaps there were some other studies involved.  
 9 They found that the owl wings have serrations, that  
 10 the feathers have a lot of little edges to them. That  
 11 decreases the amount of turbulence on the back of an  
 12 owl's wing, which is why they're quiet.  
 13 So they mimicked that with wind turbines.  
 14 So the back edge of the blade is serrated. That  
 15 decreases the amount of turbulence coming off the back  
 16 of the blade, decreases the noise, by about 3 decibels  
 17 for any given turbine.  
 18 **CHAIRMAN FINNIGAN:** Do you come back after  
 19 the project is done and verify your noise level?  
 20 **MR. HANKARD:** Different projects are  
 21 different. If it's a requirement of the project, then  
 22 yes. If it's not a requirement of the project, then  
 23 not necessarily.  
 24 **CHAIRMAN FINNIGAN:** A follow-up question

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1 would be: If you came back and found that the noise  
 2 was above your levels that you were projecting, what  
 3 would you do to correct it?  
 4 **MR. HANKARD:** The options at that point are  
 5 -- you can slow the turbines down artificially.  
 6 Turbines always seek the wind. They seek to extract  
 7 as much energy out of the wind as they can. That's  
 8 how they're programmed.  
 9 You can change that programming. You can  
 10 say: Hey, I know you want to spin really fast right  
 11 now; but because of the noise requirements, you can't.  
 12 And you essentially slow the turbine down via  
 13 programming. It's called "noise-reduced operation."  
 14 **CHAIRMAN FINNIGAN:** You might not be able to  
 15 answer the question, but I just wonder why you don't  
 16 use the lower-noise blades -- you know, why are you  
 17 not going to that technology? Is that something that  
 18 costs more or is not as efficient?  
 19 **MR. HANKARD:** You are very astute. You hit  
 20 them both. They do cost more. There is a cost  
 21 element. I don't think it's huge in the grand scheme  
 22 of things. And there is, I believe, a small  
 23 efficiency loss.  
 24 But I will say the industry has embraced --

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1 I think it was a less-understood thing at first, but I  
 2 see these being used fairly routinely now on projects.  
 3 **CHAIRMAN FINNIGAN:** Any other questions from  
 4 the Board?  
 5 (No response.)  
 6 **CHAIRMAN FINNIGAN:** I think staff has a  
 7 couple of questions.  
 8 **MR. DICK:** These turbines are up to 500 feet  
 9 versus 450. Given the type of noise that they  
 10 project, how much further would the setback need to be  
 11 to have the same amount of noise?  
 12 **MR. HANKARD:** Height doesn't really enter  
 13 into the equation that much, to be honest with you.  
 14 So the difference in noise between a turbine at 400  
 15 feet and one at 500 foot height is not going to change  
 16 the results on the ground very much at all.  
 17 We assume, in our model, that the ground is  
 18 completely reflective. We're really taking the ground  
 19 out of the equation; so it's really just a matter of  
 20 distance. Height is not a significant component.  
 21 **MR. DICK:** Would you compare the distance  
 22 from the turbine to give the same amount of noise for  
 23 a low-noise trailing edge blade versus a regular  
 24 blade?

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1 **MR. HANKARD:** In my report, there's a table  
 2 in there that shows the noise level of the regular --  
 3 the turbine with the regular blades and that same  
 4 turbine with the LNTE blades. I can go over that with  
 5 you, but that information is in the report. And  
 6 again, it's about a 3-decibel reduction.  
 7 **MR. DICK:** But to get the same amount of  
 8 sound, is it 100 feet or 200 feet?  
 9 **MR. HANKARD:** Oh, in terms of distance?  
 10 Well, the general rule of thumb with distance -- it's  
 11 a little complicated because it's a logarithmic  
 12 relationship.  
 13 Let's say you're standing 1,000 feet from a  
 14 turbine, and you measure 50 decibels. You have to go  
 15 out to 2,000 feet before it will drop by 6. That's  
 16 just the relationship. I don't know if that helps  
 17 answer your question.  
 18 **MR. DICK:** I would like you to give me an  
 19 estimate of how much further back you need to be to  
 20 have the same amount of sound from a low-noise blade  
 21 versus a regular blade, just to get an idea.  
 22 In your analysis, you showed the different  
 23 types of blades required at different locations. I  
 24 want to understand how you pick those locations.

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1       **MR. HANKARD:** All right. Let me answer your  
 2 first question first, the estimate on the distance. I  
 3 guess if it's a 3 decibel drop, you would have to go  
 4 from -- let's say you started at 1,000 feet. It would  
 5 have to probably go out another 500 feet.  
 6       So if I'm standing 1,000 feet from the  
 7 low-noise blade, that would be about the same as  
 8 standing 1,500 feet from a regular blade. It's pretty  
 9 rough. Don't hold me to those numbers. But that's  
 10 the general order of magnitude.  
 11       **MR. DICK:** That's what I'm looking for.  
 12       **MR. ZIMMERMAN:** I think you might clarify  
 13 that if you go to the next three-decibel drop. How  
 14 many more feet do you have to go out?  
 15       **MR. HANKARD:** So it would be -- again, a  
 16 doubling of distance gets you 6 decibels. So if I'm  
 17 at 1,000 feet, I got to walk another thousand before I  
 18 drop by 6.  
 19       **MR. ZIMMERMAN:** Then do you double that  
 20 again? It's 4,000 feet before you get another 6?  
 21       **MR. HANKARD:** That's the logarithmic nature  
 22 of the beast.  
 23       **MR. ZIMMERMAN:** So it's a stretching-out  
 24 logarithmic scale. It doesn't fall off.

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1       **MR. HANKARD:** That's right. That's the law  
 2 of diminishing returns, I guess you could say.  
 3       **MR. ZIMMERMAN:** Okay.  
 4       **CHAIRMAN FINNIGAN:** At this time, we're  
 5 going to open it up for questions from the audience.  
 6 You want to come forward and state your name and  
 7 address. And speak into the mike. This is only for  
 8 questions.  
 9       **MR. PITZER:** My name is Jim Pitzer. I live  
 10 at 29485 East 2100 North Road, Colfax. I'm about to  
 11 show my ignorance here.  
 12       These measurements you do on decibel levels  
 13 and impact on noise and everything, I'm assuming  
 14 you're basing this -- and maybe I'm crazy here -- but  
 15 you're basing this on human hearing; is that correct?  
 16       **MR. HANKARD:** That's correct.  
 17       **MR. PITZER:** Has anybody ever done any  
 18 studies or wondered how this affects wildlife, which  
 19 generally has a more acute sense of hearing than human  
 20 beings, and what effect it might have if these are  
 21 placed in the proximity of, say, a wildlife preserve  
 22 or something like that?  
 23       **MR. HANKARD:** Yes. This question comes up a  
 24 lot.

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1       **MR. PITZER:** Well, I'm not that stupid then,  
 2 I guess.  
 3       **MR. HANKARD:** No, you're not. There are  
 4 dozens if not hundreds of studies. I have dug into  
 5 them many times.  
 6       What you find is most of them are associated  
 7 with very loud noises such as explosions or military  
 8 jet overflights, things of that nature. So it gets a  
 9 little more difficult to -- when you get down to deer  
 10 or just your more common wildlife, the data and the  
 11 studies become a little less conclusive. You  
 12 obviously can't ask the deer what they feel about it.  
 13 You have to watch for changes in their behavior.  
 14       So again, a lot of the studies have focused  
 15 on, let's say, critical nesting areas, something of  
 16 some high value. And I've never seen anything  
 17 directly related to wind turbines in terms of their  
 18 impact on wildlife.  
 19       **MR. PITZER:** So your answer is you don't  
 20 know what the effect is, necessarily?  
 21       **MR. HANKARD:** Not directly, no.  
 22       **MR. PITZER:** Thank you.  
 23       **MS. WINTERLAND:** Amy Winterland, 22825 North  
 24 3075 East Road, Colfax.

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1       So I read your noise study. First, I want  
 2 to say I appreciate the conservative nature of your  
 3 modeling and all of the assumptions that you included  
 4 that were very conservative. I really do.  
 5       So a couple of questions that I have. I'm  
 6 just going to kind of -- the way I read your report,  
 7 there's going to be 79 of the 500-foot low-noise  
 8 trailing edge blades, 9 of the 452 foot low-noise  
 9 trailing edges, and 29 of the 500-foot standard  
 10 blades.  
 11       Now, my question is: The worst case  
 12 scenario that you showed us up on the screen, was that  
 13 a 500-foot standard blade?  
 14       **MR. HANKARD:** That worst case was for a  
 15 single residence, and most of the residences have more  
 16 than one turbine that influence their noise level. So  
 17 it wasn't necessarily one specific turbine. That  
 18 residence may have had different types of turbines  
 19 around them.  
 20       **MS. WINTERLAND:** So in that particular  
 21 example, did that one residence have standard turbines  
 22 around it?  
 23       **MR. HANKARD:** I would have to look, which I  
 24 can do if you'd like.

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1       **MS. WINTERLAND:** Well, you could. That  
 2 would be fine.  
 3       So my point is: I looked at my particular  
 4 residence. It does have standard blades around it,  
 5 and it is on your list of highest predicted noise  
 6 levels at nonparticipating residences.  
 7       So you just have to tell me if I'm right or  
 8 wrong that your worst case scenario had standard  
 9 blades around it and didn't have low-noise trailing  
 10 edge blades?  
 11       **MR. HANKARD:** It most likely had low-noise  
 12 trailing edge blades because the way we do our studies  
 13 is we start with all standard blades. We find that  
 14 there are some residences that have levels over the  
 15 limit; so we have to do something about that. So then  
 16 we start adding in the quieter turbines in order to  
 17 bring everything down below the limit.  
 18       **MS. WINTERLAND:** So then maybe if you could,  
 19 in fact, look at your one example that was your worst  
 20 case scenario, I guess maybe we need to make sure  
 21 that's the case.  
 22       The assumption that I was leaping to, which  
 23 perhaps is incorrect, is that, if you put the  
 24 low-noise blades on, you could reduce that maximum

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1 down 3 decimal points.  
 2       What you're saying is, if they already had  
 3 low-noise on there, that's the best you can do.  
 4       **MR. HANKARD:** Right. I'll continue to look  
 5 it up as we go along here, but it is almost assuredly  
 6 that that receptor has the low-noise trailing edge  
 7 blade turbines all around it.  
 8       Because what happens if we model and a  
 9 residence already has all the low-noise blades around  
 10 and it's still over the limit, then we have to start  
 11 eliminating turbines. So that's what we do during the  
 12 design process to come up with the final layout.  
 13       **MS. WINTERLAND:** Okay. All right. Thanks  
 14 for that clarification.  
 15       Second question: As I was reading through  
 16 your report, it says, "The project-specific noise  
 17 emission specifications for the GE 2.5-127 low-noise  
 18 trailing edge turbine were not available from GE at  
 19 the time of the analysis. So we were estimating by  
 20 applying the low-noise trailing edge reduction  
 21 achieved for the GE 2.3-116 to the levels of the  
 22 standard GE 2.5-127."  
 23       So I guess the point I'm trying to make is:  
 24 The model that you have is still based on an estimate

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1 of the 452-foot turbine, not the 500-foot turbine?  
 2       **MR. HANKARD:** That's correct, yes. You are  
 3 -- you clearly read my report, and thank you for that.  
 4       Would you like me to paraphrase what she  
 5 just said? You got it? Okay. So you are correct.  
 6       **MS. WINTERLAND:** All right. I guess that  
 7 was the two questions I had.  
 8       **MR. ZIMMERMAN:** Ms. Winterland, what is your  
 9 address again, please?  
 10       **MS. WINTERLAND:** 22825 North 3075 East Road,  
 11 Colfax.  
 12       **MR. ZIMMERMAN:** Thank you very much.  
 13       **MS. COTTER:** My name is Julie Cotter,  
 14 C-o-t-t-e-r. The address is 23571 North 2900 East  
 15 Road, Lexington.  
 16       First of all, I just want to clarify. Did  
 17 you say that you had a designation between  
 18 participating and nonparticipating residents?  
 19       **MR. HANKARD:** Yes.  
 20       **MS. COTTER:** Why is that?  
 21       **MR. GRIFFIN:** If I can answer a portion of  
 22 that, that has to do with the Illinois Pollution  
 23 Control Board regulations and how those are regulated.  
 24 For one, the -- for many of the

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1 participating property owners, they live on the same  
 2 parcel that has a turbine that may be producing the  
 3 noise.  
 4       The Pollution Control Board regulations deal  
 5 with the amount of noise that's being produced across  
 6 a property line, not on the same property. So that's  
 7 the point of measurement across a property line;  
 8 and/or, at a use classification, it's a little more  
 9 complicated than that. If you had a large parcel that  
 10 was farmed and then a residence, there's two different  
 11 classifications.  
 12       But it has to do with noise crossing  
 13 property lines. For many of the participating  
 14 property owners, the noise from the turbine that would  
 15 be causing most of the sound is not crossing a  
 16 property line. So that's one reason.  
 17       The second reason is, pursuant to the  
 18 general terms of the lease agreement that the  
 19 Applicant has with their residents, they have agreed,  
 20 to the extent there is a violation -- which we don't  
 21 believe there would be -- they have agreed to waive  
 22 any claims as to noise or other impacts caused by the  
 23 turbine. That's part of the bargain that they enter  
 24 into when they have the lease agreement.

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1 So those are two reasons why the applicant  
 2 asked Mr. Hankard to limit his review to  
 3 nonparticipating residences.  
 4 **MS. COTTER:** What about those of us who own  
 5 6 acres and are surrounded by about 12 of these and  
 6 are nonparticipating residents?  
 7 **MR. HANKARD:** Yeah, you should be in the  
 8 study if you are a nonparticipant resident.  
 9 **MS. COTTER:** But you just said you're taking  
 10 more care of the participating residents that live on  
 11 their property. Am I misunderstanding?  
 12 **MR. HANKARD:** I think so, yeah. We did not  
 13 address noise at the participants. They are  
 14 participating. We address noise only at  
 15 nonparticipants.  
 16 **MS. COTTER:** Okay. Thank you for clarifying  
 17 that.  
 18 Is there any way that you could bring a  
 19 recording or something of that noise level that is  
 20 acceptable that we could all hear it? I mean, most of  
 21 us -- I know that noise levels of some industrial  
 22 areas are probably acceptable in Illinois, but that  
 23 doesn't mean that those of us that live in the country  
 24 even know what that is or that that's acceptable.

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1 Could you provide -- I mean, could you go  
 2 out some night and record that?  
 3 **MR. HANKARD:** Yes. This comes up a fair  
 4 amount. You're in good company with this question.  
 5 And, yes, an audio demonstration could be given. In  
 6 fact, in a room like this, it stands half a chance of  
 7 being realistic because it's a beautifully acoustic  
 8 room.  
 9 So I do have recordings of wind turbines,  
 10 lots of them, and we can play them here. We could set  
 11 up a sound meter and adjust it so that we get the  
 12 level that we're predicting. That can all be done.  
 13 But it is a little different being in this auditorium  
 14 versus being outside. So you just would have to  
 15 understand it's not a perfect demonstration. But it  
 16 can be done.  
 17 **MS. COTTER:** It would be a general idea. I  
 18 think most of us here have no clue. I would  
 19 appreciate that, and I know several of my neighbors  
 20 would appreciate that, if you wouldn't mind doing  
 21 that.  
 22 **MR. HANKARD:** If that's what the procedure  
 23 dictates to me, I would be happy to.  
 24 **MS. COTTER:** It is also my understanding --

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1 **MR. GRIFFIN:** Ma'am, I'm sorry to interrupt.  
 2 I want to add something again on the regulations. The  
 3 particular regulations that this project was measured  
 4 against were those that are set forth by the Illinois  
 5 Pollution Control Board for residential uses. There's  
 6 a use classification.  
 7 You had mentioned what might be acceptable  
 8 for industrial wouldn't be acceptable for residential.  
 9 You are exactly right. There's different standards  
 10 depending on the receiving land. You have residential  
 11 land; so that would be subject to the most stringent  
 12 standard, and that's the standard Mr. Hankard measured  
 13 against, the most stringent standard.  
 14 There's other standards for, say,  
 15 commercial. We didn't even bother to get into those  
 16 because you can be noisier in commercial. We're only  
 17 concerned with meeting the most stringent  
 18 requirements.  
 19 **MS. COTTER:** Okay. Thank you.  
 20 It's also been brought to my attention that,  
 21 last year in Livingston County, Dr. Schomer, who was  
 22 an Invenergy employee, his recommendation said that  
 23 homes are not protected within 3,200 to 3,400 feet.  
 24 And you're wanting to put these at 1,500 feet from our

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1 residences?  
 2 **MR. HANKARD:** Yes. I'm very familiar with  
 3 Dr. Schomer. He's not an employee of Invenergy. He  
 4 has consulted with Invenergy on a couple of projects  
 5 that I'm aware of. He's an independent consultant  
 6 like myself, and he has made claims.  
 7 I've never heard him say a number as low as  
 8 32. I'm not trying to challenge you or anything, but  
 9 I know he has espoused lower limits as have many --  
 10 different consultants have different recommendations.  
 11 **MS. COTTER:** These are higher limits.  
 12 **MR. HANKARD:** 32?  
 13 **MS. COTTER:** 3,200 feet from a turbine --  
 14 **MR. HANKARD:** Right.  
 15 **MS. COTTER:** -- to a residence.  
 16 **MR. HANKARD:** He's espousing a greater  
 17 setback to achieve a lower noise level essentially.  
 18 **MS. COTTER:** And that was his recommendation  
 19 to be acceptable.  
 20 **MR. HANKARD:** That is Paul's opinion, yes.  
 21 **MS. COTTER:** As opposed to your opinion.  
 22 **MR. HANKARD:** Well, it's not my opinion.  
 23 I'm bound by the regulations. We're trying to achieve  
 24 those.

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1       **MS. COTTER:** Okay. Will people actually be  
2 able to sleep with their windows open 1,500 feet from  
3 these turbines and not hear this noise or be affected  
4 by this noise?  
5       **MR. HANKARD:** I guess let's take it one at a  
6 time. Will they hear it? Yes, they could hear it.  
7 On those nights I mentioned, these levels of noise  
8 will be audible.  
9       Inside homes, in my experience and on many  
10 other measurement surveys, the noise from the turbines  
11 is -- you have to strain to pick it out. The windows  
12 open is a good observation because that does make a  
13 significant difference.  
14       **MS. COTTER:** We don't run our air  
15 conditioning.  
16       **MR. HANKARD:** Fair enough. And you  
17 shouldn't have to.  
18       **MS. COTTER:** That's right.  
19       **MR. HANKARD:** So if you have predicted  
20 levels in the 40s and you have your windows open, you  
21 might be able to hear the turbines on certain nights.  
22       **MS. COTTER:** Would we have to call then and  
23 get them turned off, as people have done in the past?  
24       **MR. HANKARD:** I believe the Pollution

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1 Control Board regulations -- you know, it would be a  
2 complaint, and then there would be measurements to  
3 determine if it was in compliance.  
4       **MS. COTTER:** Do you have any idea how many  
5 times the turbines had to be turned off at Ted  
6 Hartke's house?  
7       **MR. HANKARD:** I am familiar with the Hartke  
8 situation, and I know they tried turning off and on  
9 turbines for Mr. Hartke.  
10       **MS. COTTER:** 51 times. And his turbines  
11 have setbacks of 1,665 feet, 2,025 feet, 3,000 feet,  
12 and 3,400 feet. All four turbines had to be turned  
13 off.  
14       **CHAIRMAN FINNIGAN:** We're going to have to  
15 stick to questions. That's testimony. You can come  
16 back later if you want to say that.  
17       **MS. COTTER:** Okay. Thank you.  
18       **MR. SCHWASS:** Glen Schwass, 27709 North 2550  
19 East Road, Lexington.  
20       **MR. DICK:** Could you repeat that, please?  
21       **MR. SCHWASS:** 27709 North 2550 East Road,  
22 Lexington.  
23       I have several questions, but I think a lot  
24 of them have already been addressed. I'd like to

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1 recap a little bit on them if I could.  
2       There was a question about the livestock and  
3 animal studies and such. I'm understanding that there  
4 is no clarification of the effects that it has on  
5 livestock or family pets.  
6       **MR. HANKARD:** I've never seen a study that  
7 dealt with wind turbine noise and livestock. So my  
8 understanding -- that's all I have to say, I guess.  
9 I'm sorry.  
10       **MR. SCHWASS:** I'll follow up with another  
11 question. So everything you have is based on models.  
12 When this -- if this project goes through, you're  
13 saying there are no procedures or any type of work  
14 orders or requirements for you to come back and do a  
15 study. Did I hear that correctly -- in this project?  
16       **MR. HANKARD:** Right. There aren't any  
17 requirements that I'm aware of. The Illinois  
18 Pollution Control Board has a dispute resolution  
19 process. So you would issue a complaint, and that  
20 would get filtered to Invenergy. They would be  
21 required to demonstrate compliance vis-a-vis  
22 measurements.  
23       **MR. SCHWASS:** What is the time frame from  
24 the time that complaint is made to when a resolution

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1 is resolved?  
2       **MR. HANKARD:** The process can begin very  
3 quickly. So if a complaint was issued, they call a  
4 person like me and say: "Mike, we have this situation  
5 in Illinois. Can you get down there?"  
6       I can be on the scene within days to a week.  
7 There is some equipment involved that we have to get  
8 ready. And then it's a question of Mother Nature.  
9 Does she contribute to give us some nights with some  
10 wind that we can actually measure. You can get on the  
11 ground, and it can be calm for days; so we can't  
12 control that.  
13       But we can get on the scene very quickly and  
14 get to measuring. Then as soon as there's enough data  
15 that's been produced, we can make a determination.  
16       **MR. SCHWASS:** Again, my question is: How  
17 much time? I understand there's some factors in  
18 there, but somebody has to have some kind of an  
19 expectation of how many nights they're not going to be  
20 sleeping because of all this noise.  
21       **MR. HANKARD:** It's certainly going to be  
22 weeks. It's not going to be hours or days. It's  
23 going to be weeks.  
24       **MR. SCHWASS:** So within 30 days, there

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1 should be some type of a resolution?  
 2 **MR. HANKARD:** That's a reasonable number,  
 3 yes.  
 4 **MR. SCHWASS:** Is that something that should  
 5 be put in the requirements then? You're presenting  
 6 all the positives of which you have. That's not a  
 7 positive. So why wouldn't that be something that you  
 8 would put in the requirements as to time frame to get  
 9 done?  
 10 **MR. HANKARD:** I don't think that's a  
 11 question for me. Jim perhaps?  
 12 **MR. GRIFFIN:** That's a state agency process  
 13 from the Illinois Pollution Control Board. So how  
 14 fast that moves would not be exclusively within the  
 15 control of either the Applicant or the County or the  
 16 complaining party. It's a procedure that they have  
 17 put in place; so you have to follow that procedure.  
 18 The time it would take would be whatever time it takes  
 19 under that procedure.  
 20 Obviously, the goal is to resolve these  
 21 issues quickly, but there is a procedure involved.  
 22 It's a process.  
 23 **MR. SCHWASS:** And I appreciate that, but I  
 24 think people that are having problems would like to

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1 have resolutions quicker than just a formality through  
 2 a big organization. I think an expected time frame  
 3 should be something that should be noted.  
 4 **MR. GRIFFIN:** There is also -- I mean,  
 5 there's complaint resolution. I know that the  
 6 Applicant will have an office that can field  
 7 complaints. You wouldn't necessarily have to file  
 8 something with the Illinois Pollution Control Board as  
 9 step one.  
 10 Certainly the Applicant is going to be  
 11 responsive to issues raised in the community if there  
 12 are problems, and that is part of the commitment in  
 13 the application to do that and to be responsive  
 14 quickly to complaints by residents in the area.  
 15 **MR. SCHWASS:** I'm going to read a statement  
 16 followed by a question because I think that clarifies  
 17 the question.  
 18 It says, "Besides the noise and the  
 19 vibrations such huge-moving machinery unavoidably  
 20 generates, it must be topped with flashing lights day  
 21 and night to increase their visibility. The moving  
 22 blades attract attention, and they must be erected  
 23 where there are no other tall structures to obstruct  
 24 the wind."

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1 So my question is this: Are wind turbines  
 2 more or less intrusive than other structures of  
 3 similar size?  
 4 **MR. HANKARD:** In terms of noise?  
 5 **MR. SCHWASS:** Are they more intrusive than  
 6 other structures of similar size?  
 7 **CHAIRMAN FINNIGAN:** This is just about  
 8 noise. You may have to bring that question back to  
 9 another person.  
 10 **MR. SCHWASS:** That would be fine. I'll  
 11 follow that with one more question.  
 12 You talked about the noise levels. And I  
 13 believe you stated you're from the state of Wisconsin.  
 14 My question on this is: Are you aware that  
 15 within the state of Wisconsin they have started to  
 16 realize that turbines have been labeled as health  
 17 hazards and, in fact, are being studied by the state  
 18 because of those issues?  
 19 **MR. HANKARD:** I am familiar with the issues  
 20 in Wisconsin, yes.  
 21 **MR. SCHWASS:** Can you elaborate on those?  
 22 **MR. HANKARD:** The problem I face here is I'm  
 23 not a medical expert. I can talk to you about noise  
 24 levels, but I'm not qualified to discuss health

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1 issues.  
 2 **MR. SCHWASS:** But the health issues are  
 3 related to some noise issues.  
 4 **MR. HANKARD:** They are related. And when I  
 5 testify, I bring the noise level aspect of it. Other  
 6 people will have to testify as to the medical and  
 7 health ramifications.  
 8 **MR. SCHWASS:** We'll have the opportunity to  
 9 come back for a conclusion, correct?  
 10 **CHAIRMAN FINNIGAN:** Yes.  
 11 **MR. SCHWASS:** So I'll save that for when I  
 12 come back.  
 13 My last question to you is this: All the  
 14 noise levels are based on decibels and hertz. How  
 15 does that affect cable, satellite, cell phones, other  
 16 wireless devices that farmers and/or rural people  
 17 might have?  
 18 **MR. HANKARD:** Again, with the acoustics, it  
 19 would have no effect on that.  
 20 **MR. SCHWASS:** The acoustics would not, but  
 21 what about the hertz. What about the hertz levels?  
 22 You said you had 500 hertz, I believe?  
 23 **MR. HANKARD:** Yes.  
 24 **MR. SCHWASS:** And frequencies are all

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1 megahertz. So what is the impact on the hertz with  
 2 the effects of the towers?  
 3 **MR. HANKARD:** Of course radio communication,  
 4 cell phone communication, that's all electromagnetic  
 5 energy; and we're talking about acoustic energy. The  
 6 two do not affect one another. So sound waves will  
 7 have no impact on any radio communications whatsoever.  
 8 **MR. SCHWASS:** But didn't you say something  
 9 about the sound waves getting converted to heat, which  
 10 is an energy?  
 11 **MR. HANKARD:** Yes, that's true. When sound  
 12 propagates through the atmosphere, it vibrates  
 13 molecules and gets converted into heat; but it has no  
 14 effect on electromagnetic wave propagation.  
 15 **MR. SCHWASS:** But it disrupts the hertz.  
 16 **MR. HANKARD:** But you can express anything  
 17 in hertz. You can have an electrical signal in hertz.  
 18 You can have an acoustic signal in hertz. Just  
 19 because they are expressed in those units doesn't mean  
 20 they affect one another.  
 21 **MR. SCHWASS:** I'll follow with one last  
 22 question. With the advent of cell phones now --  
 23 everybody has them -- you're telling me that the  
 24 frequency and the hertz can't be affected if I need to

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1 use my cell phone in case of 911 for an ambulance or a  
 2 fire department, things like that? I'm going to have  
 3 no disruption in making that call at any given time?  
 4 **MR. HANKARD:** Well, again, in terms of  
 5 acoustics, no. And I can just -- my own personal -- I  
 6 mean, I'm in these fields, wind turbines fields, all  
 7 the time, and we use our phones on a regular basis.  
 8 I've never personally had any disruption whatsoever.  
 9 **MR. SCHWASS:** But it's possible?  
 10 **MR. HANKARD:** I'm not an expert in that  
 11 field.  
 12 **MR. SCHWASS:** That's all the questions I  
 13 have. Thank you.  
 14 **MR. ZIMMERMAN:** I have a quick review for  
 15 Mr. Hankard.  
 16 How far away from the turbines were you  
 17 measuring the sound, and are your projections -- this  
 18 may be a second question -- and are your models based  
 19 on that?  
 20 **MR. HANKARD:** We have measured at various  
 21 distances. I always focus on, you know, the 1,500,  
 22 2,000 feet, 2,500 feet because that's where the  
 23 closest residents tend to be and that's where I want  
 24 to make sure that I'm accurate.

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1 **MR. ZIMMERMAN:** Thank you.  
 2 **CHAIRMAN FINNIGAN:** I've got one follow-up  
 3 question, I guess. You were asked about coming back  
 4 and checking. That's really not your job, is what  
 5 you're saying, at that point? It's somebody else's  
 6 hurdle to make that happen?  
 7 **MR. HANKARD:** No. I might be the guy that  
 8 gets the call. It's well within my technical  
 9 wheelhouse.  
 10 But the question, I believe, was: Is it  
 11 required or not. That was the point I was making.  
 12 It's not required, but it would only be done as part  
 13 of a complaint resolution process.  
 14 **CHAIRMAN FINNIGAN:** Have you ever gone back  
 15 and checked one of your projects on what you've done  
 16 compared to what your estimates are?  
 17 **MR. HANKARD:** Yeah, every single measurement  
 18 project we undertake, we end up creating a model of  
 19 that project to do that very thing, to compare. How  
 20 is our model working? We always want to continue to  
 21 refine that and understand that.  
 22 **CHAIRMAN FINNIGAN:** How do they come out?  
 23 **MR. HANKARD:** We've got it dialed right in.  
 24 That's why I'm so confident in my work, is because of

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1 the measurements and the way I've kind of tied these  
 2 two together. We find our models to be very accurate.  
 3 **CHAIRMAN FINNIGAN:** What you're trying to  
 4 say is, the more you do, the more you dial this in to  
 5 make it better for the next time you do one?  
 6 **MR. HANKARD:** That's correct.  
 7 **CHAIRMAN FINNIGAN:** Thank you.  
 8 **MS. SLEETER:** My name is Laurie Sleeter. I  
 9 live at 23903 North 2900 East Road in Lexington.  
 10 **MR. DICK:** Could you spell your name,  
 11 please?  
 12 **MS. SLEETER:** L-a-u-r-i-e S-l-e-e-t-e-r.  
 13 I was here on Tuesday night. It sounds like  
 14 a great project, but we don't have any examples. When  
 15 Julie mentioned the fact that it would be nice to hear  
 16 what we will be hearing out in the country, I thought  
 17 that was pretty interesting.  
 18 I'm wondering if we could -- and how is it  
 19 going to happen -- if we could see the noise that you  
 20 have recorded and also, you know, be able to turn it  
 21 up. Like this would be a normal noise for the daytime  
 22 if you live where we live, and this will maybe be the  
 23 normal noise at night.  
 24 Just curious if we could have that example

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1 played here in this auditorium during this procedure.  
 2 **MR. HANKARD:** The answer to your question  
 3 is, yes, a demonstration can be done. We could pick  
 4 certain noise levels to replicate. That can be done.  
 5 **MS. SLEETER:** Can it be done in this zoning  
 6 board process?  
 7 **CHAIRMAN FINNIGAN:** I'm going to ask you a  
 8 question.  
 9 **MS. SLEETER:** Sure.  
 10 **CHAIRMAN FINNIGAN:** Have you ever been to  
 11 one of the other wind farms in McLean County?  
 12 **MS. SLEETER:** Honestly, yes. However, my  
 13 house is 113 years old, and noise goes through my  
 14 windows and walls in a different manner than when I'm  
 15 standing outside hearing them.  
 16 I think: Gosh, what is that noise? Is that  
 17 a plane? Is it a semi going? And I'll run outside,  
 18 and it's just a regular truck.  
 19 So I'm very curious about what the sound is  
 20 going to be. It's not a constant noise, of course.  
 21 It's a whoosh, whoosh, whoosh. Since the turbines  
 22 will be larger, I'm afraid that I can't get to the  
 23 ones in the other projects in this county as close as  
 24 my house is going to be.

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1 So I'm curious what it will sound like in my  
 2 house. I'm afraid that I won't really know until the  
 3 project is completely done and I'm stuck. I would  
 4 love to hear it tonight or Tuesday, if we could.  
 5 **MS. TURNER:** You're afraid that you won't be  
 6 able to get close enough? Is that what you said?  
 7 **MS. SLEETER:** Yeah because there are six  
 8 directly west of my house.  
 9 **MS. TURNER:** You can get pretty -- I mean, a  
 10 lot of them are very close to the road; so you can  
 11 have access from --  
 12 **MS. SLEETER:** Right. But there's not five  
 13 behind those. They're all west of me. So I don't  
 14 think I can replicate what it's going to be like, and  
 15 that's why I'm asking.  
 16 **MR. GRIFFIN:** If I can address that? As  
 17 Mr. Hankard pointed out, the difficulty in trying to  
 18 replicate anything is there's no normal. That's why  
 19 we make the worst case scenario assumptions. The  
 20 weather is different. The wind direction is  
 21 different. The ground cover, whether it's frozen,  
 22 whether it's in the summer, is different. So there's  
 23 no normal.  
 24 The ambient noise levels, which are not

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1 accounted for in this study, which is basically the  
 2 background noise that you would hear on an everyday  
 3 basis, are different at every residence. So you may  
 4 be close to a highway, or you may not be. That's  
 5 going to affect what you hear or don't hear from any  
 6 noise source, including the wind turbines.  
 7 So it's impossible for us to come in here  
 8 and say: Here is the sound you're going to hear.  
 9 It's impossible for us to be able to demonstrate that.  
 10 What we can do is the best we've done here.  
 11 By utilizing the model, we can assure that the decibel  
 12 levels at these various levels won't exceed the  
 13 residential standards that the State has established.  
 14 That's really all we can do. We can't tell you what  
 15 it's going to sound like on a particular night or  
 16 whether you'll even be able to hear the turbines on a  
 17 particular night.  
 18 **MS. SLEETER:** So your answer is no?  
 19 **MR. GRIFFIN:** My answer, it is no because,  
 20 to come in here and to play something would not be --  
 21 we wouldn't be able to assure you that that's actually  
 22 what you will or won't hear. That's the problem. We  
 23 cannot -- you know, we can't replicate the conditions  
 24 at your home and in the vicinity of your home to tell

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1 you what a sound is going to be like.  
 2 **MS. SLEETER:** Okay. Thank you.  
 3 **MR. ZIMMERMAN:** Your address, Ms. Sleeter,  
 4 was?  
 5 **MS. SLEETER:** 23903.  
 6 **MR. ZIMMERMAN:** And 2900 East?  
 7 **MS. SLEETER:** Correct.  
 8 **MR. ZIMMERMAN:** In the public record are  
 9 these maps that show where your house is and how far  
 10 away the turbines are. So you could measure them.  
 11 The nearest one is a little over a mile.  
 12 That would be number 103. So if you can look at these  
 13 documents, they are available online, or we might be  
 14 able to make a copy available.  
 15 You can measure that. So this is a mile.  
 16 This is a mile and a quarter. And another one is --  
 17 however long. Measure that out, and then you can go  
 18 out and test it for yourself. So you might be able to  
 19 perceive that.  
 20 I'm not suggesting this as a remedy for  
 21 this, but you're trying to answer a question for  
 22 yourself.  
 23 **MS. SLEETER:** I do have the map that has the  
 24 decibels rated for where I live. And it's 44.



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1       **MR. ZIMMERMAN:** Pardon?  
 2       **MS. SLEETER:** 44 decibels.  
 3       **MR. ZIMMERMAN:** 44 decibels, okay. So you  
 4 have that measured. Okay. Thank you.  
 5       **MS. PITZER:** I have one question. Terry  
 6 Pitzer, 29485 East 2100 North Road, Colfax.  
 7       **MR. DICK:** Could you spell your name,  
 8 please?  
 9       **MS. PITZER:** T-e-r-r-y P-i-t-z-e-r.  
 10       I'm sensing that this is a very different  
 11 project than the Board worked on or approved on the  
 12 other side of Route 9 because it was more rural.  
 13       Can you tell me how many homes of  
 14 nonparticipants are within a half mile of your  
 15 projected turbines?  
 16       **MR. HANKARD:** That's not a number I have off  
 17 the top of my head.  
 18       **MS. PITZER:** I think it would be an  
 19 important number for the Board to know.  
 20       **MR. HANKARD:** Your question is how many  
 21 nonparticipant residences within a half mile of any  
 22 turbine?  
 23       **MS. PITZER:** Yeah. It's a quality of life  
 24 issue for people who live in this county. And it

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1 appears as though there are many more residences  
 2 affected by this than the more rural setting of the  
 3 last wind turbine farm that was approved.  
 4       **CHAIRMAN FINNIGAN:** I think we're talking  
 5 about noise, but maybe they could get that answer to  
 6 you at a different time.  
 7       **MS. PITZER:** Well, there's a lot of homes  
 8 that are affected by the noise. That's why I'm  
 9 asking. There are a lot more residences, perhaps,  
 10 according to the map, and the proximity of the  
 11 clusters and the town that would be affected than the  
 12 open spaces of the other one.  
 13       **CHAIRMAN FINNIGAN:** It may be something they  
 14 have to compile and get back to us though.  
 15       **MR. PARZYCK:** Mr. Chairman, we can provide  
 16 that number. We'll provide that at a future date.  
 17       I would say, though, that the discussion  
 18 that Mr. Hankard has here has been with respect to  
 19 compliance with regulations and that any of the  
 20 figures shown in the documents are the maximum amounts  
 21 under this very conservative analysis and that any of  
 22 the existing wind farms, regardless of the size of the  
 23 turbines or the setbacks, are under the same noise  
 24 compliance standards that we would be meeting at these

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1 residences. So there wouldn't be a difference  
 2 regardless of what the turbine characteristics are.  
 3       **CHAIRMAN FINNIGAN:** Is there anyone else in  
 4 the audience that wants to ask questions at this time  
 5 from this witness?  
 6       **MS. EMBERTON:** My name is Sara Emberton,  
 7 E-m-b-e-r-t-o-n. I live at 25218 North 2175 East  
 8 Road, Lexington.  
 9       **MR. DICK:** Could you repeat your first name,  
 10 please?  
 11       **MS. EMBERTON:** Sara, S-a-r-a.  
 12       **MR. DICK:** And your address again, please?  
 13       **MS. EMBERTON:** Sure. 25218 North 2175 East  
 14 Road, Lexington.  
 15       My question, upon some research, is just in  
 16 regards to any kind of lawsuit regarding the noise  
 17 levels and what the outcomes have been.  
 18       My question, I guess, is: How many have you  
 19 guys been involved in as a company regarding noise,  
 20 and what were the outcomes or resolutions of all of  
 21 those lawsuits?  
 22       **MR. GRIFFIN:** Ma'am, Mr. Hankard is not an  
 23 employee of the Applicant. He's a consultant that's  
 24 been retained for this project. So he wouldn't have

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1 any knowledge.  
 2       **MS. EMBERTON:** He doesn't have the lawsuit  
 3 knowledge as a consultant?  
 4       **MR. GRIFFIN:** Well, he wouldn't have the  
 5 company knowledge as a consultant unless he was  
 6 retained to work on the lawsuits.  
 7       **MS. EMBERTON:** So can we hold this question  
 8 until later then with someone else who might be able  
 9 to answer it better?  
 10       **MR. PARZYCK:** I can answer that. I don't  
 11 think it's going to satisfy you. I don't have that  
 12 information. Those are issues that are dealt with in  
 13 our Legal Department. As you can imagine with the  
 14 Legal Department, they keep that sequestered from us.  
 15       I'm not quite sure how it applies here.  
 16 Lawsuits may or may not occur elsewhere in the  
 17 country; but unfortunately I don't have that number,  
 18 and I can't really discuss -- even if I did, I don't  
 19 know the particulars of any lawsuits that might be out  
 20 there.  
 21       **MS. EMBERTON:** So, again, will there be  
 22 other people to speak to that or no?  
 23       **CHAIRMAN FINNIGAN:** I don't have an answer  
 24 for that. Do you?

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1       **MS. WALLEY:** It will be up to the Applicant  
 2 what witnesses they provide. At a later time, there  
 3 may be someone who can speak to that, but there may  
 4 not.  
 5       **MS. EMBERTON:** Okay. Thank you.  
 6       **CHAIRMAN FINNIGAN:** One more time, is there  
 7 anyone else who wants questions at this time?  
 8               (No response.)  
 9       **CHAIRMAN FINNIGAN:** Seeing none, we might  
 10 take a break right now in between witnesses. So we'll  
 11 take a ten-minute break. That will get us back here  
 12 at 7:45.  
 13               (Recess in proceedings.)  
 14       **MR. DICK:** If you all want to testify after  
 15 the Applicant gets done with their witnesses, we may  
 16 not get to it tonight; but we took your signatures on  
 17 Tuesday, and we're going to take them tonight.  
 18 There's an area over here where you can sign up,  
 19 whether you're a supporter or an objector or if you  
 20 want to be a neutral party.  
 21       In any case, if you want to speak, you can  
 22 sign up over here. And if you signed up on Tuesday,  
 23 we still have your name. You don't have to sign up  
 24 again.

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1       **CHAIRMAN FINNIGAN:** I think we're going to  
 2 move on to the next witness.  
 3       **MR. GRIFFIN:** Thank you, Mr. Chairman. Next  
 4 witness is Andrea Giampoli. She's going to testify  
 5 concerning environmental issues. She has a PowerPoint  
 6 that goes along with her testimony. Hopefully that  
 7 can be put up on the screen.  
 8               (Andrea Giampoli sworn.)  
 9       **CHAIRMAN FINNIGAN:** State your name and  
 10 address for the record.  
 11       **MS. GIAMPOLI:** Andrea Giampoli. 1 South  
 12 Wacker, Suite 1800, Chicago, Illinois, 60606.  
 13       **MR. KURITZ:** If she has the PowerPoint  
 14 available beforehand like the last witness did, that  
 15 was quite helpful to have that handed out beforehand.  
 16       **MR. GRIFFIN:** We don't.  
 17       **MS. GIAMPOLI:** I apologize. Sorry about  
 18 that.  
 19       **MR. ZIMMERMAN:** So we have to turn around.  
 20 Pardon our backs, everybody.  
 21       **MS. GIAMPOLI:** Good evening, Board. You can  
 22 actually move to the next slide here. Again, my name  
 23 is Andrea, and I am the environmental and wildlife  
 24 permitting manager at Invenergy. I've been with

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1 Invenergy for three years, and I've worked on this  
 2 project since its beginning, when we began to do  
 3 environmental studies on it in 2016.  
 4       I just wanted to walk through the  
 5 environmental surveys that we've done in the project  
 6 and walk you through the process that we followed to  
 7 do those and then also go through the results that we  
 8 have, which are also available in our application.  
 9 All of the full reports that were issued by our  
 10 consultants that prepared the work are all available  
 11 in the application as well. So further details are  
 12 available there.  
 13       I want to start by saying that this isn't  
 14 the first project we developed in Illinois. It's not  
 15 the first time that we've communicated with the  
 16 Illinois Department of Natural Resources or the United  
 17 States Fish and Wildlife Service. We have a long  
 18 history of working with them in coordination on nine  
 19 or ten projects here in Illinois.  
 20       We've done a lot of great conservation work  
 21 in Illinois as well. I just want to highlight that to  
 22 start, to just kind of set the stage that basically we  
 23 have this ongoing relationship with the agency staff  
 24 here in the state. That is kind of the basis for the

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1 relationship we built about this project specifically.  
 2       So this is just a list of the conservation  
 3 and research projects that we've done in the last few  
 4 years here. We had the Blackball mine, Indiana bat  
 5 migration studies that we've done. As you can see,  
 6 these studies have been done throughout the state, in  
 7 LaSalle County, Vermilion County, Henry County.  
 8       We've done a lot of bat deterrent research.  
 9 In my position, I'm really trying to make sure that  
 10 our projects completely minimize their impacts to  
 11 wildlife and to natural resources. So we are  
 12 constantly at the forefront of trying to understand  
 13 what we can do in our industry to push the ball even  
 14 further and improve the technology so that we're not  
 15 just relying on siting of our turbines away from  
 16 natural resources, but we can also employ operational  
 17 strategies and potentially these new innovative  
 18 technologies such as deterrence to deter bats from the  
 19 turbines.  
 20       We've been involved in studying bats as well  
 21 as eagles in the state. In LaSalle County, we've  
 22 tagged four bald eagles with telemetry packets; so we  
 23 are tracking their movements throughout the state and  
 24 near to one of our other operating facilities in

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1 LaSalle County so that we can understand the  
 2 interaction with eagles and how they fly near wind  
 3 turbines. If we can better understand that, then  
 4 maybe we can more responsibly site turbines in the  
 5 future.  
 6 So we really want to promote a clean energy  
 7 future that's also compatible with the wildlife, the  
 8 wildlife that we love so much, and all the natural  
 9 resources that we have here in the state.  
 10 I just wanted to highlight that to start.  
 11 We can move to the next slide.  
 12 When we go out to figure out where we are  
 13 going to build the newest -- our next wind facility,  
 14 we follow a tiered approach. The tiered approach is  
 15 one that's been recommended by the United States Fish  
 16 and Wildlife Service. They've actually developed a  
 17 document that outlines this tiered approach, and it's  
 18 called the "Land Based Wind Energy Guidelines."  
 19 It offers this approach to basically  
 20 assessing a project from very early on, when we're  
 21 trying to figure out where we should build that  
 22 project, to studying the actual project area itself to  
 23 then later, after the project is built, studying  
 24 impacts to the wildlife, comparing the studies that

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1 we've done in preconstruction.  
 2 In our assessments before the project is  
 3 built, we're trying to figure out, you know, what  
 4 impacts may we have. Then after the project is built,  
 5 we look at those impacts and we see: Were we close?  
 6 Were we right? Is there anything we should do in  
 7 operation that can affect or change -- you know,  
 8 basically, if we had more impact than we were  
 9 anticipating, what can we do to bring that back to  
 10 what we were anticipating.  
 11 So it's this step-wise approach to assessing  
 12 the project. That continues on through the whole  
 13 entire operation of the project through the  
 14 decommissioning. It involves, on to tier 5, basically  
 15 continuing research, which is what I kicked off with,  
 16 some of the ongoing research that we have as well.  
 17 So we follow these tiers. Tier 1 is  
 18 basically, like I said, the preliminary site  
 19 evaluation. You'll see -- I'm going to walk through  
 20 the tiers that we followed on this specific project,  
 21 in particular tiers 2 and 3 that we followed so far  
 22 during our preconstruction surveys.  
 23 We also have followed the United States Fish  
 24 and Wildlife Service Eagle Conservation Plan Guidance,

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1 which is another document that was published by the  
 2 Fish and Wildlife Service that outlines the  
 3 methodology and protocols that it recommends we follow  
 4 to study the impacts -- potential impacts to eagles.  
 5 So we followed the approach that the Fish  
 6 and Wildlife Service has recommended, and we've worked  
 7 closely with the local field office in doing so.  
 8 Next slide.  
 9 That's a good segue into the agency  
 10 consultation that's been conducted on this project.  
 11 With the fish and wildlife service, we've had three  
 12 different consultation meetings. The earliest was  
 13 held in March of 2016. We also met with them in  
 14 February 2017 and again in October 2017.  
 15 In these first meetings, the one that was  
 16 held in March 2016, we discussed basically the  
 17 methodologies that we were planning on following in  
 18 conducting the research. That was at the very  
 19 beginning of when we started to study wildlife on site  
 20 and started to look at the natural resources in the  
 21 project area.  
 22 So we basically go to the Fish and Wildlife  
 23 Service office and say: This is the protocol we're  
 24 planning on following. Do you have any feedback on

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1 that? Is there anything that we should change?  
 2 But generally, because we have this  
 3 longstanding relationship with them and we've been  
 4 through this before and because we're following the  
 5 Wind Energy Guidelines -- that's a document where they  
 6 set forth all of their recommendations -- we're  
 7 typically in line with one another.  
 8 They see where exactly we're looking to  
 9 build, and they can make recommendations about things  
 10 we should be thinking about, specific species we  
 11 should be thinking about. Then we basically move  
 12 forward. We conduct the surveys. Then we meet with  
 13 them again at the tail end of the first year and say:  
 14 Here's the results. Here is what we have found in  
 15 those surveys.  
 16 Then if there's anything that seems  
 17 surprising or anything we weren't anticipating, should  
 18 we think about doing any additional surveys? Are  
 19 there any species we weren't anticipating? Maybe we  
 20 should look into that species further. That's when we  
 21 have those conversations, and we figure out whether or  
 22 not anything additional needs to be done.  
 23 Then we kind of continue that conversation  
 24 as the project continues to be developed. That's when

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1 we most recently had a conversation here in October  
 2 2017 in finalizing our results.  
 3 We still have some large bird avian use  
 4 surveys that are ongoing. It is our protocol to  
 5 conduct two years of preconstruction avian use  
 6 surveys, as recommended by the Fish and Wildlife  
 7 Services in the Eagle Conservation Plan Guidance.  
 8 It sets us up to have all the data that we  
 9 would need to make a determination about whether  
 10 there's eagle risks at the site. If there was, then  
 11 we would have the data we would need to move forward  
 12 with, potentially, a permit process.  
 13 Then we also followed the -- completed the  
 14 consultation with the Illinois Department of Natural  
 15 Resources. That process is different in that we  
 16 submit the EcoCAT request that they have. We  
 17 basically submit information about the project area,  
 18 the project area map, and then the DNR responds with  
 19 recommendations that they have about the project.  
 20 Those recommendations actually go to the county, and  
 21 then we have the opportunity to respond on our behalf.  
 22 An we've done that.  
 23 You can move to the next slide.  
 24 So this is an overview of the natural

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1 resource and wildlife surveys that we've done for the  
 2 project, starting as early as March 2016.  
 3 The WEG tier -- that's the Wind Energy  
 4 Guidelines tier -- that it corresponds to, so the tier  
 5 1 and 2 surveys, the very preliminary looking at which  
 6 area in the state, which area, you know, in the  
 7 country? Where should we be building? Where does it  
 8 look like we're going to have a very low impact? We  
 9 start with that very preliminary site assessment.  
 10 Then the site characterization is looking  
 11 more in detail in that project area itself. What  
 12 resources do we have in the project area? A site  
 13 characterization full report is in the application if  
 14 you want to look into more detail of what protected  
 15 areas we have in site, what potential species we have  
 16 on site. That's all included in that document and in  
 17 that assessment.  
 18 Then we have the tier 3 surveys that have  
 19 been conducted. The raptor nest survey, where we're  
 20 looking for raptor and other large bird nests such as  
 21 eagle nests, we conducted those surveys both in spring  
 22 of 2016 and spring of 2017.  
 23 We conducted a small bird use survey. So  
 24 we're looking for small passerines. That survey was

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1 conducted in March of 2016 through November of 2016.  
 2 It's a monthly survey.  
 3 We also conducted large bird use surveys.  
 4 In those, we're looking more for waterfowl and large  
 5 raptors and eagles. That's the survey that I  
 6 mentioned has been conducted here for almost two years  
 7 now.  
 8 And then the tier 3, a bat acoustic survey  
 9 where we're looking at bat activity. That was  
 10 conducted through the full bat active season in 2016.  
 11 You can go to the next slide.  
 12 Just generally, this is going to -- one part  
 13 of the site characterization is looking at the  
 14 different land cover types in the project area. As  
 15 you can see from the image here, the brown is  
 16 cultivated cropland.  
 17 This really is a largely cultivated,  
 18 cropped, previously disturbed project area. That's  
 19 why it was attractive to us, especially those on my  
 20 team and the environmental team. We really like a  
 21 site that is predisturbed so that we're not impacting  
 22 pristine wildlife or impacting sensitive species  
 23 because, really, it's my goal to make sure that we're  
 24 not having impacts to sensitive species, especially

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1 those that are state and federally threatened as  
 2 protected -- threatened/endangered. Sorry about that.  
 3 So as you can see, it's largely cultivated.  
 4 It's attractive to us.  
 5 And we can move on to the next slide here.  
 6 So this shows the results from our raptor  
 7 nest survey. Just really quickly, the methods that we  
 8 follow on the raptor nest survey, we actually hire a  
 9 plane. We put a biologist in a plane, and they fly  
 10 all of the suitable habitat out to ten miles beyond  
 11 our project boundary. We're not just looking in the  
 12 project boundary itself because we know that eagles  
 13 and large raptors fly beyond that; so we look out to  
 14 ten miles.  
 15 This image here, just so you can see it a  
 16 little bit more clearly, is limited to our two-mile  
 17 buffer. We actually search for all eagle nests out to  
 18 ten miles. We look for all raptor nests, including  
 19 eagle nests, out to two miles, including the project  
 20 area.  
 21 You can see here that we surveyed the  
 22 project both in 2016, and then we checked again in  
 23 2017 because we want to see what kind of changes are  
 24 being made. Are there a bunch of new nests in a year

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1 that we should be aware of? We don't just look once,  
 2 but we want to make sure that we're keeping an eye on  
 3 those nests and, if they're occupied or no longer  
 4 occupied, that we keep a record of that.  
 5 We found 24 nests total in both years.  
 6 There were ten raptor nests within the current project  
 7 boundary, only three of which are actually active  
 8 nests. So they actually saw that they were being  
 9 incubated by birds. This study is conducted in the  
 10 nesting season so that -- it's also before leafout so  
 11 that basically we can more easily see into the trees  
 12 if there are nests there. That's why that's conducted  
 13 in March and early April.  
 14 There was one bald eagle nest found in our  
 15 surveys. It was four miles outside of the current  
 16 project boundary. You can't see it on this map, but  
 17 it's basically directly west of the project area.  
 18 Next slide.  
 19 This image just gives you an idea of how  
 20 comprehensively we cover the project area with our  
 21 avian use surveys. What you're seeing there is  
 22 basically each 800-meter-radius plot in which we -- if  
 23 you can imagine, we put a biologist in the middle of  
 24 each one of those circles; and we limit their viewshed

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1 out to 800 meters because that's basically about as  
 2 far as they can see. They stand at the center of each  
 3 one of those circles one time per month for 60  
 4 minutes. What they're doing during that 60 minutes is  
 5 counting how many large birds that they're seeing fly  
 6 by.  
 7 So they're keeping track of all the species  
 8 that they're seeing and for how long they're seeing  
 9 them, how many different observations, how many  
 10 flocks. So they're spending a lot of time out there.  
 11 I don't want to confuse you. I was just  
 12 mentioning the large bird use surveys. Up here, we  
 13 have the small bird use surveys. Those are conducted  
 14 in the same circles, but actually the viewshed is  
 15 smaller because the birds are smaller. So the  
 16 biologist stands at the center of one of those circles  
 17 but only looks out 100 meters. They record everything  
 18 that they see and hear. It can be things that they  
 19 hear beyond 100 meters, but we limit it because the  
 20 small birds can't be heard as far.  
 21 Then we limit those to also eight-minute  
 22 surveys because we hear so many in that time. We get  
 23 a really good idea of species composition by limiting  
 24 those surveys to eight minutes. Those are conducted

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1 14 times a year so that we can actually conduct more  
 2 in the migratory periods when we have more species out  
 3 to make sure that we're getting a very complete list  
 4 of what species are in the project area.  
 5 So for the small bird use surveys, we were  
 6 standing out in the middle of those plots for 67.2  
 7 total hours, just collecting bird data. Then for the  
 8 large bird use surveys, like I mentioned, those are  
 9 conducted monthly for an hour over the course of --  
 10 since March 2016, we've counted -- or basically been  
 11 out there observing for 903 hours; so it's a lot of  
 12 time spent in your neighborhood looking up at the  
 13 skies. So we have a pretty good idea of the species  
 14 composition of the small and large birds in the  
 15 project area.  
 16 We also -- we separate out -- we have -- all  
 17 the plots are very well distributed throughout the  
 18 project area. They actually cover 30 percent of the  
 19 total project area, which is one of the  
 20 recommendations under the eagle conservation plan  
 21 guidance, but also lets us -- really gives us a good  
 22 idea of both spatial and temporal use of birds in the  
 23 project area.  
 24 If we are seeing, you know, in one

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1 particular area that there's a certain species,  
 2 sensitive species, that hangs out a lot, we can think  
 3 about that in siting the project, maybe site our  
 4 turbines away from that area where we're seeing a lot  
 5 of sensitive species.  
 6 Move to the next slide.  
 7 This is just quick survey results. These  
 8 are again in the application. But for anyone that's  
 9 interested, we saw 46 different species of small  
 10 birds, the most common species being the European  
 11 starling. We did not see any federally protected  
 12 small bird species. We did see one state endangered  
 13 species, but that species was actually observed now in  
 14 a location that is five miles east of the nearest  
 15 participating parcel. There was only one observation  
 16 in July. So the project is being sites away from  
 17 where that observation was.  
 18 These are the results of the large bird use  
 19 surveys. We saw, in year one, 41 different large bird  
 20 species, in year two, 35 different species. You can  
 21 see the most common species listed here.  
 22 We did have 14 observations of bald eagles  
 23 in the project area. Like I said, that was over the  
 24 course of 900 hours, but it's been helpful to see kind

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1 of where we see those bald eagles flying around. We  
 2 can think about that in the siting of the project.  
 3 Then we also saw three state-listed species, the  
 4 Upland Sandpiper, the Northern Harrier, and the  
 5 short-eared owl.  
 6 Move to the next slide.  
 7 We also conducted a bat acoustic survey.  
 8 Generally, the objective of our bat acoustic surveys  
 9 is to understand basically the seasonality of when  
 10 bats are on the landscape so that, if we do need to  
 11 employ or we decide to employ a curtailment strategy,  
 12 we have a good idea of when bats are coming onto the  
 13 landscape and what time of year they're leaving the  
 14 landscape and when they're most active and what type  
 15 of habitat they're most active.  
 16 So we have an acoustic detector that we put  
 17 in forested habitats, a very suitable habitat for bats  
 18 in the summer because they generally stay within  
 19 forested areas. And then we put one in a field in a  
 20 MET tower so that it's more similar to where we would  
 21 have a turbine. It's more in the middle of -- it's  
 22 further from a suitable habitat.  
 23 So we see different activity peaks in the  
 24 different types of habitat. In the fall, the activity

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1 peaks at the MET towers because that's during the bat  
 2 migration. So they're actually flying over the  
 3 landscape, and they're not staying so much in the  
 4 forested areas like they do in the summer. In the  
 5 summer, that's why you see more activity there in the  
 6 forested areas.  
 7 So out of the 24,000 plus passes that we  
 8 recorded, just 12 of them were identified as Myotis,  
 9 which is -- basically the state and federally  
 10 protected bat species are both Myotis species. That's  
 11 why we call out that type of species, to really  
 12 understand: Do we have protected bat species in the  
 13 project area? Should we be concerned about that? Do  
 14 we have a lot of forested area in the project area?  
 15 In some projects, we have more habitat; so we need to  
 16 really be thinking about what we should be doing for  
 17 bats, both in the summer and fall.  
 18 95 percent of the passes were recorded at  
 19 the forest detector; so we're seeing a lot of activity  
 20 in the forested area but not as much in the middle of  
 21 the fields throughout the year.  
 22 Next slide.  
 23 I just want to -- some of the habitat  
 24 setbacks that we've applied in this project include

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1 the 1,000-foot setback from what we've identified as  
 2 suitable foraging and roosting habitat for bats.  
 3 That's the bat summer habitat. We make sure that we  
 4 set back from that so that we're minimizing our impact  
 5 to that.  
 6 Then we also apply a 1,000-foot setback from  
 7 active raptor nests we identified in the project area  
 8 so that we're really setting back and minimizing our  
 9 impacts to both raptors and bats with those setbacks.  
 10 That really concludes my slides. But  
 11 generally speaking, we selected the project area  
 12 because it was mostly previously disturbed cropland.  
 13 We found very little in sensitive natural habitat in  
 14 the project area. So we're pleased to be and hope to  
 15 be building in this area.  
 16 **CHAIRMAN FINNIGAN:** I think we are up to  
 17 questions from the Board.  
 18 **MR. ZIMMERMAN:** You mentioned the different  
 19 types of bats. You had 24,000 passes, and one was the  
 20 particular relatively rare species?  
 21 **MS. GIAMPOLI:** I said there were 12 within  
 22 the genus Myotis. There are actually several species  
 23 that are in genus Myotis, which includes bats that are  
 24 not protected. But the two bats that are protected

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1 are also Myotis.  
 2 So we look at that, but it doesn't tell us  
 3 necessarily that those Myotis species that we saw in  
 4 the project area were the Northern Long-eared Bat or  
 5 the Indiana Bat, which are the two protected species.  
 6 There are species such as the little brown bat, which  
 7 are Myotis, that are not protected. But because they  
 8 fall under that genus, we look specifically at that.  
 9 **MR. ZIMMERMAN:** Are you distinguishing these  
 10 with the acoustics?  
 11 **MS. GIAMPOLI:** With the acoustic software,  
 12 yes.  
 13 **MR. ZIMMERMAN:** So you can tell one bat from  
 14 another by the acoustics?  
 15 **MS. GIAMPOLI:** They can tell down to the  
 16 genus, yes.  
 17 **MR. ZIMMERMAN:** How far away from -- you  
 18 suggested 1,000-foot margin away from the habitat; is  
 19 that correct?  
 20 **MS. GIAMPOLI:** Yes.  
 21 **MR. ZIMMERMAN:** That would be essentially  
 22 avoiding a lot of the -- the habitat is largely linked  
 23 to the creek -- the Mackinaw River and the attendant  
 24 creeks?

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1           **MS. GIAMPOLI:** Correct. The Fish and  
 2 Wildlife Service has the Indiana Bat Summer Survey  
 3 Guidelines in which they define suitable summer  
 4 habitat for the Indiana Bat, which is very similar to  
 5 the Northern Long-eared Bat, which are both protected  
 6 species; so we follow that definition. It's a  
 7 specific type of -- you know, it's treed area. It's  
 8 riparian corridors, areas where the bats can easily  
 9 find insects. There's a certain definition on -- a  
 10 certain number of trees, a certain width for the bats  
 11 to kind of crawl up under during the day.  
 12           We basically map throughout the project area  
 13 all the potential suitable summer habitat for bats,  
 14 and then we apply a 1,000-foot setback from that  
 15 habitat. And, yes, it includes a lot of the riparian  
 16 corridors, creeks, especially the creeks with  
 17 vegetation, because those fall under that suitable bat  
 18 habitat definition.  
 19           **MR. ZIMMERMAN:** On the raptors, did you  
 20 consult with the people who do the annual raptor  
 21 survey in McLean County to get a census of the  
 22 raptors?  
 23           **MS. GIAMPOLI:** In the site characterization  
 24 survey, we access a lot of different databases, public

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1 databases. I can't recall if they accessed  
 2 specifically the McLean County raptor results. I'm  
 3 not sure which group you're talking about  
 4 specifically. But they do try to access as much of  
 5 the publicly available raptor data as they can  
 6 specific to local groups and Audubon groups, Christmas  
 7 counts and local bird counts and hot watches, whatever  
 8 data they can collect from the County.  
 9           **MR. KURITZ:** With as many projects as  
 10 Invenergy has had, what type of issues have you found  
 11 as far as interaction between having the wind turbines  
 12 and the species that you just studied?  
 13           **MS. GIAMPOLI:** I guess specifically what  
 14 kind of issues are you -- could you rephrase that  
 15 question?  
 16           **MR. KURITZ:** Do they tend to get killed a  
 17 lot, or does it disrupt their nesting?  
 18           **MS. GIAMPOLI:** The species that I'm most --  
 19 that I look at most closely are bats and birds,  
 20 especially, you know, state-protected, federally  
 21 protected birds and eagles.  
 22           We are doing everything we can to minimize  
 23 our impacts to birds and bats. But there are -- just  
 24 by the nature of operating, wind turbines do cause the

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1 mortality of birds and bats. So what my job is is to  
 2 minimize those impacts to the greatest extent  
 3 possible. That's what we're trying to do here.  
 4           **MR. BANGERT:** So even with the 1,000-foot  
 5 setbacks, what would be a head count, if you will?  
 6 What are the impacts? There has got to be statistics  
 7 out there for utilizing a 1,000-foot setback for bats  
 8 and other birds of prey and just any type of bird.  
 9           What would be -- and maybe "head count" is a  
 10 terrible word to use. But what is the impact there in  
 11 real numbers? Do you have that?  
 12           **MS. GIAMPOLI:** I don't. I don't have  
 13 statistics on impacts or the effects of that setback.  
 14 That setback has really been accepted as an industry  
 15 standard. It comes out of Fish and Wildlife Service  
 16 Guidelines definition of habitat and basically how far  
 17 out bats are willing to fly from their protected  
 18 covered foraging area.  
 19           So I don't -- it would be difficult to  
 20 conduct a study to really understand -- that would be  
 21 a difficult study to conduct, and I haven't seen it  
 22 done; so I'm not aware of the statistics.  
 23           What I will bring up is just some of the  
 24 additional practices that we have in making sure we're

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1 minimizing impacts. Some of the best management  
 2 practices that we have include -- you know, the eagles  
 3 are most attracted to -- are typically attracted to  
 4 project areas, especially during the wintertime, to  
 5 carcasses. They feed on road kill and carcass dumps  
 6 and things like that.  
 7           So even when we're looking originally at our  
 8 project area and the location of them, we're making  
 9 sure we're aware of where those are and we're also  
 10 aware of those practices. We do try to work with  
 11 landowners in improving those practices in dumping  
 12 carcasses so that we're minimizing the attraction of  
 13 eagles into the project area as well.  
 14           **MS. TURNER:** I would like to discuss your  
 15 response to the IDNR's recommendations. Are you  
 16 prepared to do that? Have you been involved in that?  
 17           **MS. GIAMPOLI:** Yes.  
 18           **MS. TURNER:** Probably the best way to go  
 19 through would be for you to say, you know, what your  
 20 response is to each one of their recommendations and  
 21 why that is.  
 22           **MS. GIAMPOLI:** Sure.  
 23           **MS. TURNER:** Recommendation number 1, you've  
 24 agreed to that, which is slowing the turbine speeds

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1 down specifically during the bat -- the high bat  
 2 activity time of July 15 through October 15?  
 3 **MS. GIAMPOLI:** Yeah. The DNR recommended  
 4 curtailing turbine operations below wind speeds of 5.0  
 5 meters per second during the period of July 15 through  
 6 October 15, which is the bat migratory season. And,  
 7 yes, we agreed to do that.  
 8 **MS. TURNER:** Then on the imposing a  
 9 requirement -- they're recommending that they impose a  
 10 requirement to conduct three years of mortality  
 11 monitoring to quantify bird and bat mortality. And  
 12 you guys have agreed to one year because, in your  
 13 experience, you found it's similar to the first year.  
 14 **MS. GIAMPOLI:** Correct.  
 15 **MS. TURNER:** Can you talk about some of that  
 16 experience and the number of experiences you have  
 17 there and why you think it would be the same?  
 18 Instinctively, I think migratory -- I know birds are  
 19 very habitual.  
 20 **MS. GIAMPOLI:** Right.  
 21 **MS. TURNER:** But I would think that some  
 22 years would be -- there would be more than others in a  
 23 given year.  
 24 **MS. GIAMPOLI:** Right. It used to be that

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1 the standard was conducting the full three years; but  
 2 because there was such similarity in the three years  
 3 and also just so much -- you know, across the  
 4 industry, so many companies conducting the data, that  
 5 we do have a really good idea, generally speaking,  
 6 what the impacts are going to be.  
 7 So, you know, it didn't make sense to  
 8 continue to collect the data, to spend the money  
 9 collecting the data, just to collect it, just to kind  
 10 of confirm the date that we already had. Instead,  
 11 reallocate those funds towards other, you know,  
 12 research or to conservation. That's why the industry  
 13 has kind of moved back toward doing one year and  
 14 trying to look at, you know, reallocating those funds  
 15 to other resources.  
 16 **MS. TURNER:** And this is because the wind  
 17 farms have been around a lot longer now and you feel  
 18 like you have more data to compare the one-year  
 19 collection that you would have as to whether that's  
 20 high, low?  
 21 **MS. GIAMPOLI:** Correct. And then we also  
 22 train all of our operation staff members -- those are  
 23 actually working on the ground, the technicians that  
 24 are working on the turbines every day -- in wildlife

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1 detection and recording. So they basically will  
 2 report to us any carcass that they see at any time so  
 3 that it's immediately reported to us within 24 hours,  
 4 to us internally, to my team.  
 5 Then it's my job immediately to make sure  
 6 that we are ID'ing that carcass so that we're aware of  
 7 whether or not it's a protected species or not.  
 8 That's all recorded. If it is a protected species,  
 9 then we also report that to either the Fish and  
 10 Wildlife Service or IDNR, depending on the entity it's  
 11 protected by.  
 12 **MS. TURNER:** Is this also how you would --  
 13 if migratory patterns were to change -- I assume  
 14 they're not stagnant. So if migratory patterns were  
 15 to change and this wind farm did impact that, how  
 16 would we know that?  
 17 **MS. GIAMPOLI:** Right. Exactly. So when we  
 18 have these reports coming in, then we know -- if we're  
 19 seeing -- kind of just every once in a while we're  
 20 getting a report, that's kind of the norm. If we're  
 21 starting to get more reports or we see kind of a large  
 22 -- you know, we see more than one carcass at the same  
 23 turbine, then we know that there's something that's  
 24 different there. That's when we'll go and investigate

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1 that.  
 2 **MR. ZIMMERMAN:** How many reports have you  
 3 received from the wind turbines? You've trained the  
 4 staff. They are supposed to report. How many reports  
 5 have you actually received?  
 6 **MS. GIAMPOLI:** I actually don't know that  
 7 off the top of my head. We have a large fleet. So  
 8 I'm receiving reports across the fleet. I also divide  
 9 -- there's division of labor between me and my  
 10 colleagues who cover our operating fleet; so I  
 11 couldn't give you kind of an accurate number of how  
 12 many reports are coming in nation-wide or anything  
 13 like that.  
 14 The number would be somewhat arbitrary,  
 15 probably, to you because it would just be those  
 16 projects that I'm working on. You know, they're  
 17 coming in -- I can't say exactly how regularly, but  
 18 not that regularly.  
 19 **MS. TURNER:** Then recommendation number 3 is  
 20 that we consider imposing a requirement for you to  
 21 perform and report fish and mussel surveys of 100  
 22 meters up and downstream, and you guys don't agree  
 23 with that one.  
 24 **MS. GIAMPOLI:** That one, we just found,



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1 would be something that would be covered under the  
 2 jurisdiction of the Army Corp of Engineers. If we  
 3 were actually going to impact a stream, that would be  
 4 covered under conditions that we would have with any  
 5 permitting with them.  
 6 We also have a storm water and pollution  
 7 prevention plan, one that has erosion control measures  
 8 that we also follow. So we just didn't think that an  
 9 additional requirement was necessary.  
 10 This requirement has also been --  
 11 recommendation has also been made by the DNR in the  
 12 last few years on wind facilities. To our knowledge  
 13 -- I don't know how often the County further  
 14 recommends them to the Applicant.  
 15 **MS. TURNER:** Their thought behind  
 16 recommending this, I would assume, would be because  
 17 you are disturbing the land. And I know you have  
 18 conservation and erosion guidelines. But would you  
 19 assume that they're recommending this so they could  
 20 make sure that those are good enough to not impact  
 21 these mussels and things?  
 22 **MS. GIAMPOLI:** I'm not going to assume, I  
 23 assume, what their reasoning is.  
 24 **MS. TURNER:** I just wanted to make sure I

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1 was being logical there. All right.  
 2 The same thing for tracking surveys for  
 3 mudpuppy salamander. And I think that your -- oh, go  
 4 ahead and explain your reasoning there.  
 5 **MS. GIAMPOLI:** Yeah. We're just not aware  
 6 of any publicly available scientific data that  
 7 supports that wind turbines themselves in their  
 8 operation have any effect on salamanders; so that's  
 9 not a species that we believe we need to look any  
 10 further into.  
 11 **MS. TURNER:** I assume that wind turbines  
 12 have been near aquatic species before. And here you  
 13 guys say that you aren't aware of any -- that it  
 14 impacts aquatic species.  
 15 Are you aware of how many studies have been  
 16 done, or what do you base this on?  
 17 **MS. GIAMPOLI:** No, we're not aware of any  
 18 studies that have been done.  
 19 **MS. TURNER:** Then number 5 is that the  
 20 Department recommends the County consider imposing a  
 21 requirement for the Applicant to avoid siting  
 22 turbines within 500 feet of a perennial stream. You  
 23 say that you don't believe this recommendation is  
 24 necessary. Can you elaborate on that a little bit?

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1 **MS. GIAMPOLI:** Correct. I mean, if you  
 2 mapped all the perennial streams throughout the  
 3 project area according to the National Hydrology  
 4 Database, there's some 49 miles of perennial streams  
 5 throughout the project area.  
 6 I think that, if we actually put a 500-foot  
 7 setback from the streams, the question would be: What  
 8 would we be achieving from that?  
 9 You know, we've applied a setback from the  
 10 high-quality stream areas that have vegetation. Those  
 11 are falling under the suitable bat habitat, which is  
 12 basically riparian corridors with vegetation. So we  
 13 find that our setback from that habitat is sufficient  
 14 to cover the goal of what is trying to be achieved  
 15 here.  
 16 **MR. ZIMMERMAN:** To what extent do bats  
 17 follow the perennial streams? Because you have  
 18 riparian areas that have greater vegetation in them  
 19 that might attract the species, typically mosquitoes,  
 20 that bats would feed on. To what extent do bats track  
 21 the perennial streams?  
 22 **MS. GIAMPOLI:** As long as there's some sort  
 23 of vegetation cover, it will typically fall under that  
 24 definition of suitable foraging habitat. If it's

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1 completely open without any cover, then it might not  
 2 fall under that definition.  
 3 **MR. ZIMMERMAN:** So the streams that are --  
 4 what's the phrase here? A perennial stream. So a  
 5 perennial stream has a riparian habitat; so it would  
 6 be a more likely habitat for bats. And so you're  
 7 saying MWEC does not believe this recommendation is  
 8 necessary to keep turbines away from what is  
 9 essentially bat habitat area. I'm trying to figure  
 10 out what's going on there.  
 11 **MS. GIAMPOLI:** No. We've applied the  
 12 1,000-foot setbacks from the riparian corridors with  
 13 the vegetation, which may encompass some of these  
 14 perennial streams, the higher-quality perennial  
 15 streams that have the vegetation cover.  
 16 Another point that we've made here is  
 17 basically that a lot of the perennial streams in the  
 18 project area, we believe, have been modified for  
 19 agricultural purposes. And so, like I said, what  
 20 would we be achieving from setting back from them?  
 21 What are we looking to avoid?  
 22 **MR. ZIMMERMAN:** I want to go back to  
 23 question number 3. We can do that right now. So  
 24 you're familiar with the Mackinaw River. I believe

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1 it's on the Illinois Natural Areas Inventory by having  
 2 a rich number of species of fish and mussels and other  
 3 things there?  
 4 **MS. GIAMPOLI:** Correct.  
 5 **MR. ZIMMERMAN:** So your recommendation is  
 6 that they don't do fish and mussel surveys after they  
 7 disturb the water. So they go muddy up the water, and  
 8 they have a whole bunch of dirt going up and down  
 9 changing the habitat along the river; but you're  
 10 recommending that that doesn't impact aquatic species?  
 11 **MS. GIAMPOLI:** We've applied --  
 12 **MR. ZIMMERMAN:** We would know that they're  
 13 disturbed by the number of fish and mussel species  
 14 that are in those particular areas.  
 15 **MR. PARZYCK:** If I may respond? Kevin  
 16 Parzyck. You were mentioning the Mackinaw River, the  
 17 stream. We are not going to be building in that area.  
 18 In other words, I think it has to be clear as to where  
 19 we're building and what we are disturbing or, for that  
 20 matter, not disturbing.  
 21 So would you explain that we are not  
 22 building or will not disturb the Mackinaw River?  
 23 **MR. ZIMMERMAN:** So you have essentially no  
 24 problem with DNR recommendation. If you're not going

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1 to disturb it, then you could say, sure, we don't have  
 2 any problems having a requirement that you perform  
 3 fish and mussel surveys when you disturb it.  
 4 **MR. PARZYCK:** It depends on what -- this  
 5 would be any stream up in the middle of an  
 6 agricultural field, not necessarily the species-rich  
 7 areas of the Mackinaw River or that --  
 8 **MR. ZIMMERMAN:** So none of the underground  
 9 tubes with all of the electrical conduits will be  
 10 going across anything relating to the Mackinaw?  
 11 **MR. PARZYCK:** That's correct. Our project  
 12 is north of the Mackinaw.  
 13 **MR. ZIMMERMAN:** And sufficiently away from  
 14 the Mackinaw that none of the disturbances of the  
 15 waterways would have a disturbance on the Mackinaw?  
 16 **MR. PARZYCK:** That's correct. One other  
 17 point you were mentioning, the underground cables.  
 18 Anytime we would be taking underground cables even to  
 19 streams in the middle of a project -- or creeks -- we  
 20 will directionally bore. So we will not disturb the  
 21 stream bed. Even a small insignificant stream, we  
 22 will directionally bore under those.  
 23 **MR. ZIMMERMAN:** All right.  
 24 **MS. TURNER:** Then the sixth one is that they

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1 recommend that no wind turbines are sited within  
 2 one-half mile of the Mackinaw River Land and Water  
 3 Reserve, which we talked about. You said here that  
 4 you're not disturbing that.  
 5 And you said that 115 of 117 turbines are  
 6 more than a half mile. Is this correct? So there's  
 7 two that are within a half mile?  
 8 **MS. GIAMPOLI:** Correct. Correct. In our  
 9 response, we said that, if the Board makes the  
 10 recommendation that we don't have any within one-half  
 11 mile, that we would consider that.  
 12 **MS. TURNER:** Then the final one is regarding  
 13 the Franklin Ground Squirrel and performing trapping  
 14 surveys. Your response to that one?  
 15 **MS. GIAMPOLI:** Just that, you know, the DNR  
 16 had noted the species not within the project area, and  
 17 we are also just not aware of any publicly available  
 18 scientific data that would suggest that shadow flicker  
 19 would impact the species, especially given that it  
 20 spends more than half the year underground.  
 21 **MS. TURNER:** So you're saying that one  
 22 spends a lot of time underground, and you don't think  
 23 the shadow flicker -- and the reason they would want  
 24 that study is for the shadow flicker, to see if

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1 there's a shadow flicker impact on that?  
 2 **MS. GIAMPOLI:** Correct.  
 3 **MS. TURNER:** Thank you.  
 4 **CHAIRMAN FINNIGAN:** Is there any other  
 5 questions from the Board?  
 6 (No response.)  
 7 **CHAIRMAN FINNIGAN:** How about staff?  
 8 **MR. DICK:** Yes. In number 3, you indicate  
 9 that there may be conditions required by the Army  
 10 Corps of Engineers. Have you received any conditions  
 11 from the Army Corps of Engineers?  
 12 **MR. PARZYCK:** We have not received any  
 13 recommendations. None of the turbines that we would  
 14 be installing would disturb any streams. The  
 15 potential that could happen is if we were to locate an  
 16 access road that would require, say, a culvert through  
 17 a stream; that would be a requirement that we would  
 18 then go to the Army Corps and look for any approvals.  
 19 However, if there's a minimal disturbance,  
 20 there is a nation-wide permit that allows a culvert to  
 21 be put into a stream.  
 22 **MR. DICK:** Okay.  
 23 **CHAIRMAN FINNIGAN:** At this time, we can  
 24 have questions from the audience, if you want to come

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1 forward. State your name and address.  
 2 **MR. SCHWASS:** Good evening. Glen Schwass,  
 3 27709 North 2550 East Road, Lexington.  
 4 So it's been a long night. And I think you  
 5 stated earlier in the statements -- Invenergy, would  
 6 you consider yourself on the cutting edge of  
 7 environmental studies and that you do a thorough and  
 8 complete study of the environment?  
 9 **MS. GIAMPOLI:** We would. I would.  
 10 **MR. SCHWASS:** My question then is this.  
 11 I've heard a lot about the fish and the wildlife  
 12 environment. It was a question that I posed back in  
 13 the gentleman before you on the studies of leisure  
 14 animals.  
 15 I didn't hear or see anything or no  
 16 discussion on horses, cattle, swine, poultry, and/or  
 17 family animals. How does it impact -- these turbines,  
 18 again, I'll ask: How does it impact all of these  
 19 animals, or have you ever studied those animals'  
 20 behaviors and reactions to those towers and the  
 21 movement?  
 22 **MR. PARZYCK:** In our discussions with the  
 23 Fish and Wildlife Service and DNR, we are  
 24 investigating any species, any information that they

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1 provide, not just on avian species, but as well as  
 2 ground species.  
 3 The experience we have had through our  
 4 installation of projects to date, as well as our  
 5 competitors and others across the country, there has  
 6 not been impacts that we have seen to these various  
 7 animals; and the wind turbines are operating in a  
 8 variety of environments, both farmlands and other  
 9 grasslands, et cetera, is compatible with the existing  
 10 species.  
 11 In addition to that, there is no published  
 12 data, peer-reviewed data, indicating that there's a  
 13 correlation between the tens of thousands of wind  
 14 turbines that have been installed across the country  
 15 and the world and any impacts on these species.  
 16 **MR. SCHWASS:** So you wouldn't be opposed to  
 17 studying those species because of the impact it could  
 18 have on them? I mean, I look at horses and/or family  
 19 pets, dogs, cats. They are very conscious of their  
 20 surroundings.  
 21 The question is: If you're that thorough,  
 22 why wouldn't you be studying those types of animals?  
 23 **MR. PARZYCK:** We are studying them with our  
 24 existing wind farms on an ongoing basis. We have

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1 anecdotal evidence with these tens of thousands of  
 2 turbines that there is no impact. In other words, we  
 3 are not seeing people coming to us saying: We are  
 4 having problems with this species or this species. So  
 5 there isn't a need to investigate further because  
 6 there's no evidence of a problem.  
 7 **MR. SCHWASS:** So if somebody did come to you  
 8 with an issue like that, how would you address it?  
 9 **MR. PARZYCK:** We would investigate -- we  
 10 would follow a protocol where we would investigate:  
 11 Is that pervasive throughout the area? We would go  
 12 down that path of studying it, yes.  
 13 **MR. SCHWASS:** So you're a large company.  
 14 I'm a small landowner. What would be my percentage  
 15 success if I came to you with a problem like that that  
 16 we had seen in an animal? What would be my percentage  
 17 of success of getting some kind of resolution to that  
 18 in a timely manner?  
 19 **MR. PARZYCK:** Well you're putting a very  
 20 wide-open hypothetical out there. But as a large  
 21 owner and operator of wind turbines, our goal is to  
 22 make sure that our turbines have minimal impact to the  
 23 community. If there's a problem, we fix it because we  
 24 want to make sure that the community is satisfied.

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1 Now, what that takes, what you would be  
 2 required to satisfy, it's a hypothetical. I couldn't  
 3 even say what problems you would have. I mean, if you  
 4 want to give me something specific that you have seen  
 5 happen in the past, I would be happy to investigate:  
 6 **MR. SCHWASS:** Again, I don't have turbines  
 7 all over my property, but horses are very finicky.  
 8 They're going to react to that somehow.  
 9 **MR. PARZYCK:** But the history is tens of  
 10 thousands of turbines across the country; there is no  
 11 problem.  
 12 **MR. SCHWASS:** So corrective action would be  
 13 obtainable?  
 14 **MR. PARZYCK:** That's correct.  
 15 **MR. SCHWASS:** So another question: You've  
 16 stated in there -- well, let me back up. Have you  
 17 done any seismic studies in this property or this land  
 18 that's around the turbines that are being presented?  
 19 **MR. PARZYCK:** From a structural perspective?  
 20 **MR. SCHWASS:** Seismic studies of the ground.  
 21 **MR. PARZYCK:** We have structural engineers  
 22 who design our foundations, and the turbines are  
 23 designed structurally to resist -- generally in this  
 24 kind of environment, the wind load is going to be

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1 higher than any seismic impacts.  
 2 **MS. SCHWASS:** I ask that question because of  
 3 a comment that you made earlier, and that is that you  
 4 directional bore under these waterways or such.  
 5 How would you know that you're not impacting  
 6 the ground if you don't have any type of seismic  
 7 study? Because when you directional bore, you're  
 8 disturbing the ground.  
 9 **MR. PARZYCK:** I'm sorry, I don't understand  
 10 how you relate earthquake issues with directional  
 11 boring.  
 12 **MR. SCHWASS:** I'm not talking earthquake  
 13 issues.  
 14 **MR. PARZYCK:** That's what seismic is.  
 15 **MR. SCHWASS:** Seismic studies the ground to  
 16 see the stability of your ground, your different  
 17 levels of the soil, all that other stuff.  
 18 **MR. PARZYCK:** No. I'm sorry. Seismic is  
 19 earthquake.  
 20 **MR. SCHWASS:** Okay. Well, okay. X-ray the  
 21 ground. I don't know the technical term. You're  
 22 looking at the ground and looking at the environment.  
 23 You said directional boring doesn't disturb it.  
 24 The question would be: How would

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1 directional boring not disturb --  
 2 **MR. PARZYCK:** No. No. I'm saying -- the  
 3 directional bore comment was with respect to creeks  
 4 that we directionally bore under so that we do not  
 5 trench through the creek bed.  
 6 **MR. SCHWASS:** So in your directional boring,  
 7 34,000 -- your comment is 34,500. It's 34,500 volts  
 8 underground. Does that not emit some type of a  
 9 harmonic that could disrupt the fish or the wildlife  
 10 or the mussels in that water?  
 11 **MR. PARZYCK:** It does not.  
 12 **MR. SCHWASS:** How does it not? I mean, it's  
 13 putting out that type of a harmonic.  
 14 **MR. PARZYCK:** It's a grounded -- three-cable  
 15 grounded system, heavily insulated both by the  
 16 insulation around the cable itself and the surrounding  
 17 soil that it's in. Any electromagnetic dissipates  
 18 very quickly beyond that.  
 19 **MR. SCHWASS:** But it does emit out beyond  
 20 the cable a little bit?  
 21 **MR. PARZYCK:** Yes, it would.  
 22 **MR. SCHWASS:** So it could impact the fish  
 23 and mussels?  
 24 **MR. PARZYCK:** There is no evidence that it

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1 does.  
 2 **MR. SCHWASS:** Are the turbines -- do they  
 3 have oil in them?  
 4 **MR. PARZYCK:** The gear boxes do have oil in  
 5 them, yes.  
 6 **MR. SCHWASS:** Have you ever experienced a  
 7 leak of the oil?  
 8 **MR. PARZYCK:** I don't have any information  
 9 on that. I can't say one way or the other. It's  
 10 possible.  
 11 **MR. SCHWASS:** So if the oil leaks, it could  
 12 get to the ground. Gravity is going to take it to the  
 13 ground.  
 14 **MR. PARZYCK:** One would assume.  
 15 **MR. SCHWASS:** Are there wells drilled? I  
 16 didn't hear anything about any water wells or anything  
 17 like that.  
 18 **MR. PARZYCK:** No, there's no wells drilled.  
 19 **MR. SCHWASS:** There's no wells drilled  
 20 within any of the turbine surroundings to use for  
 21 coolant or anything like that?  
 22 **MR. PARZYCK:** No. The impact at the turbine  
 23 itself, the foundation is excavated down about 10  
 24 feet. But there are no wells or anything like that

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1 around. Nothing is required. Water is not required  
 2 at the turbines.  
 3 **MR. SCHWASS:** What would happen if oil did  
 4 leak and get into the soils which got into the ground  
 5 surface and the water?  
 6 **MR. PARZYCK:** We would have an environmental  
 7 situation that has to be rectified in accordance with  
 8 the EPA.  
 9 **MR. SCHWASS:** Have there been any impacts on  
 10 wells because of turbines?  
 11 **MR. PARZYCK:** I'm not aware of any. I'm not  
 12 quite sure how it would.  
 13 **MR. SCHWASS:** Again, I don't know. We rely  
 14 on a well; so it's a concern.  
 15 **MR. PARZYCK:** In all of our existing  
 16 projects, we have not seen any impact. Since the  
 17 turbines are only -- the foundations only go down  
 18 about 10 feet, you're not getting anywhere near the  
 19 aquifer.  
 20 **MR. SCHWASS:** Do you do the studies? I  
 21 heard of all the studies that were done in the areas  
 22 that these turbines are going. Have there been any  
 23 studies after the turbines have been up with  
 24 everything that you just talked about?

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1       **MR. PARZYCK:** You mean our existing  
 2 projects?  
 3       **MR. SCHWASS:** Yes.  
 4       **MR. PARZYCK:** Yes, we do -- those are the  
 5 studies that Andrea had said originally we were doing  
 6 three-year studies and we've scaled them back to a  
 7 single year of study.  
 8       **MR. SCHWASS:** My last question -- and I may  
 9 be a little bit off base -- but are you familiar with  
 10 Fermilab?  
 11       **MR. PARZYCK:** Yes.  
 12       **MR. SCHWASS:** And Fermilab is an extremely  
 13 environmental-conscious company.  
 14       **MR. PARZYCK:** I know they're a federally  
 15 controlled agency.  
 16       **MR. SCHWASS:** So the Fermilabs, they study  
 17 all of those things that I just mentioned in addition  
 18 to the habitat of butterflies and things like that.  
 19       If you're that thorough and cutting edge of  
 20 technology and environment, why wouldn't you be  
 21 studying those types of issues when you're impacting  
 22 the environment, such as Fermilabs does?  
 23       **MR. PARZYCK:** Fermilab is a facility in  
 24 suburban Chicago. I'm not quite sure what the context

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1 is.  
 2       **MR. SCHWASS:** What they do impacts the  
 3 environment, and what you do impacts the environment.  
 4 So they're taking it to the next level and studying  
 5 all these things. My question would be: Why wouldn't  
 6 you then as well?  
 7       **MR. PARZYCK:** As we are. We do study that.  
 8 I think Andrea had maintained early at the beginning  
 9 of her presentation the various research work that we  
 10 do and our ongoing efforts with our existing staff on  
 11 any impacts that we observe on an ongoing basis.  
 12       **MR. SCHWASS:** You don't address the horse,  
 13 the cattle, the swine, the poultry, and the family  
 14 animals as well as, like, the butterfly and the  
 15 habitat like that, which they do. My question is:  
 16 Why wouldn't you go to that level?  
 17       **MR. PARZYCK:** Because there's not a problem.  
 18 What would you study if there's no problem?  
 19       **MR. SCHWASS:** Again, we don't know if  
 20 there's a problem.  
 21       **MR. PARZYCK:** We do know there's not a  
 22 problem because we have operating facilities.  
 23       **MR. SCHWASS:** Well, no. You stated that you  
 24 weren't aware --

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1       **CHAIRMAN FINNIGAN:** I think it's asked and  
 2 answered. We're going to have to move on.  
 3       **MR. SCHWASS:** Okay. That's find. I just  
 4 want to make sure it's on the record that we would  
 5 like a thorough study if this is going to be moving  
 6 forward. That's what I'm trying to accomplish here.  
 7       Thank you. That's all the questions I have.  
 8       **CHAIRMAN FINNIGAN:** Anyone else have  
 9 questions?  
 10       **MR. PITZER:** Jim Pitzer, 29485 East 2100  
 11 North Road, Colfax.  
 12       I don't dispute the fact that you guys do  
 13 survey after survey after survey. But Andrea, I think  
 14 I heard you say that, if there's a problem in one of  
 15 the areas, you come out and you conduct another  
 16 survey. Is that correct?  
 17       **MS. GIAMPOLI:** I guess it depends on what  
 18 kind of problem you're talking about.  
 19       **MR. PITZER:** Well, if you have -- I don't  
 20 know. You said you do a survey for the site  
 21 selection; and then, after you do that, you come back  
 22 a year later and do a survey in terms of the impact on  
 23 the environment or on the wildlife or whatever?  
 24       **MS. GIAMPOLI:** Right.

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1       **MR. PITZER:** My question is then: When you  
 2 find out that you do have an impact on the wildlife in  
 3 the second survey, what do you do then? Do you have  
 4 another survey? I mean, when do the surveys end and  
 5 you do something about it?  
 6       **MS. GIAMPOLI:** We use our surveys to help  
 7 guide us through siting and making operational  
 8 decisions.  
 9       When I mentioned that, what I was getting at  
 10 was, you know, if there was something that we didn't  
 11 -- we weren't aware of that was in the project area,  
 12 for example, a parcel of native prairie where there  
 13 were protected butterfly species, if we identified  
 14 that -- that was something that we hadn't been  
 15 anticipating and then we identified that that existed  
 16 in the project area, then we would follow up and do  
 17 additional surveys in that area.  
 18       **MR. PITZER:** So you do another survey?  
 19       **MS. GIAMPOLI:** We do another survey to  
 20 assess that, which will further information whether or  
 21 not we would need to --  
 22       **MR. PITZER:** Which then results in what, the  
 23 second or the third survey or however many surveys  
 24 you're ending up doing?

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1       **MS. GIAMPOLI:** It helps inform our siting  
 2 decisions and operational --  
 3       **MR. PITZER:** But the site is already there,  
 4 and it's already up. What do you do then? I don't  
 5 mean to belabor that point.  
 6       **MR. PARZYCK:** I think, if we see a problem,  
 7 there are means by which we can modify the operation  
 8 of the turbine. I think a very good example of that  
 9 that both we and others in the industry have done has  
 10 to do with bats.  
 11       Early on, wind turbines operated, and there  
 12 were concerns of the mortality of some bats. Research  
 13 has been done, much of which we participated in, to go  
 14 ahead, as was recommended by the IDNR, to do  
 15 curtailments at certain times of the year to mitigate  
 16 any impacts that would have. Those are the sorts of  
 17 things that would be done.  
 18       **MR. PITZER:** Okay. All right. Because you  
 19 can't pick these things up and move them. I  
 20 understand that.  
 21       **MR. PARZYCK:** Right. You would have to  
 22 modify the operation.  
 23       **MR. PITZER:** Andrea also suggested that you  
 24 don't want to impact pristine wildlife and you want to

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1 minimize impact. Well, that suggests to me that there  
 2 is an impact.  
 3       Could you kind of give me an idea what it  
 4 means to minimize impact? I mean, do you have  
 5 parameters there? If you put one of these up 1,000  
 6 feet from a river, for example, and it has an impact,  
 7 what do you mean by minimizing impact?  
 8       **MS. GIAMPOLI:** Minimize our disturbance to  
 9 the sensitive wildlife species that are in the area.  
 10       **MR. PITZER:** But you do acknowledge that  
 11 there is an impact?  
 12       **MS. GIAMPOLI:** There may be some impact,  
 13 yes.  
 14       **MR. PITZER:** May be some impact.  
 15       You talked about carcass pick-up. Can you  
 16 do that within 24 hours, or is that another survey  
 17 you're doing to determine how many carcasses there are  
 18 under these things?  
 19       **MS. GIAMPOLI:** That is actually what our  
 20 post-construction monitoring is.  
 21       **MR. PITZER:** Okay. How do you do that? How  
 22 do you conduct -- especially if one of these things is  
 23 built in the middle of a cornfield and the corn is 9  
 24 feet tall, how do you see where there's a carcass out

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1 there? Do you follow the buzzards up in the sky? No,  
 2 You can't do that because they're all getting killed  
 3 by the wind mills. So how do you find those carcasses  
 4 and make that determination?  
 5       **MS. GIAMPOLI:** We will clear a plot below  
 6 the turbine out to a certain distance. For example,  
 7 if we had a 120-meter by 120-meter box centered on the  
 8 turbine, we would clear out all the crops around that  
 9 area and reimburse the landowner for those crops. So  
 10 we would take those out of commission for the year so  
 11 we can conduct carcass monitoring.  
 12       The way that that is conducted is we hire a  
 13 consultant who basically walks back and forth beneath  
 14 each turbine at certain intervals. They're counting  
 15 every single carcass that they see under the turbine.  
 16 And then we basically add up all the -- and they  
 17 survey under a select number of turbines, typically  
 18 around 30 percent of the fleet. And then we'll  
 19 basically extrapolate from those numbers the total  
 20 impact of carcasses.  
 21       **MR. PITZER:** Okay. Thank you. You had a  
 22 map up there of McLean County, and all the brown area  
 23 that was there was all open farmland. There was just  
 24 a little strip of river that ran through there.

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1       You said that you didn't want to impact --  
 2 or minimize the impact on pristine wildlife in those  
 3 areas. Why do you even bother to put those there? I  
 4 mean, this is a big county. And we've got farmland as  
 5 far as the eye can see here everywhere you go. Why do  
 6 you even bother to put them along rivers?  
 7       **MS. GIAMPOLI:** Well, we've sited 115 out of  
 8 our 117 turbines more than half a mile from the  
 9 Mackinaw River. We've also said that we would expect  
 10 a County recommendation to remove those two turbines  
 11 as well. So we've actually committed to --  
 12       **MR. PITZER:** Those two turbines that are on  
 13 the Mackinaw River?  
 14       **MS. GIAMPOLI:** Correct.  
 15       **MR. PITZER:** You've agreed to remove those;  
 16 is that correct?  
 17       **MS. GIAMPOLI:** What's that?  
 18       **MR. PITZER:** You've agreed to remove those  
 19 two turbines on the Mackinaw River from your plan?  
 20       **MS. GIAMPOLI:** We've agreed to site them  
 21 further than half a mile from the river.  
 22       **MR. PITZER:** Okay. Okay. Then I think I'm  
 23 probably going to skip the rest of this. Thank you  
 24 very much.

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1       **MR. CAPPARELLA:** Angelo, A-n-g-e-l-o,  
 2 Capparella, C-a-p-p-a-r-e-l-l-a. I reside at 907  
 3 South Fell Avenue in Normal.  
 4       I just have a couple of questions. First  
 5 off, you said that, of the seven IDNR recommendations,  
 6 you are willing to follow 1 in 6. But as I read  
 7 exhibit 7, that's only if the County makes the  
 8 recommendation, which is only if the ZBA makes the  
 9 recommendation. That is, if they don't, the  
 10 implication is that you would not be relocating those  
 11 two turbines that you mentioned or doing the bat work.  
 12       So I guess I'm questioning the "if" in the  
 13 clause. It sounds like it's contingent on the ZBA and  
 14 the County requiring those two recommendations. Is  
 15 that what the "if" means in the clause?  
 16       **MS. GIAMPOLI:** Correct.  
 17       **MR. CAPPARELLA:** Okay. Thank you. I had a  
 18 couple of questions about how you determine setback  
 19 distance, the 1,000 feet.  
 20       I guess my first question: Is the  
 21 1,000-foot setback derived solely from the Indiana bat  
 22 study that you mentioned?  
 23       **MS. GIAMPOLI:** It's the Indiana Bat Summer  
 24 Survey Guidelines, which is guidelines set forth by

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1 the Fish and Wildlife Service for conducting summer  
 2 surveys for that species.  
 3       **MR. CAPPARELLA:** Right. So all other  
 4 species, all the scores and scores of other species,  
 5 are sort of subsumed under that 1,000 foot that's been  
 6 recommended for the sole species, the Indiana Bat. Is  
 7 that my understanding of how the 1,000 foot comes into  
 8 the picture?  
 9       **MS. GIAMPOLI:** Yes. So the Fish and  
 10 Wildlife Service has also said that the habitat for  
 11 the Indiana Bat is similar to the Northern Long-eared  
 12 Bat as well.  
 13       **MR. CAPPARELLA:** Right. But in terms of  
 14 raptor nests and other things that you mentioned -- so  
 15 the 1,000 foot is linked to Indiana Bats and the  
 16 raptor nests; but everything is ultimately linked to  
 17 just one species, the Indiana Bat, for the 1,000-foot  
 18 calculation as being the standard to use?  
 19       **MS. GIAMPOLI:** The 1,000 feet is what we  
 20 use, yes, for the bat species. Setbacks comes from  
 21 the Fish and Wildlife Service Guidelines.  
 22       The 1,000 foot from raptor nests was really  
 23 just our voluntary setback that we chose. It's not  
 24 based on any recommendations. It was just a voluntary

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1 setback that we applied.  
 2       **MR. CAPPARELLA:** Okay. Then I probably just  
 3 got confused because it's the same number.  
 4       **MS. GIAMPOLI:** Right. Right.  
 5       **MR. CAPPARELLA:** Okay. Sorry about that.  
 6       In terms of how you measure 1,000 feet, do  
 7 you measure it from the tip of the killing part of the  
 8 blade, or do you measure it from the center point of  
 9 the turbine? So do you measure it from where the  
 10 blade attaches to the turbine, or do you start the  
 11 measurement from the actual tip of the turning blade?  
 12       **MS. GIAMPOLI:** We measure that from the  
 13 center of the turbine.  
 14       **MR. CAPPARELLA:** So it's not really a  
 15 thousand feet from the killing part of the turbine?  
 16       **MS. GIAMPOLI:** I will say that you did ask  
 17 me this question earlier this week.  
 18       **MR. CAPPARELLA:** Right. You didn't have a  
 19 chance to get back to me.  
 20       **MS. GIAMPOLI:** I looked at our setbacks that  
 21 we have applied, and all but one turbine is actually  
 22 set back more than 1,000 feet. So the additional 200  
 23 feet that accounts for the turbine blade, that goes  
 24 beyond the center, is therefore accounted for.

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1       **MR. CAPPARELLA:** Right. But the 1,000-foot  
 2 number that's in the document is actually 1,000 feet  
 3 minus the blade length in terms -- it's the blade that  
 4 kills, not the center. So you're really saying that  
 5 -- so I guess I'm wondering -- and I'll have to check  
 6 the document -- when they talked about 1,000 feet for  
 7 the Indiana Bat, did they measure it from the base of  
 8 the blade or the tip of the blade?  
 9       **MS. GIAMPOLI:** So that number is actually --  
 10 it's not a recommended setback by the Fish and  
 11 Wildlife Service. It's being pulled from the  
 12 definition of habitat.  
 13       So basically the Fish and Wildlife Service  
 14 is saying that the Indiana Bat doesn't fly more than  
 15 1,000 feet from its origin habitat.  
 16       So the wind industry kind of grabbed onto  
 17 that and we said: Okay, well that makes sense. If  
 18 they're not going to fly more than a thousand feet,  
 19 then it's safe to put them beyond a thousand feet.  
 20       So that's where that -- it wasn't actually a  
 21 direct recommendation for a setback by the Fish and  
 22 Wildlife Service. It was that we were saying: Okay,  
 23 this is a definition of habitat; and beyond that,  
 24 that's not habitat.

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1       **MR. CAPPARELLA:** I see. So what they're  
 2 really saying is that the 1,000 feet should be  
 3 measured from the edge of the habitat to the tip of  
 4 the blade, which I know varies based on blade lengths.  
 5 It just sounds like the number isn't clear in the  
 6 document. Am I correct?  
 7       In other words, they're concerned -- 1,000  
 8 feet is the zone which is a safe zone. The killing  
 9 part is the tip. So I guess I still don't understand  
 10 how that's calculated in terms of blade length. I'm  
 11 just confused on that.  
 12       **MS. GIAMPOLI:** That thousand foot is the  
 13 definition of habitat. There's no actual description  
 14 of its relation to turbines in that document. It's  
 15 describing how to conduct summer surveys; so it's not  
 16 -- it's not a document that discusses the setbacks  
 17 themselves.  
 18       **MR. CAPPARELLA:** Right. So a setback isn't  
 19 really related to the killing part of the turbines.  
 20 That's what I'm getting at.  
 21       **MR. PARZYCK:** There's a thousand-foot  
 22 setback criteria that we establish when we begin our  
 23 layouts. On this project, no turbine tips enter into  
 24 that thousand-foot setback.

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1       **MR. CAPPARELLA:** Oh, no turbine tips, okay.  
 2 Thank you. Sorry for not being clear on my questions.  
 3       And then, finally, you mentioned, in  
 4 rejecting IDNR recommendation number 3, that instead  
 5 you would have to be doing things anyway under the  
 6 Army Corps of Engineers nation-wide permit.  
 7       Am I correct that that nation-wide permit  
 8 application does not allow for public comment?  
 9       **MS. GIAMPOLI:** I'm not entirely sure of the  
 10 answer to that.  
 11       **MR. CAPPARELLA:** I know, in the past, the  
 12 nation-wide permit -- I think number 6 is the one --  
 13 if I understand correctly, that doesn't allow for  
 14 public comment.  
 15       I don't know if it allows for county or  
 16 other comment. Because the Corps has those two  
 17 categories, ones that allow it and ones that don't.  
 18 And I didn't know if your rationale was because you  
 19 thought the public could still comment on number 3 if  
 20 there were any concerns for a particular activity.  
 21       **MS. GIAMPOLI:** The public has the ability to  
 22 comment on the development of the nation-wide permits  
 23 themselves but not the issuance of each individual  
 24 permit.

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1       **MR. CAPPARELLA:** Exactly. That's what I  
 2 wanted to get at. Okay. Thank you.  
 3       **MR. ZIMMERMAN:** I would like a point of  
 4 clarification. It's been suggested that the killing  
 5 part of the blade -- that birds or raptors or others  
 6 just get hit by the end of the blade.  
 7       What evidence is there for -- because I  
 8 assume that the birds fly through the circle and get  
 9 hit, not just by the tip, but by the whole blade.  
 10       **MR. PARZYCK:** The point is that the bat  
 11 forages a thousand feet from the riparian corridor.  
 12       Our turbines are set -- and if you look at  
 13 the rotor -- our blades stick out or the rotor sticks  
 14 out -- the radius is a little over 200 feet. None of  
 15 the radius of the blades enters into that space. In  
 16 other words, we are set back on the order of 1,200,  
 17 1,300, 1,500 feet from that corridor; so it's never  
 18 going to interact with the species.  
 19       **MR. ZIMMERMAN:** So while the chart up here  
 20 was 1,000 feet, your actual setbacks are at least  
 21 1,200 feet from whatever habitat you've identified?  
 22       **MR. PARZYCK:** Exactly. Based on other  
 23 criteria.  
 24       **MR. DENEEN:** My name is Daniel Deneen, 2219

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1 West Oakland Avenue, Bloomington.  
 2       **MR. DICK:** Could you spell your name,  
 3 please?  
 4       **MR. DENEEN:** D-e-n-e-e-n.  
 5       First, Mr. Parzyck, why did you wait until  
 6 this afternoon to send your response to the IDNR  
 7 recommendations to this Board and to the public?  
 8       **MR. PARZYCK:** Because we received the letter  
 9 from the IDNR on Tuesday evening. We worked on the  
 10 response; and as soon as we prepared the response, we  
 11 sent it in.  
 12       **MR. DENEEN:** What is the applicable County  
 13 rule dealing with IDNR standards?  
 14       **MR. PARZYCK:** If I'm not mistaken, the  
 15 Zoning Ordinance requires that we are in consultation  
 16 with the IDNR.  
 17       **MR. DENEEN:** Could it be that you have to  
 18 provide credible evidence to overcome their  
 19 recommendations?  
 20       **MR. PARZYCK:** I don't have it at my  
 21 fingertips.  
 22       **MR. DENEEN:** Mr. Dick, could you please  
 23 recite the rule into the record?  
 24       **MR. DICK:** This is under Article 6, dealing



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1 with wildlife and WECS, wind farms.  
 2 "Required implementation of IDNR  
 3 recommendations based on presiting results unless  
 4 credible evidence is presented against the  
 5 recommendation."  
 6 **MR. DENEEN:** As to number 2, why should  
 7 Invenergy be allowed to follow industry standards  
 8 instead of IDNR recommendations?  
 9 **MR. PARZYCK:** The recommendations of the  
 10 IDNR -- I mean, based on our history with these  
 11 projects, we have found, as Andrea had explained  
 12 earlier, that based on what we have found thus far,  
 13 one year is sufficient to give us indication of any  
 14 impacts.  
 15 **MR. DENEEN:** Why should your findings be  
 16 given greater weight than the IDNR?  
 17 **MR. PARZYCK:** We're responding to the  
 18 recommendations made and saying why we feel that,  
 19 based on -- why we come up with a means by which to  
 20 satisfy that requirements based on history. So we  
 21 have a history of working to investigate these  
 22 problems with operating farms.  
 23 **MR. DENEEN:** But my question is: Why should  
 24 you be allowed to determine that and not IDNR?

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1 **MR. PARZYCK:** We've responded accordingly  
 2 based on our history in this area.  
 3 **MR. ZIMMERMAN:** Excuse me. A point of  
 4 order. Mr. Dick, are we as the Board required to  
 5 follow either -- are we required to follow anybody's  
 6 standards other than our own in this respect?  
 7 We have recommendations from IDNR. We can  
 8 follow them. We have comments and recommendations  
 9 from the Applicant. And we'll probably possibly get  
 10 comment from the public. To what extent are we  
 11 required to follow any of these other than what is  
 12 stated in our guidelines?  
 13 **MR. DICK:** My opinion is that you are  
 14 required to determine whether the Applicant is giving  
 15 you credible evidence that they're complying with  
 16 those recommendations.  
 17 **MR. ZIMMERMAN:** We've had a whole litany of  
 18 stipulations that we've done. So we may actually set  
 19 a higher standard should we want to. And that's  
 20 totally within our prerogative, isn't it?  
 21 **MR. DICK:** Yes.  
 22 **MR. ZIMMERMAN:** Thank you.  
 23 **MR. DENEEN:** There's a lot of landowners and  
 24 people in the ag industry here. Your number 5, are

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1 steep-sloped straight ditches a proper agricultural  
 2 practice in McLean County or prime farmland?  
 3 **MR. PARZYCK:** I'm sorry, I don't understand  
 4 the question.  
 5 **MR. DENEEN:** Would you please look at number  
 6 5 in your letter where you describe steep-sloped  
 7 straight ditches?  
 8 **MR. PARZYCK:** Okay.  
 9 **MR. DENEEN:** What did you mean by that, or  
 10 was it written by a lawyer or somebody else?  
 11 **MR. PARZYCK:** What I'm saying here is that  
 12 many of the ditches, many of the various streams in  
 13 the area have been modified to accommodate  
 14 agriculture, and they're no longer in their natural  
 15 condition.  
 16 **MR. DENEEN:** Are you describing though --  
 17 didn't you describe a lot of them as being  
 18 steep-sloped?  
 19 **MR. PARZYCK:** The steep slope -- my point  
 20 there is that it says to "steep ditches flowing in  
 21 straight lines," in other words, that they've been  
 22 modified to accommodate agriculture.  
 23 **MR. DENEEN:** Did you ever personally go out  
 24 and look at anything beyond a waterway that might be

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1 that way? Have you looked at the natural streams, the  
 2 ones that do have perennial water, or is that just  
 3 something you put down to satisfy number 5?  
 4 **MR. PARZYCK:** That was -- it says here that  
 5 "many." I didn't say that all of them are.  
 6 **MR. DENEEN:** Okay. Does the United States  
 7 Department of Agriculture pay farmers to keep from  
 8 having steep slopes on their creeks and even  
 9 waterways?  
 10 **MR. PARZYCK:** I don't know.  
 11 **MR. DENEEN:** Okay. We'll give you one last  
 12 chance. What credible evidence do you have to oppose  
 13 standard 5?  
 14 **MR. PARZYCK:** The question is: What does it  
 15 achieve?  
 16 **MR. DENEEN:** No. The question is to you.  
 17 You are not to question the people on the stand. The  
 18 question is to you as the representative.  
 19 **MR. PARZYCK:** Right.  
 20 **MR. DENEEN:** The County Board and the Zoning  
 21 Board of Appeals is supposed to ascertain if there is  
 22 credible evidence for your refusal to follow IDNR  
 23 recommendation number 5. The question is not why am I  
 24 asking the question. So please answer the question.

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1       **MR. PARZYCK:** The answer to the question is  
 2 the basis that the letter -- it's not all laid out  
 3 here. The letter --  
 4       **MR. DENEEN:** Where is the evidence then?  
 5       **MR. PARZYCK:** Can you let me finish, please?  
 6       **MR. DENEEN:** Uh-huh.  
 7       **MR. PARZYCK:** So the letter that we received  
 8 from IDNR indicates that there's a desire to stay 500  
 9 feet back from all perennial streams based on the  
 10 possibility that vibrations would impact the aquatic  
 11 life in those streams.  
 12       Our comment is that there is no basis for  
 13 that 500 feet based on existing information in the  
 14 public purview that turbines have vibrations and  
 15 impact aquatic life in streams.  
 16       **MR. DENEEN:** Okay. Did you review the  
 17 procedural rules that they handed out to the general  
 18 public?  
 19       **MR. PARZYCK:** I'm sorry. What's your point?  
 20       **MR. DENEEN:** Once again, you are not to ask  
 21 me questions. My question is: Did you read them and  
 22 review them?  
 23       **MR. PARZYCK:** What you have in your hands?  
 24 I do not have what you have in your hands.

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1       **MR. DENEEN:** Does this state that you are  
 2 not to make vague and unsupported testimony?  
 3       **MR. PARZYCK:** What's your point?  
 4       **MR. DENEEN:** What credible evidence do you  
 5 have to support number 5 instead of spouting out that  
 6 there is evidence out there somewhere?  
 7       **MR. PARZYCK:** No. My comment was that there  
 8 is no evidence that indicates that there is a need to  
 9 stay 500 feet from a stream because of any impacts  
 10 that turbines would have on aquatic life.  
 11       **MR. DENEEN:** Let's get back to the question  
 12 framed in the rules of the County Board.  
 13       What credible evidence --  
 14       **CHAIRMAN FINNIGAN:** I think he's answered to  
 15 the best of his ability.  
 16       **MR. PARZYCK:** I think I've answered.  
 17       **MR. DENEEN:** I think you have your answer.  
 18 Thank you.  
 19       **MR. DICK:** Would anyone else want to ask  
 20 questions?  
 21       **MS. WINTERLAND:** I'll make it quick. Amy  
 22 Winterland.  
 23       So in number 1, where you're going to slow  
 24 the turbine speed during the migratory season, is that

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1 for all turbines or just certain turbines that have  
 2 been specified?  
 3       **MR. PARZYCK:** It's for all turbines.  
 4       **MS. WINTERLAND:** Second question is: Are  
 5 you guys responsible for the floodplain thing too? Is  
 6 that all under your environmental manager role, the  
 7 floodplain maps?  
 8       **MR. PARZYCK:** With respect to -- I'm sorry,  
 9 with respect to what?  
 10       **MS. WINTERLAND:** So when I was looking at  
 11 the floodplain maps that are in the application, it  
 12 looks like there are two -- and I didn't look at all  
 13 of them, just the ones in my area -- two of them that  
 14 are, like, right on the edge of the floodplain. So I  
 15 didn't know if there was a rule in the environmental  
 16 studies that say you're supposed to stay off  
 17 floodplains?  
 18       **MR. PARZYCK:** There's no requirement that we  
 19 have to stay outside of the floodplain. We do it even  
 20 if it's right on the edge because that is the limit of  
 21 the 100-year floodplain. We do it to maintain the  
 22 integrity of our facilities. We don't want them in a  
 23 floodplain.  
 24       **MS. WINTERLAND:** So there's no requirement

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1 to stay out of a floodplain?  
 2       **MR. PARZYCK:** That's correct.  
 3       **MS. WINTERLAND:** This is just informational.  
 4       **MR. PARZYCK:** Yes.  
 5       **MR. HILL:** David Hill, H-i-l-l, 29725 East  
 6 2100 North Road. That's a Colfax address.  
 7       If I understood the testimony correctly,  
 8 there's 117 sites. Only two of them are within half a  
 9 mile of the river, the Mackinaw; is that correct?  
 10       **MR. PARZYCK:** That's correct.  
 11       **MR. HILL:** I guess I'm considering the  
 12 recommendation to be at least a half a mile out.  
 13       What would cause you to feel that those two  
 14 sites were absolutely essential for you to choose as  
 15 sites to erect turbines?  
 16       **MR. PARZYCK:** Well, there is no requirement  
 17 for a half mile that we would use in our evaluation of  
 18 laying the project out.  
 19       **MR. HILL:** I understand that. What would  
 20 cause you to consider that the recommendation  
 21 shouldn't need to apply, that that's such a crucial  
 22 site that you're going to pick it in spite of the  
 23 recommendation?  
 24       **MR. PARZYCK:** The recommendation by the IDNR

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1 is made to the County. It's not made to us. We're  
 2 responding to what is possible -- what we can do with  
 3 respect to those recommendations.  
 4 **MR. HILL:** You're aware that this is a  
 5 recommendation that's coming. My question to you is:  
 6 Knowing this -- and it's only two sites -- what would  
 7 make you think that those two sites were essential  
 8 that you had to choose those over other sites?  
 9 Because you're not picking all 117. You're only  
 10 picking 100.  
 11 **MR. PARZYCK:** And I'm not saying that we  
 12 are. Right?  
 13 **MR. HILL:** Thank you.  
 14 **CHAIRMAN FINNIGAN:** I think Mr. Dick has a  
 15 clarification.  
 16 **MR. DICK:** I wanted to ask: Where did you  
 17 notify us that all turbines would be a half mile from  
 18 the Mackinaw River?  
 19 **MS. GIAMPOLI:** In our response to number 6,  
 20 we said that if the County makes that recommendation,  
 21 we would be willing to adopt that.  
 22 The second sentence of our response says  
 23 that ". . . willing to site all turbines more than  
 24 half mile from the Mackinaw River if the County makes

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1 this recommendation."  
 2 **MR. DICK:** Thank you.  
 3 **CHAIRMAN FINNIGAN:** is there any more  
 4 questions? One more. Come on up.  
 5 **MR. DICK:** I'd like to make one other  
 6 clarification. Under our ordinance, the WECS located  
 7 in a special flood hazard area or wetland shall comply  
 8 with the requirements of the floodplain overlay  
 9 district. So it's very unlikely that you'd be able to  
 10 put a turbine in a floodplain.  
 11 **MR. YOUNG:** Good evening. My name is Yale  
 12 Young, just like the college, forklift, or lock.  
 13 Yale, Y-a-l-e. I reside at 27297 East 2250 North Road  
 14 in Lexington.  
 15 My wife and I purchased a short 40 acres  
 16 approximately in 2012, and we have -- within that, we  
 17 reside in about 55 acres of mine and the neighbors to  
 18 the south of continuous timber ground.  
 19 **CHAIRMAN FINNIGAN:** This is just for  
 20 questions.  
 21 **MR. YOUNG:** I'm getting there. So with that  
 22 being said, I heard a couple of quotes up here. I  
 23 want to have a definition of a high quality perennial  
 24 stream.

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1 **MS. GIAMPOLI:** Is that a term we used in our  
 2 response?  
 3 **MR. YOUNG:** You did. Mr. Kevin -- I'm going  
 4 to butcher his last name -- said about nothing  
 5 building in high quality streams and rivers. And you  
 6 also said we recommend a thousand feet from the  
 7 Mackinaw River and creeks because of the habitat. And  
 8 you said that that was a high-quality perennial  
 9 stream. So I would like a definition of a  
 10 high-quality perennial stream.  
 11 **MS. TURNER:** I think this is when you were  
 12 talking about boring under and not disturbing any of  
 13 the streams. That's what he was talking about when he  
 14 brought that up.  
 15 **MR. YOUNG:** I just want a definition of it.  
 16 **MR. PARZYCK:** I apologize if I was unclear  
 17 there. We bore under all streams, not necessarily a  
 18 high-quality stream.  
 19 **MR. YOUNG:** My point being, getting into  
 20 this number 5 on these setbacks, you know, I heard  
 21 that about the ditches and then number 5; but what's a  
 22 definition? Because in your writing, you say they're  
 23 straight and steep, correct?  
 24 **MR. PARZYCK:** Right.

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1 **MR. YOUNG:** I own a half mile of Patton  
 2 Creek. You guys are welcome to come walk it. There's  
 3 nothing straight about that. And right across the  
 4 road, in the drainage ditches, it does get straight.  
 5 So where do we define that at, from a habitat to a  
 6 drainage ditch?  
 7 **MR. PARZYCK:** The term "high quality" was  
 8 actually used in the letter from the IDNR in  
 9 describing the Mackinaw River and the confluence with  
 10 the creek. So that's where "high quality" came from.  
 11 We make the comment that many of the rivers  
 12 or the creeks in the project area are straight, but  
 13 it's just part of our discussion about the fact that  
 14 we do not see a need for a 500-foot setback based on  
 15 the IDNR's concerns with regard to vibrations from  
 16 turbines impacting aquatic life.  
 17 **MR. YOUNG:** My concern is number 65. The  
 18 turbine number 65 is roughly 100 to 200 feet from  
 19 Patton Creek. There's also CRP ground on both sides  
 20 of that, and that acts as habitat as well. So that's  
 21 why I was just trying to qualify what that is.  
 22 **MR. PARZYCK:** I can't speak to where that  
 23 turbine is located. We could investigate where it is.  
 24 **MR. YOUNG:** It's 800 feet from my property

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1 line. It's a thousand feet from my forest, and it's  
 2 1,500 feet from my house.  
 3 **MR. PARZYCK:** Okay. But I would have to  
 4 look at what the creek impact is.  
 5 **MR. YOUNG:** So I guess one last thing is I  
 6 would like to recommend number 5 setback for the  
 7 perennial streams as the IDNR recommendations to you  
 8 the County Board. Thank you.  
 9 **MR. ZIMMERMAN:** I think, for the record,  
 10 isn't a perennial stream one that runs all year  
 11 around? There's some technical definition somewhere,  
 12 I think in the other notes, that gives the definition  
 13 of a perennial stream versus an intermittent stream.  
 14 I think there's another scale done on that.  
 15 **MR. DICK:** How about the high quality part?  
 16 **MR. ZIMMERMAN:** High quality wasn't part of  
 17 recommendation number 5. "Department recommends this  
 18 County consider imposing a requirement for the  
 19 Applicant to avoid siting turbines within 500 feet of  
 20 a perennial stream."  
 21 I don't see anything concerning vibrations  
 22 there either. I think it might have been the habitat  
 23 or something else. Vibrations were something that  
 24 came in from testimony. And it might be from one of

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1 the others.  
 2 **MR. DICK:** You may need to clarify which of  
 3 the perennial streams and how far they go up.  
 4 **MR. ZIMMERMAN:** I was just reading the cliff  
 5 notes.  
 6 **CHAIRMAN FINNIGAN:** Anyone else have  
 7 questions?  
 8 (No response.)  
 9 **CHAIRMAN FINNIGAN:** We are ready for your  
 10 next witness if that's the case.  
 11 **MR. GRIFFIN:** Thank you, Mr. Chairman. The  
 12 next witness is Mr. David Loomis, and he's going to  
 13 testify concerning the economic impacts of the  
 14 project. And, again, he has a PowerPoint to go along  
 15 with his testimony. And he needs to be sworn in.  
 16 (David Loomis sworn.)  
 17 **CHAIRMAN FINNIGAN:** State your name and  
 18 address for the record.  
 19 **MR. LOOMIS:** My name is David Loomis. My  
 20 address is 2705 Kolby Court, Bloomington.  
 21 Good evening. I know it's been a long  
 22 evening so far. It does look like we have copies of  
 23 my PowerPoint presentation available.  
 24 My name is David Loomis. I have a PhD in

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1 economics from Temple University, and I'm Professor of  
 2 Economics at Illinois State University. I've been at  
 3 the university since 1996 and achieved full professor  
 4 in 2010. I'm also Director of The Center for  
 5 Renewable Energy and was cofounder of that center as  
 6 well as organizing the Illinois Wind Working Group  
 7 since 2006. I've been doing research on wind energy  
 8 since 2003. I'm also cofounder of our renewable  
 9 energy major. We have a Bachelor of Science in  
 10 renewable energy at the university that I, along with  
 11 two other of my colleagues, helped to create at the  
 12 university. I have over 25 peer-reviewed  
 13 publications, and I've given expert testimony before  
 14 county boards, Senate committees, and regulatory  
 15 bodies such as the Illinois Commerce Commission. My  
 16 full CV is contained in an appendix to the report.  
 17 The purpose of my testimony here is to  
 18 quantify the economic impacts of the project and also  
 19 to highlight the local tax benefits that will come  
 20 from the project.  
 21 To look at the economic impact studies, I  
 22 used a model called the Jobs and Economic Developments  
 23 Impact model. It's the JEDI model. Somebody liked  
 24 Star Wars when they dreamed up the acronym. It was

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1 developed by National Renewable Energy Laboratories in  
 2 Golden, Colorado, and they continuously update it. So  
 3 the version of the model that I used was that listed  
 4 there, but it goes by the date; so it was posted  
 5 12/23/2016. So this is a model that's continuously  
 6 updated.  
 7 It's based on the IMPLAN model. The IMPLAN  
 8 model is an industry standard model used to look at  
 9 economic impacts. I used the IMPLAN multiplier  
 10 specific to McLean County in using this model.  
 11 So the model really looks at wind energy and  
 12 all the different components and costs that would go  
 13 into developing a wind farm, and then the multipliers  
 14 are specific to McLean County. They're generic that  
 15 would be used by any economic impact study in McLean  
 16 County.  
 17 So the method that we used when looking at  
 18 an economic impact analysis is, if you look at the far  
 19 left box, we look at the initial capital expenditures  
 20 as well as the ongoing operations and maintenance  
 21 expenditures that the Company is going to be using  
 22 over the life of the project.  
 23 Of particular interest, we want to look at  
 24 those middle boxes. We want to say: How much of that

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1 expenditure is going to go into local expenditures  
 2 that are going to, for our purposes, stay here within  
 3 McLean County.  
 4 We also wanted to look at what's the impact  
 5 for the state of Illinois as a whole. And then,  
 6 finally, we're looking at those expenditures that are  
 7 what we call "leakage." It's expenditures that are  
 8 going to go outside of either the local or the state;  
 9 so it's going to go to another state and be purchased  
 10 there. The reason that's important is we want to look  
 11 at how much of that gets recirculated within the local  
 12 economy, because a dollar injected into local economy  
 13 and spent here will then get multiplied throughout.  
 14 The right-hand side is what we're looking  
 15 at. We're looking at that initial investment plus  
 16 this region -- in our case, I'll highlight McLean  
 17 County, but the report also has the state of Illinois  
 18 results.  
 19 And then, finally, the economic leakage is  
 20 that that's going elsewhere. It might be other  
 21 states. It might be international expenditures.  
 22 In particular, when we're looking at an  
 23 economic impact study, we're looking at three main  
 24 parts. The first is number 1, the on-site labor and

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1 professional services. That's those construction jobs  
 2 that will be constructing the wind farm during that  
 3 period. It's also the on-site technicians that will  
 4 be doing the operations and maintenance over the long  
 5 haul. That's pretty visible and easy to see.  
 6 Number 2, we want to look at the equipment  
 7 production and supply chain effect; whereas, number 1  
 8 is really called "direct effects." Number 2 is  
 9 typically called an "indirect effect," where we're  
 10 looking at what are those things that are going to be  
 11 purchased here in the local economy, and what are the  
 12 jobs and earnings that those create within the local  
 13 economy.  
 14 Then finally number 3, what's called the  
 15 "induced economic impact." So as those households  
 16 from both the direct and the indirect have more income  
 17 to spend, they'll typically spend it on meals out,  
 18 clothing, movie entertainment; and we capture that in  
 19 that third category of induced impacts.  
 20 So whenever you do an economic impact study,  
 21 it's always good to step back and say: What are the  
 22 cautions as we look at an economic impact analysis.  
 23 It's important to know that the results are  
 24 an estimate and highly dependent on the assumptions

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1 that are used. I'll highlight some of the ways that  
 2 we tried to be conservative in that.  
 3 The results really are not a measure of the  
 4 project viability. So we're assuming that it gets  
 5 built and that Invenergy does well; but we're not  
 6 looking at: Is this profitable? Is it a good use of  
 7 opinion money. It's just saying, when it gets built,  
 8 what is that going to do to the local economy?  
 9 We look at gross jobs rather than net jobs.  
 10 So we're really looking at: What are the jobs that  
 11 are created from this project? And I didn't take into  
 12 account those things that might happen, say, in the  
 13 electricity market. If you build a wind farm here,  
 14 will that cause a coal plant to close elsewhere? I  
 15 didn't take into account that effect.  
 16 But also, in my opinion, a wind farm of this  
 17 size is not going to cause that to happen. I think it  
 18 will have minimal impact on the electricity market as  
 19 a whole. So I don't think that that's a terrible  
 20 assumption just to look at our gross jobs.  
 21 We looked at the assumptions around local  
 22 sourcing and procurement because that is important to  
 23 saying how much of that is going to stay within the  
 24 county and the state.

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1 I also reported all these results in terms  
 2 of full-time equivalent jobs. Oftentimes you'll see  
 3 jobs that are somewhat inflated because they count  
 4 part-time jobs. And I've taken each of those  
 5 part-time jobs and put it on a full-time equivalent  
 6 basis, which would be 2,080 hours worked in a year.  
 7 So what oftentimes can happen -- Oh, and so this is  
 8 also annual in terms of full-time equivalence. So  
 9 this is saying a job year in that way, especially in  
 10 the construction aspect. So the construction might  
 11 only last six months to nine months, but I've done it  
 12 for a whole year. So these numbers are full-time  
 13 equivalents.  
 14 As we look then at table 3 in the report and  
 15 project it overhead, we're looking at, during the  
 16 construction phase for McLean County, at 147 jobs in  
 17 that direct or project development and on-site labor  
 18 impacts.  
 19 The second category is really that indirect.  
 20 The turbine and supply chain impacts for McLean County  
 21 during construction would be 290 jobs. Induced  
 22 impacts is 82 jobs, for a total of 519 jobs created or  
 23 supported within McLean County.  
 24 If we look at the operations impact, the

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1 on-site labor impacts, those would be wind turbine  
 2 technicians, administrative staff, supervisors  
 3 associated with the wind farm. Those would be 10.  
 4 Local revenue and supply chain impacts would be an  
 5 additional 11. And those induced impacts would be  
 6 another 14, for a total of 35.

7 So when we're looking at those supply chain  
 8 impacts here both on construction and operations,  
 9 you're really thinking during construction of those  
 10 materials that are purchased locally, the concrete.  
 11 We talked about -- Mr. Parzyck said that they're going  
 12 to go down, you know, 10 feet. So it's concrete and  
 13 rebar that's going to get sourced locally almost  
 14 inevitably because, you know, you don't transport  
 15 concrete long distances.

16 The rebar, gravel, all of those roads that  
 17 have to be created for the maintenance workers to get  
 18 to the turbine, those are all going to be typically  
 19 sourced locally.

20 I think there's the intent to use local  
 21 union labor for this project during construction.  
 22 Certainly there's going to be -- GE has a crew that  
 23 are going to have engineers and so forth that will  
 24 probably be out of state or out of county, but they

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1 employ lots of local union labor during construction.  
 2 If we look at those supply chain impacts  
 3 during operations, things that a normal business is  
 4 going to use, like vehicles, the fees and permits,  
 5 fuel, utilities, consumables, all of those would go  
 6 into the supply chain impacts that would be during  
 7 operations.

8 So if we look at earnings, we care about  
 9 earnings because we like jobs, but we'd like  
 10 good-paying jobs to come into the county. So these  
 11 are the total earnings that will come from those jobs  
 12 that we reported in the previous tables.

13 I'll just highlight one figure here because  
 14 it's easy to do. If you look at those on-site labor  
 15 impacts, you see the 445,783. And you saw on the  
 16 previous slide that it was 10 jobs. So we can take  
 17 that and say the average wage under those on-site  
 18 labor impacts is going to be approximately \$44,500 for  
 19 the worker.

20 I will add that, if we did that same  
 21 exercise and looked at those impacts, especially in  
 22 those induced impacts, those will typically be  
 23 lower-wage jobs. Those are retail, you know,  
 24 restaurant jobs, and so forth. I don't want to

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1 mislead you in choosing the highest number there.  
 2 If we look at, then on table 5, a total  
 3 output -- now total output is a measure like gross  
 4 domestic product. It's looking at the value of goods  
 5 and services as a whole. So this is going to include  
 6 those earnings that we have in the previous table, but  
 7 it's going to be more comprehensive in looking at the  
 8 impact on the project.

9 It looks, in addition, at landowner  
 10 payments. So landowner payments are not included in  
 11 the previous section because it's not earnings. They  
 12 didn't earn that. They received it as a payment, a  
 13 rental payment, if you will, for that site selection.  
 14 So if we look at this, this is going to include  
 15 landowner payments. It's also going to include tax  
 16 revenues that are paid within the county.

17 Let me turn now to tax revenues. I had to  
 18 make certain assumptions when doing the tax analysis.  
 19 I assumed the valuation of the wind farm is the same  
 20 that's set forth in the Public Act that's referenced  
 21 here.

22 In 2007, there was a law passed by State of  
 23 Illinois -- after much angst, I might add -- to value  
 24 wind farms on a state-wide basis. What had been done

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1 before was each county assessor would have to  
 2 determine the value of the wind farm, and it varied  
 3 quite widely from county to county. So that was not  
 4 good for the developers who were trying to plan and  
 5 know what their tax bill is going to be. It was not  
 6 good for the County because the county assessor might  
 7 only have one wind farm and look for guidance.

8 So there was an agreement put into law and  
 9 codified here as to the exact valuation of a wind farm  
 10 for tax purposes, and it was done on a megawatt basis  
 11 of capacity so that there's no disagreement. Here's  
 12 the law. Here's what it's going to be.

13 That law has a sunset clause in it. It was  
 14 originally -- in 2007, it was set to expire in 2011,  
 15 and then it was renewed until 2016. I believe it's  
 16 been renewed now to the year 2020. If this were at  
 17 any point in time set to expire, what would happen  
 18 would be that then the wind farm would be the purview  
 19 of the county assessor to then make a determination of  
 20 what that value of that wind farm is.

21 So it's not that that would be exempt from  
 22 taxes. It just means that there's no statewide  
 23 assessment that's in effect, and the county assessor  
 24 would then have to do it

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1 Having a wind farm that's already in service  
 2 or having a statute like this, I would think that most  
 3 county assessors are going to come in somewhat close  
 4 to what the statewide statute has been previously. So  
 5 I think, even in that case, the numbers and the  
 6 estimates I've put forward here are valid.  
 7 In the law, they had the foresight not to  
 8 just have it at a fixed rate, but they had a trending  
 9 factor that's in there. It says that that trending  
 10 factor is according to the consumer price index. So  
 11 they take the consumer price index, and that's what  
 12 they call a trending factor.  
 13 So I've included the consumer price index up  
 14 until the very last consumer price index that we had  
 15 available when I did the report. But then I had to  
 16 say: Well, what's future inflation going to be? And  
 17 even though I'm an economist, that's not my field of  
 18 expertise.  
 19 But 2.2 inflation, you might argue that it  
 20 might be higher or lower, but that seemed about  
 21 reasonable. And it's been what inflation has been  
 22 over the last -- I think I did three years, five  
 23 years, and looked at that. That seemed reasonable.  
 24 Then in the law, it has a depreciation of 4

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1 percent. So each year the wind farm, for these tax  
 2 purposes, can depreciate the wind farm by 4 percent.  
 3 But in the statute, it says that it cannot depreciate  
 4 it more than a maximum of 70 percent of its original  
 5 value.  
 6 I also assumed a constant tax rate. If you  
 7 could tell me what the county and all the different  
 8 school tax rates were, I could put that in. But I  
 9 used -- just saying that it's going to be constant at  
 10 what it is currently. And I assumed that it's placed  
 11 in service exactly on January 1, 2020, and has that  
 12 fair cash value that's listed there, based on the  
 13 statute.  
 14 I assumed that the wind farm was going to be  
 15 in existence for 30 years and then would be  
 16 decommissioned at the end of that 30 years and then  
 17 would be paying no more taxes after it goes away.  
 18 So if we looked at the effect then for  
 19 McLean County, the county tax, it would start out  
 20 receiving annually 344,126 in tax year 2020. That  
 21 would go down because of that 4 percent depreciation.  
 22 The 4 percent depreciation is larger than the 2.2  
 23 inflation factor; so you get a slight decrease each  
 24 year.

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1 That bottoms out in the year 2038, which  
 2 unfortunately -- because I didn't want to put all of  
 3 those numbers on the slide -- is not listed; but it's  
 4 2038, is the year that depreciation bottoms out and  
 5 they're at their maximum depreciation. Then that  
 6 trending factor takes over. Based on inflation, that  
 7 will increase it.  
 8 So over the course of that total 30 years,  
 9 the expected total taxes that the wind farm would pay  
 10 to the County would be on the order of \$6.9 million.  
 11 If we then turn to the townships -- now,  
 12 we've talked about the fact that there's only 100  
 13 turbines that are actually going to be placed in  
 14 service, but there's a number of different locations  
 15 that are possible for those to go in. And maybe based  
 16 on that, there's two less here. I don't know.  
 17 But if we look at that, we had to make some  
 18 assumptions. So what we did was we, for the purposes  
 19 of how many turbines are going to be in each township,  
 20 we did it proportionally, knowing that you can't have  
 21 part of a turbine in a township. So we rounded to the  
 22 nearest one. So these are not exact. They are based  
 23 on 100 turbines, not the total location, but we've  
 24 prorated them according to the difference townships

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1 and rounded to the nearest turbine.  
 2 So you could see the values range from Money  
 3 Creek Township at the low end of \$2,338 in the first  
 4 year all the way up to Lawndale Township with 42,378.  
 5 And of course those are going to decline along with  
 6 depreciation, and it will still be that same year of  
 7 2038 in which it will bottom out and then come up.  
 8 Then you can see the totals down at the bottom.  
 9 The other taxing body that I looked at was  
 10 the school district. So this is not, obviously, all  
 11 of the taxing districts. Again, it would get more  
 12 sticky the exact locations, prorating those, if we  
 13 went down to the fire districts and park districts and  
 14 other things like that.  
 15 But we could look at the school districts.  
 16 And again, we prorated these according to the  
 17 100-turbine estimate. You can see that Lexington  
 18 School District is the highest with almost \$1.3  
 19 million in annual tax revenue coming in from this  
 20 project. The low end would be El Paso/Gridley School  
 21 District with 192,640 coming in in year 2020. And  
 22 those decrease.  
 23 Now, two things happen with school districts  
 24 that are important to keep in mind. The state aid

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1 that school districts get from Springfield are based  
 2 upon the equalized assessed value within that school  
 3 district's footprint. So a richer school district is  
 4 deemed to have more resources locally and therefore  
 5 gets less money from Springfield than a poorer school  
 6 district.

7 A coauthor and I looked at this problem and  
 8 looked at what is the net effect of having a wind farm  
 9 in a school district. That report is available on the  
 10 Center for Renewable Energy's website. Found  
 11 overwhelmingly that the net effect is largely  
 12 positive. There is a reduction from your state aid  
 13 from Springfield, but it's small in comparison to the  
 14 money that you're getting directly from the wind farm.

15 I might add, one of the unintended effects  
 16 as we were doing that report was that the school  
 17 district actually receives a bonus at the beginning of  
 18 the start of the project. Because when a school  
 19 district -- when the wind farm comes into being, they  
 20 are based then on that tax year, and they'll collect  
 21 that at the end of that year. But when Springfield  
 22 looks at how much aid they give to a school district,  
 23 they're two years behind. So they will not have  
 24 caught up with the fact that you're a richer school

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1 district and, therefore, you needless aid. So you're  
 2 getting the full tax benefit from the wind farm, and  
 3 Springfield hasn't reduced your state aid yet. Okay?  
 4 So you get both in hand the first year.

5 That comes back to bite you 30 years from  
 6 now. So when the wind farm goes away, in year 2050  
 7 according to my assumptions, you've got no tax revenue  
 8 coming from the wind farm because it doesn't exist.  
 9 But Springfield still thinks you have a wind farm and  
 10 will not give you state aid because it's two years in  
 11 arrears.

12 So it's just a caution that I like to make.  
 13 Maybe I should be making that to the Lexington School  
 14 District, that they need to have a rainy-day fund.  
 15 I'm doubtful that that's going to last 30 years, but  
 16 the point should be made.

17 And it is notable that the wind farm is not  
 18 the only taxing entity that they're going to get money  
 19 from; so that will get rolled up into all of their  
 20 revenues.

21 I will say that we've changed this -- August  
 22 31, Governor Rauner signed into law a new formula for  
 23 funding of school districts. It fundamentally changes  
 24 how we do that. But the first thing that it does do

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1 is it starts with what you got last time. Then it  
 2 says that any new moneys that they're going to put  
 3 through for K through 12 education will be allocated  
 4 according to a new formula. So looking at the  
 5 relative numbers, that's not going to really affect  
 6 the decrease in state aid substantially from what we  
 7 had in the previous report.

8 In conclusion, we're looking at 519 new  
 9 local jobs in McLean County during construction caused  
 10 by this project, another 35 long-term jobs in McLean  
 11 County during the life of the project, projected to be  
 12 30 years, \$56.9 million in economic output during  
 13 construction, 7.9 million in output annually during  
 14 the life of the project. And I won't try and  
 15 summarize all the tax numbers for you that we just  
 16 went through.

17 With that, I look forward to answering any  
 18 questions you may have.

19 **MR. GRIFFIN:** A few follow-up questions,  
 20 Dr. Loomis. If you could go back one slide? I know  
 21 you testified about this, but I want to make it clear  
 22 to everyone in the audience.

23 For year 2050 here, you've got a zero  
 24 because you assumed, in order to come up with a grand

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1 total, that the wind farm was no longer in existence  
 2 as of that year, correct?

3 **DR. LOOMIS:** That's correct.

4 **MR. GRIFFIN:** So let's assume that the wind  
 5 farm is still going strong in the year 2050 and it's  
 6 not been decommissioned. Would the taxable value in  
 7 those tax dollars be zero or something else?

8 **DR. LOOMIS:** They would be essentially what  
 9 they are in 2049 with that inflation trending factor  
 10 in there. So it would be 2.2 percent higher.

11 **MR. GRIFFIN:** So as long as that wind farm  
 12 is still operating and in existence, it's going to be  
 13 contributing to the tax revenues for the County and  
 14 the taxing districts, correct?

15 **DR. LOOMIS:** That's correct.

16 **MR. GRIFFIN:** I would then ask that Mr.  
 17 Loomis's PowerPoint be entered as Applicant's Exhibit  
 18 11, Mr. Chairman.

19 **CHAIRMAN FINNIGAN:** That will be done.  
 20 Questions from the Board?

21 **MR. ZIMMERMAN:** We've noticed that the power  
 22 of the nacelles, of the generators, has gone up  
 23 significantly. One of the last ones we heard was 1.5,  
 24 roughly, megawatts per nacelle, per tower. Now we're



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1 looking at 2.5.  
 2 Should these turbines be replaced in, say,  
 3 15 or 20 years or even at 30 years with something that  
 4 upgrades it, then this also would continue on; and  
 5 there might be a revaluation according to the added  
 6 inputs?  
 7 **DR. LOOMIS:** That would be correct. It's  
 8 based on the megawatts of capacity for the wind farm.  
 9 So in -- I believe it's the Paw Paw wind farm that is  
 10 looking at repowering now.  
 11 **MR. ZIMMERMAN:** Where is that?  
 12 **DR. LOOMIS:** Paw Paw. And they have  
 13 installed, you know, older turbines. Even actually  
 14 when they were installed, they were not the latest  
 15 technology. So they're looking at repowering, and  
 16 they would be subject to this higher assessed value  
 17 based on the higher megawatt of capacity for that wind  
 18 farm. So this would follow the same here.  
 19 **MR. DICK:** When they put new turbines in, do  
 20 they set the new rating in and start at year zero?  
 21 **DR. LOOMIS:** Yes, I believe so. But I don't  
 22 think we've had a case yet. The Paw Paw case will be  
 23 the first one to do that. But I think the way I would  
 24 interpret that would be that it would start at the

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1 valuation at the beginning of that -- when that new  
 2 wind farm, if you will, goes into service.  
 3 **MR. GRIFFIN:** Phil, that would be my  
 4 understanding also. It would be new equipment;  
 5 therefore, it would be taxed as a new turbine, and the  
 6 depreciation would then start again.  
 7 **MR. DICK:** Thank you.  
 8 **MR. BANGERT:** How is that reported? If they  
 9 take one down and put one up, how is that reported or  
 10 what record exists of that?  
 11 **DR. LOOMIS:** I think they have to go through  
 12 a permitting hearing similar to this in order to do  
 13 the repowering because it's going to be, you know, new  
 14 turbines. They've got to get new building permits.  
 15 So that will all be recorded.  
 16 **MS. TURNER:** In your studies, have you  
 17 noticed any negative impact to valuations of the  
 18 properties surrounding the turbines? Have you had to  
 19 take that into consideration at all as you go through  
 20 this, decreases in tax income?  
 21 **DR. LOOMIS:** I've had two graduate students  
 22 in the Economics Department who have done studies  
 23 looking at this question of property values.  
 24 The first of my students looked at the Twin

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1 Groves Wind Farm and looked at properties in and  
 2 around Twin Groves. We did a three-mile radius around  
 3 each of the turbines to look at any of the homes,  
 4 residential homes, that would be affected.  
 5 What we found was -- which was interesting  
 6 from Tuesday night -- there is this clear effect that  
 7 -- we looked at a three-stage model. And we said,  
 8 when a wind farm is first announced, so public  
 9 announcement like this, you will see a short-term  
 10 decrease in properties that are sold.  
 11 Then during the time after the wind farm  
 12 gets built, we actually saw an increase in property  
 13 values, not only based on the decrease that had  
 14 happened in the intervening years, but to the original  
 15 value to those homes.  
 16 So we conjectured -- or my student  
 17 conjectured -- that it could be due to the fact that  
 18 you have the school district intact. If you have a  
 19 school district that gets \$1.2, \$1.3 million more, the  
 20 property values around there go up.  
 21 You know, if you have a new residential  
 22 subdivision that comes in off of farmland, you got a  
 23 whole bunch more kids to educate. So, yeah, it's nice  
 24 to have more tax revenue, but you have more kids

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1 coming in.  
 2 Wind farms have no children to educate.  
 3 It's kind of, you know, dollar signs to a school  
 4 superintendent to see those kinds of dollars. I've  
 5 sat through a lot of hearings where school  
 6 superintendents testified and put it in real terms,  
 7 like: I can hire four more teachers. We can get back  
 8 our football program -- those kinds of things with the  
 9 wind farm coming into the community.  
 10 So yes, I think that that's a very real  
 11 possibility.  
 12 A second student did a study looking in Lee  
 13 County, and there weren't as many properties that were  
 14 sold during that time period. But, again, we found no  
 15 statistically significant decrease in property values.  
 16 So I don't think there's any decline that  
 17 would be caused by the wind farm that would decrease  
 18 the overall tax base.  
 19 **MS. TURNER:** Thank you. I suspected as  
 20 much, that with the increase in school district funds,  
 21 that that may help improve property values.  
 22 Just out of curiosity, in the time that it  
 23 did go down, was that during construction? Before  
 24 construction? Do you know?

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1           **DR. LOOMIS:** It's been a while since we did  
 2 the study, but it is available out in the Center for  
 3 Renewable Energy's website.  
 4           We did kind of a -- two different models.  
 5 We looked at -- before the wind farm was operational  
 6 was period one and then afterwards, so before and  
 7 after. There you see that positive impact.  
 8           We did a three-period model, where we said  
 9 before the public announcement. So some people know  
 10 about it, but the general public doesn't know about  
 11 it. Then period two is between that announcement and  
 12 operations. And then period three is there. And  
 13 that's where you saw that period two seeing property  
 14 value declines. People who sold during that time had  
 15 a decline in value. If they held off until it was  
 16 operational, you saw an increase.  
 17           **MS. TURNER:** So it's during that  
 18 indiscernible time as to: Where are these things  
 19 going to be, and is it going to happen?  
 20           **DR. LOOMIS:** Yeah. It's the question of  
 21 what is this going to do? What is it going to look  
 22 like? -- a period of uncertainty.  
 23           **MS. TURNER:** Thank you.  
 24           **CHAIRMAN FINNIGAN:** Any other questions?

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1           (No response.)  
 2           **CHAIRMAN FINNIGAN:** Does anyone in the  
 3 audience have questions of this witness? Come  
 4 forward.  
 5           **MR. SCHWASS:** Glen Schwass. 27709 North  
 6 2550 East Road, Lexington, Illinois.  
 7           I know everybody wants to get out of here.  
 8 I really do appreciate your study. I think it was  
 9 probably, along with one other, one of the most  
 10 thorough things we've seen and probably the most  
 11 credible.  
 12           So my concern is this: Were you here  
 13 Tuesday night?  
 14           **DR. LOOMIS:** Yeah.  
 15           **MR. SCHWASS:** I think the question was asked  
 16 Tuesday night that we were concerned about the  
 17 property value and that there was no negative impact  
 18 on the property value, but yet stage 1 is where we're  
 19 at in the process.  
 20           Are you saying we should expect decrease in  
 21 property value since we're in stage 1 of listing a  
 22 property?  
 23           **DR. LOOMIS:** We're actually in stage 2.  
 24 It's already become public. As soon as it's published

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1 in the paper, we would be now in that kind of middle  
 2 time period.  
 3           It is a statistical model; so you're looking  
 4 at statistical average home prices. It doesn't mean  
 5 that that's going to affect every single property.  
 6 But based on that Twin Groves period -- and I would  
 7 also caution that that was the very first wind farm in  
 8 the county.  
 9           So I think, if you look historically at  
 10 that, you'd say people didn't have much experience.  
 11 And it was one of the first in Illinois at all.  
 12 Whereas, now, even as you heard tonight, people said,  
 13 with noise: "Have you been by the other two wind  
 14 farms? It's not that far of a drive."  
 15           I think people know what it's going to look  
 16 like a lot more. We drive past them every day. So  
 17 it's not as much of a surprise. But Twin Groves, I  
 18 think that was -- it created more uncertainty than I  
 19 think this one will.  
 20           **MR. SCHWASS:** So stage 2, am I to expect no  
 21 decrease or no increase?  
 22           **DR. LOOMIS:** I don't think my model can  
 23 speak anything to your particular experience.  
 24           **MR. SCHWASS:** Again, you caught my attention

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1 because it was quite different from what we heard  
 2 Tuesday night, that there was no negative impact. Yet  
 3 we're seeing a negative impact in stage 1. Now stage  
 4 2 we're concerned with where it's at.  
 5           **MR. GRIFFIN:** I want to clarify. Mr. MaRous  
 6 was comparing properties that sold that were located  
 7 near wind energy projects versus those not located  
 8 near.  
 9           By the nature of the study, he had to -- he  
 10 was only determining -- comparing ones where the  
 11 turbines were already built versus properties where  
 12 there were no turbines. It's a different study than  
 13 what Dr. Loomis referred to. He wasn't trying to  
 14 study what happened during construction or during the  
 15 permitting phase, but just the impact of the actual  
 16 turbines being in existence versus turbines not being  
 17 in existence.  
 18           **MR. SCHWASS:** What's the duration of this  
 19 project when it starts being built? You talked about  
 20 all of these jobs. And I don't want to be sounding  
 21 negative because I'm very proactive for employment as  
 22 well.  
 23           You talk about 519 new jobs. Over what  
 24 duration?

1 **DR. LOOMIS:** That's a full-time equivalent  
2 of a job year. For example, if you -- the wind farm  
3 could be built in as little as six months. I don't  
4 know what Invenergy's plans are, but I've seen them as  
5 soon as that.

6 If you took six months to build it, you  
7 would actually see that effect of being 1,038 actual  
8 workers on site for that nine months, and that would  
9 be full-time people. If you had part-time people in  
10 there, it would be more than that. And that's not  
11 just on site, but it's looking at those supply chain  
12 and induced impacts; so you're not going to noses  
13 quite in that way.

14 **MR. SCHWASS:** Again, your numbers were -- it  
15 was very quick, and it was difficult to add them up.  
16 But in just a quick calculation, less than 20 percent  
17 of the money that you're talking about stays here in  
18 McLean County because we've got about 54 million as  
19 opposed to 250 million going outside of McLean County.

20 So of all of those jobs that we're talking  
21 about, how many of them are from Chicago? How many  
22 really are going to be here? How many people can we  
23 count on for the IBEW and the laborer's union? What's  
24 that number going to be in percentage?

1 What we did assume was sourced in Illinois  
2 is some of, like, the non-GE, non-engineering labor,  
3 some of that supply chain, like the concrete, rebar,  
4 gravel, all of those things that you say. It's just  
5 good business sense to source that local. Who wants  
6 to transport that too far? It's going to be  
7 expensive.

8 So those are the kinds of things. So I  
9 think these numbers are really, really conservative.

10 **MR. SCHWASS:** You took one of my questions.  
11 That was one of them. The structural tower plant in  
12 Clinton, Illinois, I'm sure there's a lot of people  
13 that are full time that live in McLean County.

14 You said it could be sourced there. I guess  
15 I would like to be able to say that it should be  
16 sourced there, because that is impacting not only  
17 McLean County. It's impacting DeWitt. Again, I'm  
18 sure there are people from McLean County that work  
19 there; so why wouldn't we make the commitment to  
20 source that from Clinton, Illinois?

21 **DR. LOOMIS:** I think that's an Invenergy  
22 business decision. But in my experience, they have  
23 done a lot of projects here. They like to post, the  
24 next project, about how they did that.

1 **DR. LOOMIS:** I'd have to say that it's going  
2 to be a lot. If you look out into the audience, I  
3 think there's an expectation that there's going to be  
4 lots of jobs for union labor here out of this project;  
5 so I think there's going to be lots of those jobs.

6 I will say -- and I failed to mention this  
7 earlier -- when I did the report and we looked at  
8 those supply chain impacts, we were very, very  
9 conservative; so these are not inflated numbers.

10 If you look at, like, the turbine impacts,  
11 we have -- the towers can be made in Clinton,  
12 Illinois. Trinity Structural Towers is located there.  
13 I think it's very likely that they will be sourced  
14 from Trinity Towers. We assumed zero impact of towers  
15 coming from that because we weren't sure.

16 In the nacelles are gear boxes. Many of  
17 those GE gear boxes are built in Elgin, Illinois, by  
18 Winergy, who is a GE supplier. So if you buy GE  
19 turbines, it's going to create manufacturing jobs for  
20 those gear boxes.

21 We assumed zero content coming from either  
22 McLean County or Illinois for all of those turbines.  
23 So you think about the cost of the turbine itself. We  
24 assumed none of that was sourced in Illinois.

1 I would think that, if it makes good  
2 business sense -- I don't think they want to tie their  
3 hands in a public meeting saying we're going to source  
4 from this one. Then Trinity Towers could charge them  
5 whatever they wanted because they have it on the  
6 record that they're going to source from them. So  
7 until they have a contract --

8 **MR. SCHWASS:** My guess is they already have  
9 those prices set because they've given numbers for  
10 that.

11 Then the full-time employment for the  
12 duration of six months, how does that impact the  
13 economy then when, after the six months, these  
14 employees get laid off? Is there an impact from an  
15 unemployment standpoint and stuff like that on McLean  
16 County?

17 **DR. LOOMIS:** When we look at construction  
18 jobs, it is true that these are temporary construction  
19 jobs and, when this wind farm goes away, that there's  
20 got to be another construction project for those  
21 construction workers to go to.

22 I tried to make it clear these are the  
23 one-time impacts during construction. So that's  
24 temporary. But they are full-time equivalent for a

1 year; so those are real jobs.

2 And construction workers have to deal with  
3 the fact that they've got to move from project to  
4 project. It's just the nature of construction.

5 But then, on the operations and maintenance,  
6 those are permanent, long-term, annual, recurring  
7 jobs.

8 **MR. SCHWASS:** You said 35 permanent jobs  
9 over the duration of 30 years. That, to me, comes out  
10 to one full-time job per year.

11 **DR. LOOMIS:** No, no, no. That's 35 people  
12 employed during the duration of the wind farm. So  
13 it's 35 people employed for the next 30 years. Might  
14 not be the same people. We hope not. Those ten  
15 turbine technicians are going to want promotions. I'm  
16 sure.

17 **MR. SCHWASS:** I don't know if I got the  
18 answer. I was probably looking at my next question.  
19 But I'll go back to it.

20 Again, I estimated \$54 million stays in  
21 McLean County for labor and -- direct and indirect  
22 services and injected services, you said; but yet over  
23 250 million comes from outside of McLean County.  
24 Why couldn't there be more of a commitment

1 County and not from Chicago or someplace else. McLean  
2 County is the one dealing with it. McLean County has  
3 to live with it. McLean County should benefit from  
4 it, not just from a school district standpoint.

5 **DR. LOOMIS:** And I think you do see that --  
6 I tried to make it clear. Here's the McLean County  
7 numbers. You look at the state numbers -- I didn't  
8 highlight those, but those are much bigger.

9 **MR. SCHWASS:** 80 percent. 80 percent goes  
10 to the state. The only number I calculated -- and I  
11 was just too quick -- less than 20 percent was local.

12 **DR. LOOMIS:** Yeah. But I will say, in  
13 defense, Invenergy at least is headquartered in  
14 Chicago; so we keep some of that going into coffers in  
15 Springfield. As a university employee, I like to see  
16 money going to Springfield.

17 **MR. SCHWASS:** I'm sure a lot stays in  
18 Chicago too. Thank you very much appreciate your  
19 time.

20 **CHAIRMAN FINNIGAN:** We're past our time to  
21 quit. I guess we can poll to see how many questions  
22 we have. You just have one question?

23 **MS. WINTERLAND:** I just have one question.  
24 I promise. Amy Winterland.

1 to getting some of that money coming into McLean  
2 County? How many travel jobs come in in that  
3 percentage?

4 **DR. LOOMIS:** I don't know how many travel  
5 jobs come in, but there are things that just can't be  
6 sourced in McLean County. We don't have a turbine  
7 manufacturer here. You can't buy blades in McLean  
8 County. You can't buy blades anywhere in Illinois.  
9 So it's impossible to source some of those things in  
10 McLean County.

11 I'll say this. McLean County actually fairs  
12 very well compared to some other, more rural counties.  
13 We have a well-developed economy here. So if you look  
14 at the multipliers for McLean County by section,  
15 there's a lot of this that stays and reverberates  
16 within the county compared to some other counties.  
17 But there's just some things we don't have that you  
18 can't source from McLean County.

19 **MR. SCHWASS:** I appreciate your answer. I  
20 understand that you can't give me a definitive number.

21 But I think it would be in the best  
22 interests, if the Board is going to look at something  
23 like this, that you really look at the source of the  
24 employment and more of the jobs come from McLean

1 You mentioned the net effect on the school  
2 districts, and you said it was published someplace.  
3 Where was that?

4 **DR. LOOMIS:** We did a study at the Center  
5 for Renewable Energy. So if you go to  
6 [renewableenergy.ilstu.edu](http://renewableenergy.ilstu.edu), go on the left-hand side to  
7 "publications." I think it's called "Wind Farms and  
8 School Districts."

9 **MS. WINTERLAND:** Is there any way we could  
10 make that part of this document, what the net effect  
11 of the school district tax impact is? It's already  
12 done. Can we just make it part of this? Because I  
13 know people are already quoting what Lexington School  
14 District is going to make; and that's not on a net  
15 basis. I think it would really help people to  
16 understand what the net effect is. Is there any way  
17 we can make that part of our documents?

18 **DR. LOOMIS:** I will clarify that that report  
19 was done previous to the new school funding formula.

20 **MS. WINTERLAND:** Even so, I think it would  
21 be informative. Is that something you guys could --

22 **DR. LOOMIS:** We could make the report  
23 available.

24 **MR. ZIMMERMAN:** I think officially that

1 reference now is in evidence.

2 **MS. WINTERLAND:** Because people are looking  
3 at that, the big number, and I think they'd like to  
4 also look at the equalized value involved. Just  
5 consider. Thank you.

6 **CHAIRMAN FINNIGAN:** We're going to call a  
7 recess tonight, and we're going to readjourn --  
8 continue, I guess is what we call it. No more  
9 questions tonight. We're going to hold them off. We  
10 got to stop somewhere. You can come back on January 9  
11 at the Government Center at 7:00. And that's where  
12 we're going to reconvene.

13  
14 (Proceedings concluded 10:10 p.m.)  
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1 STATE OF ILLINOIS )  
2 COUNTY OF DeWITT ) ss

3  
4 I, BRENDA ZEITLER, CRR, RPR, and CSR,  
5 License No. 084-004062, in and for the state of  
6 Illinois, do hereby certify that the foregoing meeting  
7 was taken on the 4th day of January, 2018, before the  
8 McLean County Zoning Board of Appeals and that said  
9 meeting was taken down in stenograph notes, afterwards  
10 reduced to typewriting by me, and that this transcript  
11 is a true and accurate transcription of the testimony.

12 I do hereby certify that I am a  
13 disinterested person in this cause of action, that I  
14 am not a relative of any party or any attorney of  
15 record in this cause or an attorney for any party  
16 herein or otherwise interested in the event of this  
17 action, and that I am not in the employ of the  
18 attorneys for either party.

19 IN WITNESS WHEREOF, I have hereunto set my hand  
20 this 26th day of January, 2018.

21  
22  
23  
24  
\_\_\_\_\_  
Brenda Zeitler, RPR, CRR, CSR

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