

In The Matter Of:
McLEAN COUNTY ZONING BOARD OF APPEALS

WIND FARM
February 8, 2018

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1 McLEAN COUNTY ZONING BOARD OF APPEALS
 2 MEETING
 3
 4 Wednesday, February 8, 2018
 5 6:00 p.m.
 6 at
 7 McLean County Government Center
 8 115 East Washington Street
 9 Bloomington, Illinois
 10 Case Number SU-18-02
 11
 12 BOARD MEMBERS PRESENT:
 13 Brian Bangert
 14 Chris Carlton - 1st Alternate
 15 Rick Dean
 16 James Finnigan - Chairman
 17 Michael Kuritz
 18 Mary Beth Taylor - 2nd Alternate
 19 Julia Turner
 20
 21 ALSO PRESENT:
 22 Philip Dick, Director of Building and Zoning
 23 Samantha Walley, Assistant State's Attorney
 24 Luke Hohulin, Assistant County Engineer

June Haeme: CSR #084-003038
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1 (Commencing at 6:00 p.m.)
 2 **CHAIRMAN FINNIGAN:** We're going to call
 3 the McLean County Zoning Board to order. You're
 4 just in time. Will the secretary call the roll?
 5 (Roll call taken with Board Members Brian
 6 Bangert, Michael Kuritz, Rick Dean, Julia Turner,
 7 Jim Finnigan, Chris Carlton and Mary Beth Taylor
 8 present.)
 9 **CHAIRMAN FINNIGAN:** We have I think seven
 10 members. We have a quorum. It takes five for a
 11 quorum, so we're in good shape. I think the staff
 12 was affirmed at the last meeting, so we don't have
 13 to do that again. This is a continuation of Case
 14 SU-18-02, and the applicants are in front of us, so
 15 I think we probably have to swear you in before we
 16 can do anything. We'll just do you both at the same
 17 time and then you can tell us your names and stuff.
 18 (Ms. Amy Antonioli and Ms. Katie Chapman
 19 were duly sworn.)
 20 **CHAIRMAN FINNIGAN:** Go ahead and -- you
 21 got to push the button. And go ahead and state your
 22 name and address and spell your last name.
 23 **MS. CHAPMAN:** Katie Chapman, I work at
 24 3001 1/2, Unit A, Bloomington, Illinois.

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1 **CHAIRMAN FINNIGAN:** Go ahead and spell
 2 your last name.
 3 **MS. CHAPMAN:** Chapman, C-H-A-P-M-A-N.
 4 **CHAIRMAN FINNIGAN:** We're recording, so,
 5 you know, she has a little trouble.
 6 **MR. DICK:** Could you repeat your address
 7 again please?
 8 **MS. CHAPMAN:** I work at 3001 1/2 Gill
 9 Street, Unit A, Bloomington, Illinois.
 10 **MR. DICK:** And could you spell your first
 11 name?
 12 **MS. CHAPMAN:** Katie, K-A-T-I-E.
 13 **MS. ANTONIOLLI:** Amy Antonioli, my last
 14 named is spelled A-N-T-O-N-I-O-L-L-I, from Schiff
 15 Hardin, and I'm counsel for EDP Renewables. My
 16 office is at 233 South Wacker Drive, Suite 7100, in
 17 Chicago.
 18 **CHAIRMAN FINNIGAN:** I think we're set.
 19 **MS. ANTONIOLLI:** Okay. Good evening,
 20 members of the zoning board. As I said, my name is
 21 Amy Antonioli, counsel for EDP Renewables on its
 22 application for a special use siting of the
 23 Lexington-Chenoa Wind Farm, also commonly known as
 24 Bright Stalk. We thank you for this opportunity to

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1 present testimony in support of the application. We
 2 are happy to answer any questions that you might
 3 have on the application as well as any questions
 4 from the public and just generally to build a robust
 5 record for your review.
 6 We -- throughout the course of the
 7 hearings, we expect to hear from several witnesses
 8 that will testify in support of the application, and
 9 they include first Katie Chapman, project manager
 10 who's sitting to my left. Ms. Chapman has extensive
 11 experience managing projects for EDP Renewables and
 12 is intimately familiar with the Bright Stalk
 13 project.
 14 You may also hear from Erin Bowser who is
 15 director of project management for EDP Renewables
 16 and she's sitting in the first row of the audience
 17 tonight. And she can also testify as to issues of
 18 the project construction and decommissioning.
 19 We will also hear testimony from Shant
 20 Dokouzian, professional engineer from DNV GL, and he
 21 will testify on issues of sound and shadow.
 22 We'll hear from Rebecca Schmidt,
 23 biologist, and her colleague Rhett Good, senior
 24 management -- manager, both at Western Ecosystems

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1 Technology Inc., or also known as WEST, and they
 2 will testify as to issues of wildlife.
 3 We will also hear from Gary DeClark from
 4 Valbridge Property Advisors and he will testify as
 5 to issues of property values.
 6 And then finally Allison Poe who is the
 7 regional environmental manager for EDP Renewables
 8 and she'll testify to EDP's environmental policies
 9 and any other issues relating to wildlife that
 10 haven't been covered by the WEST experts.
 11 So before I turn it over to Ms. Chapman
 12 and she will do a project summary for you, I'd urge
 13 the members of the zoning board to recommend
 14 granting this application for special use for the
 15 Bright Stalk project. We believe that it meets all
 16 the special use standards as well as all the wind
 17 energy conversion system ordinance requirements.
 18 And McLean County has a very impressive record on
 19 renewable energy and we hope that you add the Bright
 20 Stalk project to your impressive portfolio of
 21 renewable energy projects. And with that, I turn it
 22 over to Ms. Chapman.
 23 **MS. CHAPMAN:** Thank you. As Amy said,
 24 thank you very much for your time. I'm really

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1 excited to present the project. My name is Katie
 2 Chapman. I'm a project manager for EDP Renewables.
 3 As a project manager, I've had the privilege of
 4 working with the wind industry for ten years and at
 5 EDPR for eight of those ten. I think that the key
 6 role I play in project development is to get it
 7 ready for construction, meaning that I do work with
 8 landowners to get our land agreements. I do
 9 permitting, so I work with boards like yourselves.
 10 I also play a big role in project design, so
 11 coordinating our environmental team and also our
 12 engineering team to incorporate environmental and
 13 community feedback.
 14 Next slide. The Lexington-Chenoa Wind
 15 Farm, LLC, also known as Bright Stalk, is a
 16 wholly-owned subsidiary of EPD Renewables. We're
 17 the fourth largest operator of wind projects in the
 18 United States, and in Illinois we operate just under
 19 800 megawatts of wind. We're headquartered in
 20 Houston, Texas. And I think the thing to notice
 21 about our projects is that two of the three in
 22 Illinois were built in phases, meaning we built
 23 Phase I and then we returned to those communities to
 24 build Phase II, and I think that's really indicative

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1 of the strong investment we have in communities that
 2 we're able to go back and do that. So as an owner
 3 operator we're just naturally invested in community
 4 relationships.
 5 Next slide please. This is a map of our
 6 projects. I think the key takeaway here is that we
 7 not only have projects in Canada and Mexico, but we
 8 have 42 wind farms across the United States. The
 9 heart of our business is in the Midwest, including
 10 Illinois, and so this is really, this is really
 11 where our experience is concentrated.
 12 Next slide. The project will consist of
 13 up to 58 turbines. We're using Vestas 3.45 megawatt
 14 or 3.6 megawatt machines. I'll spend a little more
 15 time on that later. I've listed some of the related
 16 project infrastructure on this slide and I'll go
 17 into those in more detail on next slides. We've
 18 included more information about the locations of the
 19 project infrastructure than is strictly necessary
 20 under the ordinance, and we've done that because
 21 community outreach and input is very important to
 22 us. So we've tried hard to go above and beyond in
 23 the interest of transparency.
 24 Next slide. Thank you. This is a project

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1 map, collection line routes, met towers, our laydown
 2 yard. We are showing this again in the interest of
 3 transparency. I'll speak a little bit more about
 4 how this layout was developed in the coming slides.
 5 Next slide. Thank you. When you're
 6 designing a wind farm, there are in my mind two
 7 kinds of setbacks. There are your kind of
 8 black-and-white written setbacks which are outlined
 9 on this slide and then there are your community
 10 feedback kinds of inputs that I'll touch on a little
 11 bit later. So just to walk through it, we do not
 12 have any turbines within 1.5 miles of township
 13 limits, we do not have any within 2,000[sic] miles
 14 of an R1 or R2 district or within 1.1 times tip
 15 height of roads, transmission lines, communication
 16 towers or property lines. We have two turbines less
 17 than the three times tip height distance from two
 18 homes. Both turbines are more than 1500 feet from
 19 those homes and we have signed waiver agreements for
 20 both of those.
 21 Next slide. This is a list of some of the
 22 project's stakeholders that we've reached out to
 23 throughout this process. This is by no means an
 24 exhaustive list, but I think that one of the

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1 challenges here is that sometimes project
 2 stakeholders have conflicting needs and it's really
 3 important that you take the strategy of hearing
 4 concerns, incorporating them into the layout as best
 5 you can.
 6 Next slide. We spent a little bit of time
 7 on turbine selection because this really is
 8 important. For any site, we choose our turbine
 9 based on site characteristics: is it windy, market
 10 factors, how much does the turbine cost, and also
 11 community needs. So for the Bright Stalk Wind Farm,
 12 we looked at turbines ranging from 2 megawatts up to
 13 3.6 megawatts. And for a project of this size, you
 14 could build it either with 100 2 megawatt machines
 15 or you could build it with 58 2. -- excuse me, 57
 16 3.6 machines. I think that the use of larger
 17 turbines means that we have fewer of them and we
 18 made that choice very deliberately to reduce
 19 community impacts. I will mention that the tip
 20 height of 550 feet does pretty well limit the use of
 21 turbines at 3 megawatts and larger.
 22 Next slide. My hope is that this slide
 23 helps you visualize the difference between a 2
 24 megawatt and a 3 megawatt machine. On the left-hand

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1 side, we have a 100 turbine layout with 2 megawatt
 2 machines, and on the right we have our currently
 3 proposed layout showing 58 turbines. The left-hand
 4 layout is the -- is one that really focuses on power
 5 production and this is the layout that we would use
 6 if we were just going to maximize production from
 7 the site. The layout on the right really tries to
 8 adjust for community needs and feedback.
 9 I think two things that you should notice
 10 about the right-hand side are that, one, there are
 11 fewer of them, and two, where possible, we've
 12 arranged the turbines in a linear arrangement
 13 because one of the key feedback messages that we
 14 heard from the aerial applicator or crop duster
 15 community is that straight lines of turbines really
 16 increase pilot safety. That wasn't always possible
 17 due to other setbacks in the project, but I think
 18 our team did a fantastic job of implementing that
 19 where we could.
 20 Next slide. Visual impacts. Although
 21 there are no requirements for shadow flicker, we
 22 take a pretty proactive approach for evaluating
 23 potential impacts on all of our projects, and in
 24 this one, we projected three residences who may

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1 experience over 30 hours of flicker per year, and we
 2 have signed each of these to a neighbor agreement.
 3 Next slide, thank you. The Illinois
 4 Pollution Control Board standards limit sound at
 5 residences' property lines. Our sound expert will
 6 speak a little bit later on the studies that we did
 7 to evaluate potential impacts, and we meet all sound
 8 impacts, sound requirements.
 9 Cultural and historical. We conducted a
 10 phase one archeological reconnaissance survey. We
 11 did -- our consultant did a literature search for
 12 anything within one mile of the project area, and
 13 then we did on-site physical investigations for
 14 anywhere we thought there might be ground
 15 disturbance, and the conclusion of that survey was
 16 that we're unlikely to have an adverse impact on
 17 archeological sites or historic properties.
 18 Decommissioning. We submitted our
 19 decommissioning plan today. That includes a total
 20 cost of removing project infrastructure to a depth
 21 of five feet of 2.6 million. We're proposing to
 22 post financial assurance for the decommissioning
 23 fund per the guidelines in the AIMA, which we have
 24 also submitted tonight, 10 percent of the

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1 decommissioning bond in year one, 50 percent by year
 2 five, in year five, and then 100 percent in year
 3 ten.
 4 The economic of the project. We expect to
 5 generate 2.5 million in property taxes in year one
 6 and 42.7 million in its first 20 years of operation.
 7 We expect to generate up to 300 seasonal positions.
 8 **MR. LUETKEHANS:** I'd like to object at
 9 this point. The economic impact has no -- has no
 10 foundation of relevance on your set of standards.
 11 **CHAIRMAN FINNIGAN:** They can present it in
 12 the case. We put the weight on it we want to. So
 13 anything they want to say they can say, just like
 14 your side.
 15 **MR. LUETKEHANS:** Anything I want to say I
 16 can say?
 17 **CHAIRMAN FINNIGAN:** Well --
 18 **MR. LUETKEHANS:** I mean I --
 19 **CHAIRMAN FINNIGAN:** You've been here
 20 before.
 21 **MR. LUETKEHANS:** I understand it, but I
 22 get the relevance objection a lot.
 23 **MS. CHAPMAN:** So we expect to generate up
 24 to 300 seasonal positions and up to 13 permanent

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1 local positions to operate the project. And the
 2 really great part is that a significant portion of
 3 project funding is expected to be local, and on the
 4 next slide I have an example of that from our Twin
 5 Groves I and II projects.
 6 Twin Groves are located in Ellsworth just
 7 east of Bloomington. They total 396 megawatts and
 8 240 turbines. They have 32 permanent operations
 9 positions and, as of 2016, 24.4 million in total
 10 payments to local governments since their -- since
 11 they started operating. And between 2008 and 2016
 12 they generated about 90.1 million in local spending
 13 within 50 miles of the wind farm.
 14 So if I could choose three takeaways from
 15 my presentation, they would be that Bright Stalk is
 16 a very advanced project. We've completed all land
 17 acquisition that we need to host turbines and access
 18 roads and collection, we have secured permission to
 19 put our power onto the transmission line grid, and
 20 we've really done a lot of engineering to be able to
 21 bring you kind of the full package of what we expect
 22 to do. Again, we've chosen larger turbines to try
 23 and reduce community impacts, we're really proud of
 24 that, and we are also as an owner operator really

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1 concerned and invested in communities. I think the
 2 phase approach to projects is indicative of that.
 3 The saying internally is that we're only as good as
 4 our last wind farm, and certainly the promises I
 5 make today are what our operations staff has to live
 6 up to tomorrow, and some of them are in the audience
 7 to make sure I do a good job.
 8 So thank you so much for your time. I
 9 very much appreciate it.
 10 **MS. ANTONIOLLI:** Before we turn to
 11 questions, I'd like to enter into -- submit two
 12 documents for your approval as exhibits.
 13 **CHAIRMAN FINNIGAN:** That's fine.
 14 **MS. ANTONIOLLI:** Okay, the first -- and
 15 I'll hand these around, but I'm just going to
 16 describe them for you first. The first is just a
 17 copy of Ms. Chapman's presentation that she just
 18 presented on PowerPoint, and the second is a
 19 decommissioning plan and decommissioning obligation
 20 cost evaluation.
 21 **MR. DICK:** We'll call the PowerPoint
 22 presentation Applicant's Exhibit 1 and the
 23 decommissioning plan Applicant's Exhibit 2.
 24 **MS. ANTONIOLLI:** And if anybody else is

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1 interested, I can leave these on the side table. I
 2 don't have enough for everybody to have one, but
 3 there's a couple extras.
 4 **CHAIRMAN FINNIGAN:** Any questions from the
 5 board?
 6 **MR. DEAN:** Ms. Chapman, you indicated that
 7 550 feet for the tip height was the limit. Do you
 8 build them bigger than that in other parts of the
 9 country?
 10 **MS. CHAPMAN:** I think that I am not sure
 11 if we -- I think we have definitely. I think we
 12 have by this point installed bigger turbines. I can
 13 check on that for you. I think what I am speaking
 14 to is that the newer classes of turbines that are
 15 coming out in the 4 megawatt range are much taller
 16 than that, so at 3 megawatts you start hitting that
 17 tip height.
 18 **MR. DEAN:** Okay, thank you.
 19 **MR. KURITZ:** You said that there were, I
 20 can't remember whether it was two residences or two
 21 turbines that were closer than the 1650 feet. Are
 22 those to nonparticipants or are they to participants
 23 that you had waivers signed for?
 24 **MS. CHAPMAN:** The answer to your question,

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1 Board Member Kuritz, is that both, two turbines and
 2 two residencies, and yes, we do have signed neighbor
 3 agreements with both, waiver neighbor agreements
 4 with both.
 5 **MR. KURITZ:** But are they participating
 6 residences or nonparticipating?
 7 **MS. CHAPMAN:** They -- one of them is
 8 hosting project infrastructure on their parcel and
 9 the other one is not.
 10 **MR. KURITZ:** Okay, thank you.
 11 **MS. CHAPMAN:** Sorry I didn't understand
 12 your question. Thank you for clarifying.
 13 **MR. KURITZ:** Okay.
 14 **MR. BANGERT:** Ms. Chapman, you're a local
 15 resident and your job description is -- does it mean
 16 you also field complaints?
 17 **MS. CHAPMAN:** Board Member Bangert, I work
 18 in a local, from a local office when I'm here, so
 19 I'd like to clarify that. And yes, I field concerns
 20 from people. I think -- so yes.
 21 **MR. BANGERT:** So of the wind farms that
 22 you've got established here already, can you talk to
 23 us about some of the previous complaints you've
 24 established?

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1 **MS. CHAPMAN:** Oh, I understand. No, I am
 2 not directly answering complaints or concerns for
 3 those projects.
 4 **MR. BANGERT:** Okay. Who does take care of
 5 that for your company?
 6 **MS. CHAPMAN:** We for all projects have
 7 operations staff who answer those. In the case of
 8 Twin Groves, we have an operations staff on site,
 9 and those, those staff members answer community
 10 concerns and address them. And those staff members
 11 also live there locally.
 12 **MR. KURITZ:** So is it 57 or 58 turbines,
 13 because I saw 58 up there and I keep seeing 57 in
 14 here.
 15 **MS. CHAPMAN:** We're proposing to build 57,
 16 and I apologize because that wasn't clear. We've
 17 included 58 in our application with one alternate.
 18 It's turbine 52 and it's marked alt.
 19 **MR. KURITZ:** Okay.
 20 **MS. TURNER:** You said as you went through
 21 that the disadvantage with the smaller tower is more
 22 of them and that the advantage of the larger tower
 23 is fewer of them. What issues do you -- come into
 24 play when you're using a large tower that don't come

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1 into play when you're using a smaller tower which
 2 we're more familiar with?
 3 **MS. CHAPMAN:** I think that having fewer
 4 towers, for example, it's hard -- I'm trying to
 5 think of how best to answer your question. For
 6 example, from an environmental standpoint for
 7 wetlands, our total footprint of impact is smaller
 8 because we have fewer foundations and so the total
 9 impact is less. So on that same line, community
 10 members who are looking at the project will see
 11 fewer machines. So it's our opinion that that is
 12 less.
 13 **MS. TURNER:** Okay, but they're bigger, so
 14 it could be that more people see them since they're
 15 bigger, correct?
 16 **MS. CHAPMAN:** Going from 499 feet to 550
 17 is a 50 foot difference, so potentially, yes.
 18 **MS. TURNER:** Okay. And then as far as
 19 installation and issues with transportation,
 20 building them, what -- what other types of things do
 21 you take consideration with the larger ones?
 22 **MS. CHAPMAN:** For construction, they have
 23 a longer blade, so you need a wider turn for
 24 example. You would need -- I think that is the main

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1 difference in designing for a larger project that
 2 I --
 3 **MS. TURNER:** So is there more road
 4 modifications because of that?
 5 **MS. CHAPMAN:** For the turning radii, yes.
 6 For the roads themselves, no. Our road
 7 transportation plans have not changed significantly
 8 between the two.
 9 **MS. TURNER:** Okay.
 10 **MR. KURITZ:** So what, what kind of noise
 11 output differences are between the, between the
 12 smaller units and the larger units with these 400
 13 foot blades or 200 foot?
 14 **MS. CHAPMAN:** I am going to admit that I
 15 am in over my head on that one and I'm going to
 16 defer it to our sound expert who will be testifying
 17 later.
 18 **MS. TURNER:** On the decommissioning, this
 19 is the first we've seen it, so I just want to walk
 20 through it a little bit.
 21 **MS. CHAPMAN:** Sure.
 22 **MS. TURNER:** And I assume you were
 23 involved in creating that.
 24 **MS. CHAPMAN:** Yes, I was.

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1 **MS. TURNER:** Okay. It's saying
 2 essentially that your scrap value from the wind
 3 turbine removal cost is actually more than the
 4 actual removal cost. Can you comment on that?
 5 **MS. CHAPMAN:** I think that our
 6 decommissioning expert looked at scrap values for
 7 the components in the wind project and current
 8 market values to come up with that number. Does
 9 that address your question?
 10 **MS. TURNER:** Okay, so is that just the
 11 tower that you're talking about, and I don't see
 12 anywhere that you address the actual blades which
 13 from what I understand are not exactly scrapable.
 14 **MS. CHAPMAN:** Okay, let me check on that
 15 and follow up.
 16 **MS. TURNER:** So you didn't create the
 17 decommissioning plan?
 18 **MS. CHAPMAN:** Burns and McDonnell --
 19 **MS. TURNER:** Okay.
 20 **MS. CHAPMAN:** -- created that.
 21 **MS. TURNER:** All right.
 22 **MS. CHAPMAN:** I provided the inputs for
 23 their --
 24 **MS. TURNER:** Okay, thank you.

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1 **MS. CHAPMAN:** -- project assumptions.
 2 **MR. BANGERT:** What is the land area that
 3 will be occupied by each turbine after should they
 4 be installed? What is the land area they encompass?
 5 **MS. CHAPMAN:** So after construction, about
 6 three acres per turbine will be taken out of
 7 production and that includes the access road and the
 8 turbine foundation.
 9 **CHAIRMAN FINNIGAN:** Any other questions
 10 from the board? Staff have questions?
 11 **MR. DICK:** No.
 12 **CHAIRMAN FINNIGAN:** Would anyone in the
 13 audience have questions of this witness? Come
 14 forward.
 15 **MR. LUETKEHANS:** Ms. Chapman -- for the
 16 record, Phil Luetkehans, 105 East Irving Park Road,
 17 Itasca, Illinois, 60143.
 18 **MR. DICK:** Could you spell your name, sir?
 19 **MR. LUETKEHANS:** L-U-E-T-K-E-H-A-N-S.
 20 **MR. DICK:** And your first name?
 21 **MR. LUETKEHANS:** Phil as in Phillip.
 22 **MR. DICK:** How many Ls?
 23 **MR. LUETKEHANS:** Two.
 24 **MR. DICK:** Thank you.

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1 QUESTIONS BY
 2 **MR. LUETKEHANS:**
 3 Q. Ms. Chapman, what's your responsibility as
 4 project manager?
 5 **A. My responsibility is to get the project**
 6 **ready for construction.**
 7 Q. So once the project starts construction,
 8 are you still involved or at what point are you no
 9 longer involved?
 10 **A. I switch to a support role during**
 11 **construction to make sure that that transition goes**
 12 **smoothly, and then after construction ends, they**
 13 **don't need me anymore, then I'm done.**
 14 Q. Okay. Can you tell us what receptors had
 15 signed waiver agreements? I didn't see that
 16 anywhere in your application. Is it somewhere in
 17 your application? Did I miss that?
 18 **A. No, we did not submit that.**
 19 Q. Do you know if point or receptor 13 has a
 20 waiver agreement or is a participating,
 21 participating?
 22 **A. I do not know off the top of my head.**
 23 Q. How about receptor 68?
 24 **A. I do not know off the top of my head.**

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1 Q. Okay.
 2 **A. Do you have landowner names for those?**
 3 Q. No, it's from your report, so I'm just
 4 using your report, so I have no --
 5 **A. No, I do not.**
 6 Q. -- more information than you have. Okay,
 7 thank you. I got a little confused when you talked
 8 about larger turbines over 550. Are you using
 9 turbines over 550?
 10 **A. No.**
 11 Q. Okay. You can just leave it on, I think,
 12 as long as -- Amy might even have to turn hers off
 13 at some point if we don't -- if this stops, because
 14 they can only do three at a time is my
 15 understanding.
 16 The AIMA agreement, has that been
 17 submitted to the board yet? I thought you said it
 18 was submitted tonight and I haven't seen that yet.
 19 **A. I should have said it will be.**
 20 Q. Okay. You talked about economic impacts
 21 on your -- in your PowerPoint. Are there -- is
 22 there any study that you've provided to this board
 23 or are going to provide to this board to support
 24 those numbers?

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1 **A. No. I should add that those numbers are**
 2 **based on project experience and real dollar values**
 3 **at Twin Groves.**
 4 Q. Okay, but those are -- you haven't
 5 decommissioned Twin Groves, correct?
 6 **A. That's correct.**
 7 Q. Okay. And you're not involved in the
 8 construction side. You just said about you kind of
 9 become a support role at that point, correct?
 10 **A. I support, correct.**
 11 Q. Okay, and you're not -- your background is
 12 not in construction, is it?
 13 **A. That's correct.**
 14 Q. Okay. Correct, it is not?
 15 **A. That's correct, it is not.**
 16 Q. Sorry.
 17 **A. Thank you.**
 18 Q. That was an awful question. That was on
 19 me not you. Is the person who did create the
 20 decommissioning plan testifying?
 21 **A. Yes.**
 22 Q. Okay. Who's that?
 23 **A. Jeff Kopp.**
 24 Q. Can you spell that for her?

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1 **A. J-E-F-F, K-O-P-P.**
 2 Q. I meant just the last name.
 3 **A. Oh, K-O-P-P.**
 4 Q. That's okay, but he's from Burns and Mc
 5 and he's testifying?
 6 **A. Correct.**
 7 Q. Okay, great, thanks. Can you tell us --
 8 strike that. Apologize just one second. I just
 9 need to grab the --
 10 You state -- get closer. You stated that
 11 you signed neighbor agreements with the three
 12 residents that have -- that could experience or
 13 would under the model average more than 30 hours of
 14 flicker per year?
 15 **A. Yes, I did.**
 16 Q. Okay.
 17 **A. Yes, I did.**
 18 Q. All right, do you know what those
 19 receptors are?
 20 **A. I do not know the numbers off the top of**
 21 **my head, no.**
 22 Q. Okay. Is someone else testifying to
 23 shadow flicker or are you?
 24 **A. Yes, someone else.**

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1 Q. Okay, who's that?
 2 **MS. ANTONIOLLI:** Mr. Shant Dokouzian who's
 3 in fact next in line to testify.
 4 **MR. LUETKEHANS:** Okay, great.
 5 Q. I don't want to ask you stuff you don't
 6 know, but let me ask this question. Will he know
 7 what receptors have signed the waiver agreements?
 8 **A. No.**
 9 Q. Okay. Do you have your application in
 10 front of you or can you grab it?
 11 **MS. ANTONIOLLI:** It's right here.
 12 Q. And I don't -- just the first, you know,
 13 the summary at the beginning is all I'm going to ask
 14 you about, Ms. Chapman.
 15 **A. Okay.**
 16 Q. Okay. Is your company willing to produce
 17 a copy of, without financial information, the
 18 neighbor agreement?
 19 **MS. ANTONIOLLI:** Can you refer us to a
 20 page number that --
 21 **MR. LUETKEHANS:** Well, I'm just talking
 22 about neighbor agreements in general right now.
 23 **MS. ANTONIOLLI:** Okay.
 24 **MR. LUETKEHANS:** Talking about neighbor

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1 agreements. I will when we get to it.
 2 Q. Has your company produced or willing to
 3 produce one of the neighbor, the good neighbor
 4 agreement or the neighbor agreement without
 5 financial information?
 6 **A. We prepared memos for all of them.**
 7 Q. You don't produce the actual agreement?
 8 **A. No.**
 9 Q. Okay, so this board can't tell what they
 10 waived or not waived?
 11 **A. The easements and relevant information**
 12 **will be in that memo that you would need for shadow**
 13 **flicker.**
 14 Q. Do you have a copy of that memo for this
 15 board or for myself?
 16 **A. I do not. If you would like to catch up**
 17 **after the hearing, I can help you look it up on the**
 18 **county website.**
 19 Q. On page 18 of your application, if you
 20 could go to that, Ms. Chapman.
 21 **A. Uh-huh.**
 22 Q. Under table, the language under -- right
 23 underneath Table 5-1.
 24 **A. Okay.**

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1 Q. It says: If the applicant selects a
 2 different turbine model than what was proposed
 3 within this application, we will re-execute sound
 4 studies to ensure compliance with all regulations
 5 and standards and we'll submit these studies to
 6 McLean County for review.
 7 Are you intending at that point that if
 8 you change the turbine models you're going to come
 9 in for a separate special use or you're just going
 10 to give a sound study to staff?
 11 **A. At this time we have no plans to change**
 12 **the turbine, so that decision would be made at that**
 13 **time.**
 14 Q. Okay. Is anyone here going to -- is
 15 anyone going to testify about Appendix 12 which is
 16 the wetlands?
 17 **A. Allison Poe, our environmental manager,**
 18 **will touch on that in her testimony.**
 19 Q. Okay. To your knowledge, has your company
 20 had any conversations with Invenergy about the wind
 21 turbine project they're proposing next door or
 22 nearby?
 23 **A. We have been in contact with them, yes.**
 24 Q. Okay. And what were those conversations

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1 about?
 2 **MS. ANTONIOLLI:** I object to the relevance
 3 of this question. Where are we going with this
 4 question?
 5 **MR. LUETKEHANS:** What we're trying, what
 6 I'm trying to figure out is whether we have -- well,
 7 let me ask this question.
 8 Q. Have you had any conversation with
 9 Invenergy regarding combining the projects or using
 10 infrastructure, common infrastructure with
 11 Invenergy?
 12 **A. I have not.**
 13 Q. Has anybody in your company to your
 14 knowledge?
 15 **A. Shared infrastructure with a competing**
 16 **company is not something that we have planned for**
 17 **this site.**
 18 Q. Okay. Have you ever bought or sold
 19 systems to or from Invenergy and/or companies they
 20 owed -- owned, excuse me, to your knowledge?
 21 **MS. ANTONIOLLI:** Can you be more specific
 22 in your question about what systems you're talking
 23 about?
 24 Q. Wind turbine systems.

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1 **A. I -- could you say that another way?**
 2 Q. Yeah, I'll say it again, maybe in a
 3 complete sentence this time. Have you -- to your
 4 knowledge, has your company ever bought or sold wind
 5 turbine systems or parts of systems to or from
 6 Invenergy and/or companies they owned?
 7 **A. Not to my knowledge, no.**
 8 Q. Okay. So the timing of you filing just
 9 within a month after them is just a coincidence?
 10 **A. Correct.**
 11 Q. Was there any coordination about the
 12 timing of the filing to your knowledge?
 13 **A. No.**
 14 Q. Okay, I know you told me this and I didn't
 15 write it down, so I'm going to apologize and ask it
 16 again. The shadow flicker study, who's going to
 17 testify to that again?
 18 **MS. ANTONIOLLI:** Mr. Dokouzian,
 19 professional engineer.
 20 **MR. LUETKEHANS:** Could you spell that, I'm
 21 sorry?
 22 **MS. ANTONIOLLI:** I'm going to need help
 23 with this.
 24 **MR. LUETKEHANS:** I think she needs it,

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1 that's why.
 2 **MS. ANTONIOLLI:** Okay, hold on one second.
 3 **MS. CHAPMAN:** We apologize, Shant.
 4 **MS. ANTONIOLLI:** All right,
 5 D-O-K-O-U-Z-I-A-N.
 6 Q. Okay. And will he know which receptor,
 7 will he know which receptors have received neighbor
 8 agreements for shadow flicker?
 9 **A. He will -- he will testify on the**
 10 **methodology for that study but not specific receptor**
 11 **agreements, no.**
 12 Q. Okay. In Appendix B, if you could go to
 13 that please, which is the shadow flicker study.
 14 **A. Okay.**
 15 Q. And I'm looking at -- I'm sorry, it's not
 16 Appendix B, it's the shadow flicker report, I don't
 17 know what appendix.
 18 **MS. ANTONIOLLI:** It's back here.
 19 Q. If you could go to Appendix B on that,
 20 it's page B1.
 21 **A. All right.**
 22 Q. And that's the receptor locations and
 23 shadow flicker results, do you see that?
 24 **A. Uh-huh, I do.**

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1 Q. Okay. And I'm assuming that the receptors
2 that you have signed neighbor agreements on that you
3 talked about earlier are receptor 30, 23 and 61. Is
4 that a fair assumption?
5 **A. That's correct.**
6 Q. Okay. Do you know whether you've signed
7 any neighbor agreements with receptor 42 or whether
8 they're a participating property owner?
9 **A. I do not.**
10 Q. Would the same answer be for receptor 50?
11 **A. Correct.**
12 Q. Okay. Can I assume the same answer for
13 any of these I ask you about?
14 **A. Yes.**
15 Q. Okay, I'm not going to go through them,
16 I'm not going to do that to you.
17 **A. Thank you. And I'd offer that community**
18 **concerns are really the heart of our business and it**
19 **is my job to address them. If you or any of your**
20 **clients would like to chat, I would love to sit down**
21 **with you and better understand your concerns. I can**
22 **also say that we have voluntarily signed 24 neighbor**
23 **agreements to date.**
24 Q. How many easements have you signed?

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1 **A. I -- easements would include everything**
2 **for the project, so I don't know that off the top of**
3 **my head.**
4 Q. Okay. Do you know how many participating
5 property owners there are?
6 **A. I would need to check.**
7 Q. Okay.
8 **MR. LUETKEHANS:** Nothing further. Thank
9 you.
10 **CHAIRMAN FINNIGAN:** Any other questions
11 from the audience for this witness? Come forward.
12 He stood up first.
13 **MR. POWELL:** Jeff Powell, 32897 East 2700
14 North, Chenoa.
15 **MR. DICK:** Could you spell your last name
16 please?
17 **MR. POWELL:** P-O-W-E-L-L.
18 **QUESTIONS BY**
19 **MR. POWELL:**
20 Q. You have stated more than once that you're
21 willing to hear concerns and work with
22 nonparticipating residents in -- near turbines. Can
23 I ask why this is the first I've seen or heard from
24 you guys? I live less than a mile from one of

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1 these.
2 **A. I am not sure why this is the first time**
3 **you've heard of us.**
4 Q. Then how do you come to your decision on
5 who you contact for a good neighbor agreement?
6 **A. We try very hard to reach out to anyone**
7 **within the project area. I'd be happy to sit down**
8 **and chat with you.**
9 Q. I have received nothing in the mail. No
10 one's came to my door. You also say that there's --
11 less turbines would create less of a community
12 impact. Is it safe to assume that with a larger
13 turbine there will be more of an impact on the
14 people that are in that, in that area of -- because
15 a more larger turbine, more shadow flicker, larger
16 amounts of volume of sound being created?
17 **A. I think your concerns are really**
18 **legitimate. Those are things that I would love to**
19 **chat with you specifically about because they depend**
20 **on specific landowners, and I think the trade-off we**
21 **made with the larger turbine is that going from 102**
22 **to 57 turbines is about a 40 percent reduction in**
23 **the number of machines that you're using. And the**
24 **tip height increase is about 50 feet. So a 50 foot**

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1 **larger machine versus a 40 percent reduction in**
2 **number.**
3 **MR. POWELL:** Okay, that's all the
4 questions I have, thanks.
5 **MS. WINTERLAND:** Amy Winterland,
6 W-I-N-T-E-R-L-A-N-D. Hi, Katie.
7 **MS. CHAPMAN:** Hi, Amy.
8 **MS. WINTERLAND:** So I have two questions,
9 and I'm not really sure, they might be actually
10 directed to staff because I'm looking at the staff
11 report. I wasn't here when it was read. On page 2
12 of the staff report, about the third -- one, two,
13 three, fourth line down it says that you'll be
14 producing or you'll be using Vestas 3.4 megawatts
15 and 4.6 megawatts. Was that fixed at the reading?
16 Can that be fixed?
17 **MR. DICK:** Could you clarify your
18 question?
19 **MS. WINTERLAND:** In the staff report for
20 this special use, page 2, line four, it says that
21 the applicant intends to use a combination of the
22 Vestas V136 3.45 megawatts and 4.6 megawatts, but
23 that should say 3.6, shouldn't it?
24 **MR. DICK:** That's correct.

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1 **MS. WINTERLAND:** Okay. Second question is
 2 in the staff report it talks about three applicants
 3 that are within the setback. Is that a typo as
 4 well?
 5 **MS. ANTONIOLLI:** Yes, they would not be
 6 applicants.
 7 **MS. WINTERLAND:** I mean, I'm sorry, three
 8 residents that were within the setback that you were
 9 working to have agreements with. Was that
 10 originally three?
 11 **MS. CHAPMAN:** No, it was not.
 12 **MS. WINTERLAND:** It was always originally
 13 two?
 14 **MS. CHAPMAN:** Correct.
 15 **MS. WINTERLAND:** That's also on page 2 --
 16 where is that at? I think it was on page 2. It was
 17 in the staff report. So I just wanted to clarify
 18 that. It was always -- oh, wait, it's in paragraph
 19 two, second line from the bottom on page 2. It says
 20 three residences are located within a distance of
 21 three times the turbine height for which the
 22 applicant is working with the homeowners on setback
 23 agreements. And so you're saying originally that
 24 was never three.

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1 **MS. CHAPMAN:** The correct statement is
 2 that we have two turbines within the setbacks, it
 3 was two homes, and that we have signed neighbor
 4 agreements with both of those homeowners.
 5 **MS. WINTERLAND:** So was there a third one
 6 and you voluntarily decided to eliminate a turbine?
 7 **MS. CHAPMAN:** No.
 8 **MS. WINTERLAND:** Okay.
 9 **CHAIRMAN FINNIGAN:** Any other questions
 10 from the audience? Come forward. State your name
 11 and address and spell your last name please.
 12 **MR. HANEY:** Daryl Haney, Chenoa.
 13 **CHAIRMAN FINNIGAN:** I think maybe want a
 14 little more specific address if you can.
 15 **MR. HANEY:** 31631 East 3100 North Road.
 16 **MR. DICK:** Could you repeat it please?
 17 **MR. HANEY:** 31631 East 3100 North Road.
 18 **MR. DICK:** Thank you.
 19 **MR. HANEY:** I'm here as an individual
 20 nonparticipant as well as one of the commissioners
 21 for each road -- for drainage district, and I had
 22 words with Katie earlier today. We haven't met
 23 face-to-face until tonight. I've got concerns about
 24 turbine T101.

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1 **CHAIRMAN FINNIGAN:** This is just for
 2 questions for her. I mean if it's testimony, you
 3 can come back later, but you can't do it at this
 4 point. This is just specific questions from the --
 5 for the witness.
 6 **MR. HANEY:** It is a specific question.
 7 **CHAIRMAN FINNIGAN:** Okay, but it was -- if
 8 that's where we're getting to, it's okay.
 9 **MR. HANEY:** It's too close to a perennial
 10 creek, and nobody's ever came to us at all and said
 11 a word about this until I saw it on a map that was
 12 in the Pantagraph. And I think that turbine's going
 13 to have to go because you can't squeeze it in
 14 between a railroad and a township road and the
 15 crick. And I am concerned about flicker with the
 16 neighbor as well as noise. All these 500 plus foot
 17 turbines create more low frequency sound than
 18 anything out there. You can pull up article after
 19 article in --
 20 **CHAIRMAN FINNIGAN:** We're kind of getting
 21 into testimony. I mean if you got a specific
 22 question, I don't have a problem with that, but
 23 we're kind of just --
 24 **MR. HANEY:** Okay.

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1 **CHAIRMAN FINNIGAN:** I mean --
 2 **QUESTIONS BY**
 3 **MR. HANEY:**
 4 Q. All right, the other thing I'll go to is
 5 the road that I live on, nobody's came to me about
 6 how that access road's going to look when you get it
 7 tore up to widen the corner out, and if you saw
 8 where I live, it's going to be right up in my yard
 9 for two years, three years?
 10 **A. Can you rephrase the question?**
 11 Q. Nobody's ever came and talked to me about
 12 this road down to your, where you're going to be
 13 pouring concrete, mixing your concrete and storing
 14 your blades and everything, and how is that road
 15 going to look when you get done with it, reshaping
 16 the corners and everything, because the right-of-way
 17 is right up in my yard and I use my back drive to
 18 get in and out of all of my farming operation. Now
 19 how am I going to deal with that?
 20 **A. So as I said earlier today, this wind farm**
 21 **development is more of a process and a conversation.**
 22 **I'm looking forward to working with you on the**
 23 **drainage district. And answering your questions on**
 24 **the roads, the answer on the road is that it will**

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1 **look as it does now or better.**
 2 Q. Yeah, but in the meantime what's it going
 3 to be like?
 4 **A. The answer is that's a little bit hard to**
 5 **address since we have not yet executed a road lease**
 6 **agreement with that township. We're still working**
 7 **on specifics.**
 8 Q. Yeah, I've heard all about that. But you
 9 have no idea -- were you ever going to come and talk
 10 to me at all?
 11 **A. Yes. We, we reached out to you at the**
 12 **beginning of this project, and as I recall, you told**
 13 **us fairly definitively that you were not interested**
 14 **in hearing from us again.**
 15 Q. And that only had to do with signing an
 16 agreement for an tower because --
 17 **A. Okay.**
 18 Q. -- of past experience when you were here
 19 ten years ago.
 20 **A. Okay, which I am really glad that you**
 21 **reached out again so that we could clarify that and**
 22 **rectify that issue.**
 23 **MR. HANEY:** Well, I'm done.
 24 **CHAIRMAN FINNIGAN:** Any other questions?

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1 Come on up, come forward.
 2 **MR. TAYLOR:** I'm new to this. Which
 3 button?
 4 **MS. WALLEY:** Right.
 5 **MR. TAYLOR:** Hi, my name is Travis Taylor.
 6 I live at 28686 North 3050 East Road, Chenoa,
 7 Illinois. I believe Katie and I have talked on the
 8 phone several times before in the past.
 9 **QUESTIONS BY**
 10 **MR. TAYLOR:**
 11 Q. I guess out of what you presented today
 12 with this shadow flicker, I was just wondering if
 13 our house was the third one that was referred to in
 14 that?
 15 **A. You are not.**
 16 Q. I'm not? How many hours are allowed, and
 17 I guess it said 30 hours is what I believe it said,
 18 and you were pretty close to that I thought the last
 19 time we talked.
 20 **A. Shadow flicker is tricky because there is**
 21 **no requirement. We're working with you because you**
 22 **do have shadow flicker at your house.**
 23 Q. Okay. And there is no requirement on
 24 shadow flicker on properties or houses or easements

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1 or anything like that?
 2 **A. No, but we very proactively address that**
 3 **issue.**
 4 Q. I guess that was my main concern is how
 5 many hours a day are we going to be affected by it
 6 because we have people --
 7 **A. 29.**
 8 Q. 29 is what I have?
 9 **A. Including -- yeah, including conservative**
 10 **assumptions.**
 11 Q. Okay.
 12 **MR. TAYLOR:** That's all I have, thank you.
 13 **MS. CHAPMAN:** Thank you for coming.
 14 **CHAIRMAN FINNIGAN:** Any other questions?
 15 I don't see any, so you can call your next witness.
 16 **MS. CHAPMAN:** Thank you.
 17 **CHAIRMAN FINNIGAN:** Thank you.
 18 **MS. ANTONIOLLI:** So our next witness is
 19 Mr. Shant Dokouzian, and I'm just going to start
 20 with a couple questions to qualify him as an expert,
 21 and then we can proceed with his PowerPoint
 22 presentation.
 23 **CHAIRMAN FINNIGAN:** I'll need to swear him
 24 in first.

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1 **MS. ANTONIOLLI:** Go ahead.
 2 (Mr. Shant Dokouzian was duly sworn.)
 3 **CHAIRMAN FINNIGAN:** State your name and
 4 address and spell your last name.
 5 **COURT REPORTER:** And first.
 6 **MR. DOKOUZIAN:** Okay, first name is Shant,
 7 S-H-A-N-T, Dokouzian, D as in delta O-K-O-U-Z-I-A-N.
 8 My address is 5945 Third Avenue, Montreal, Quebec,
 9 Canada, H1Y2X4.
 10 **QUESTIONS BY**
 11 **MS. ANTONIOLLI:**
 12 Q. Mr. Dokouzian, where do you work?
 13 **A. I work at DNV GL.**
 14 Q. And what is your profession there?
 15 **A. I'm a professional engineer in project**
 16 **development and I look after the technical studies**
 17 **that we conduct for wind farms.**
 18 Q. And what is your educational background?
 19 **A. I have a bachelor in civil engineering,**
 20 **graduated in '96, I went back and did some master**
 21 **courses ten years later in wind energy technology,**
 22 **and I've taken private courses throughout my last**
 23 **ten years on acoustics as well.**
 24 Q. And what -- can you tell us about DNV GL

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1 in this area of sound and shadow?
 2 **A. Yeah, DNV GL is the largest independent**
 3 **consultant in renewable energy in the world. In**
 4 **terms of wind energy, we conduct these type of**
 5 **technical studies, sound and flicker, on a daily**
 6 **basis. I've conducted myself probably over a**
 7 **hundred, I stopped counting, in terms of noise, and**
 8 **in terms of flicker, maybe 30 or 40 assessments. We**
 9 **also do the preconstruction work and we also do**
 10 **measurements as well to validate our work.**
 11 Q. And were you involved in preparing the
 12 sound and shadow reports that are part of this
 13 application?
 14 **A. Yes, I was.**
 15 Q. And have you conducted modelling in
 16 compliance with the Illinois regulations before?
 17 **A. Yes, I've done it a few times. I can't**
 18 **remember all the projects, but I worked on Green**
 19 **River in Bureau County.**
 20 **MS. ANTONIOLLI:** Okay. And with that, I
 21 would ask that you pull his presentation up and we
 22 can let him begin. I would first ask that I submit
 23 he is a -- present him as an expert on sound and
 24 shadow.

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1 **MR. LUETKEHANS:** No objection subject to
 2 cross.
 3 **MS. WALLEY:** Okay.
 4 **CHAIRMAN FINNIGAN:** That would be fine.
 5 **MR. DOKOUZIAN:** Okay, so I'll be
 6 presenting a few slides on to summarize the sound
 7 impact assessment that we conducted for the Bright
 8 Stalk project.
 9 Next slide. A bit of an intro on sound.
 10 Sound is measured in decibels and zero decibel is
 11 basically the threshold of human hearing. Most of
 12 us don't hear down to zero decibel, but it's the,
 13 you know, the theoretical threshold for human
 14 hearing. If you look at the image to the right, it
 15 shows a thermometer with the numbers to the right
 16 are your decibels. So basically at the bottom you
 17 have zero decibel threshold. If you go up a little,
 18 in the 30 decibel range, that's roughly, you know,
 19 sound in a very quiet library. If you go up a
 20 little bit more, the 40 to 50 range, that's a very
 21 quiet dishwasher, like a brand-new dishwasher that
 22 you pay a lot of money for. Go up a little bit
 23 more, and speech, speech is in the 60, 65 range.
 24 Right now I'm talking at about 65 to give you an

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1 idea. Traffic next to a highway, that's going to be
 2 higher, and that's going to be in the 70, 80 range,
 3 and then it goes -- it goes higher and higher. So
 4 it's just to give you a bit of an idea of how to
 5 situate decibels relative to one another.
 6 Wind farm sound is caused by primarily two
 7 things: the wind turbines and the substation. In
 8 terms of the wind turbines, it's split in two types
 9 of noise: mechanical noise and aerodynamic noise.
 10 What is mechanical noise? It's the noise that
 11 originates from the nacelle. The nacelle is at the
 12 top of the tower and is where the gearbox is and
 13 sometimes the transformer, and it's basically that
 14 gearbox, that's what's creating the mechanical
 15 noise, it's the gearbox, sometimes the cooling
 16 system, and those are the type of sounds that you'll
 17 hear a little bit closer to the turbine, but as you
 18 move away, you hear it less. Second type of sound
 19 which is the dominant component is the aerodynamic
 20 noise. It's basically the noise made by the air
 21 passing through the blade. And finally, well,
 22 there's the substation which has a power transformer
 23 which does create a little bit of noise, so that's
 24 another component.

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1 Regulations. So sound in Illinois is
 2 regulated by the Illinois Pollution Control Board,
 3 the IPCB. The project is subject to the IPCB
 4 regulations, and the McLean County ordinance does
 5 refer to IPCB, basically that the project needs to
 6 meet IPCB. The way that guideline is tailored, it
 7 defines classes of land. So basically a wind
 8 turbine would be considered a Class C, which is
 9 industrial, and a residence, a house, would be
 10 considered a Class A. So we have a Class C that's
 11 emitting on a Class A, and that involves the most
 12 stringent regulations per IPCB which are shown in
 13 the upper right table.
 14 So basically there's two columns there.
 15 There's a daytime limit and a nighttime limit. The
 16 project is complying with the nighttime limits even
 17 during the day, so the column to the right are the
 18 limits that are relevant right now. Illinois is --
 19 so you'll see those limits of 69, 67, 62. Illinois
 20 is pretty unique as a jurisdiction. It regulates
 21 frequencies and not just the overall sound. What
 22 are frequencies, those are to the left in the table.
 23 The 31, 63, 125 are low frequencies, so bass
 24 basically, you know, the bass knob on your sound

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1 system; the 250, 500, 100[sic] are the mids, sort of
 2 speech is mids; and the 2,000, 4,000, 8,000 are high
 3 frequency, so a bird chirping, a kid whining, that
 4 kind of stuff. So basically Illinois regulates for
 5 different frequencies a sound level limit, and
 6 that's pretty unique to Illinois actually as most
 7 jurisdictions just have one overall value. So if
 8 you add all of that, then you get that overall
 9 value.

10 Next slide. The modelling involves
 11 basically three things: the sources, emitters and
 12 how do you model in between? How will sound
 13 propagate? So for the sources of sound, we've
 14 accounted for 58 V136, Vestas 136, 3.6 megawatt
 15 turbines at a hub height of 82 meters. There's two
 16 hub heights proposed, but using a lower hub height
 17 has actually a larger impact, so we've used a lower
 18 hub height, and one 250 MVA substation transformer.
 19 Those are the sources. The points of reception as
 20 we call them, the residences, we have 124 points
 21 were identified in the vicinity of the project, I
 22 think that's about up to 5,000 feet or a little bit
 23 more, and they were all considered Class A.
 24 So in terms of the modelling, so how do

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1 you model noise from a turbine all the way to a
 2 house, there's a model for that that we call the ISO
 3 9613-2 model, and that model is implemented in
 4 software that we use. It's the most widely used
 5 model in the industry. It's been being used --
 6 sorry, been used for maybe 20 years now or at least
 7 15 years, and we've gained confidence in this model
 8 because we've modelled with it and then we went out
 9 and measured after wind farms were built, so we were
 10 able to validate this model year after year and
 11 actually adjust our parameters that we put in the
 12 model such that they align as best as possible with
 13 the measurements.

14 So the modelling takes into account
 15 real-life parameters, geometric divergence, that's
 16 just the fact that sound attenuates as you -- with a
 17 certain distance from the source, atmospheric
 18 absorption, that's absorption in the air, and ground
 19 effects. That's what we use to model sound
 20 propagation.

21 In the model, we really try and model as
 22 conservatively as possible. Basically we model
 23 pretty much a worst case and that's what we present
 24 in the report and that's very important. So we

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1 considered only -- we've considered the maximum
 2 sound output of the wind turbines. That occurs when
 3 the winds are roughly at 20, 25 miles per hour. So
 4 below 20, 25 miles per hour, actually the sound of
 5 the turbine emitted is lower, so the results in our
 6 report would go down, but we've taken the most
 7 impactful wind speed basically in terms of the sound
 8 level.

9 We set the propagation parameters to being
 10 favorable for sound propagation. What that means is
 11 that we've considered that it's very humid outside
 12 and very cold. That has actually -- that's
 13 favorable to sound propagation.

14 Ground effects. We've considered, and
 15 this is fairly important, we've considered that
 16 about half of the whole area is hard ground but hard
 17 ground in the sense of cement or asphalt, so fully
 18 reflective, although I would assume that, you know,
 19 maybe less than 10 or 5 percent of the overall
 20 project area is actually reflective. So this
 21 accentuates the results of the report. So 50
 22 percent reflective, 50 percent absorptive for the
 23 project, which goes a little bit against the model.
 24 The model would tell you to be much less

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1 conservative.

2 And finally, the model is built in a way
 3 where the residences are downwind from all of the
 4 turbines at the same time. So basically if you have
 5 a turbine half a mile to your right and a turbine
 6 half a mile to your left, we assume that the wind is
 7 blowing from those turbines onto your house at the
 8 same time. That's fairly impossible to have that
 9 happen in real life. So in real life you'll have
 10 the winds coming from one side, so you'll have, you
 11 know, that sound coming from the turbine from one
 12 side, but then you'll be actually upwind from the
 13 turbine on the other side. The model doesn't
 14 account for that. It considers you're downwind from
 15 all turbines. Finally, we did not account for any
 16 attenuations from the trees, foliage, barns, and all
 17 of that kind of stuff.

18 There were measures taken to minimize the
 19 sound emission at Bright Stalk. So 27 out of the 58
 20 turbines will be equipped with serrated trail edges.
 21 There's a picture to the right there, it's a bit
 22 small, but if you see the sort of comb-like spikes
 23 that's on the trailing edge, those are serrated
 24 trailing edges, they're molded within the blade, and

1 they actually reduce significantly the sound
2 generated, the aerodynamic sound generated by the
3 turbine. As you can see from the table that's shown
4 below, you go from 108 to 105.5. While conservative
5 modelling was used as well to minimize sound. A
6 transformer with reduced sound specifications will
7 be sourced for the project as well, and that's shown
8 and described in the report.

9 So the results. Basically all of the
10 residences/receptors are modelled below the IPCB
11 sound level limits, and therefore the Bright Stalk
12 project is in compliance with the IPCB sound limits.
13 There's an image to the right and all of the
14 results -- the image to the right, it's the ISO
15 contours. A little bit tough to explain, but it
16 shows -- it shows where is the IPCB sound level
17 limit reached, so the line is where that level is
18 reached, so houses have to be beyond those lines
19 that are on that image, but the report has several
20 of these maps and actually all the results actually.

21 So that's it for the presentation.

22 **MS. ANTONIOLLI:** I'd move -- move at this
23 time a PDF copy of Mr. Dokouzian's sound impact
24 assessment presentation into the record as Exhibit

1 3. We're on Exhibit 3, I think.

2 **CHAIRMAN FINNIGAN:** That would be fine.

3 **MS. ANTONIOLLI:** And then I propose to,
4 and I'll defer to the board, but I propose to move
5 forward with his shadow presentation and then take
6 questions on both presentations together.

7 **CHAIRMAN FINNIGAN:** I think we would
8 rather do the questions on what he's just talked
9 about so we don't get confused. I mean if you do
10 another presentation, you kind of forget what you're
11 going to ask.

12 **MS. ANTONIOLLI:** Absolutely. And I'll do
13 the same with copies, I'll just leave these on the
14 side table.

15 **MR. DICK:** This is Applicant's Exhibit 3.

16 **CHAIRMAN FINNIGAN:** Okay, questions from
17 the board?

18 **MR. KURITZ:** The serrated edges, you said
19 it's significant lowering of the sound. Can you
20 give us a dB range?

21 **MR. DOKOUZIAN:** Yeah, it varies from one
22 manufacturer to the other depending on the design
23 and, you know, where do you put it on the blades.
24 So typically you'll start from the tip and then

1 build them. You know, you won't have it all on the
2 whole length of the blade; it'll go towards the
3 inside. In the case of Vestas, it reduces from
4 108.2 to 105.5, so that's 2.7 decibels.

5 **MR. KURITZ:** So are these blades less
6 efficient than the standard blade as far as
7 producing electricity?

8 **MR. DOKOUZIAN:** Typically they are not,
9 but I don't have the information in terms of energy
10 efficiency.

11 **MR. KURITZ:** And about how much, how much
12 do they increase the cost of the blades?

13 **MR. DOKOUZIAN:** I don't know.

14 **MR. KURITZ:** Okay.

15 **MR. BANGERT:** When you're taking your
16 sound measurements before and after the projects,
17 have you had to be called in on any complaints about
18 noise and then therefore measured and had any that
19 didn't, if you were called in, match up with your
20 data?

21 **MR. DOKOUZIAN:** I haven't done any in
22 Illinois, so no measurements, but in other
23 jurisdictions it has happened. So I don't think
24 there is a situation where I've measured and not

1 been in compliance with my preconstruction work, but
2 there are situations where there were complaints and
3 we were brought in, measured, and it exceeded the
4 sound level limits, yes. So in other terms, I
5 haven't had a situation where I made a gross error
6 with my preconstruction work, but I have been
7 involved in projects where I came in after the fact
8 it was built, did some measurements and measured
9 exceedences, yes.

10 **MR. BANGERT:** And what were the corrective
11 actions taken then?

12 **MR. DOKOUZIAN:** I haven't been involved
13 in -- you know, it's a process that takes a while
14 sometimes where I'm not, I don't -- once I produce
15 the report and the results, other people deal with
16 the results basically. But there are measures, such
17 as a wind turbine, modern wind turbines, you can
18 reduce the sound of it by altering how you -- the
19 controls. So basically sound, the main dominant
20 component of wind turbine sound is, as I mentioned,
21 the air passing through the blade. So if you reduce
22 the rotational speed of the whole rotor or if you
23 feather a little bit more the blades, with some of
24 the blades you can reduce the sound. So we call

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1 them noise reduced mode impulse, you know, they
 2 exist, so you can mitigate against exceedences after
 3 the fact by implementing those. So yes, I've been
 4 involved in situations where that was done as
 5 opposed to older technologies where it was more
 6 difficult to do things.
 7 **MR. DEAN:** Are you familiar with the term
 8 infrasound?
 9 **MR. DOKOUZIAN:** Yes, I am.
 10 **MR. DEAN:** Can you explain your -- can you
 11 explain that word to me please?
 12 **MR. DOKOUZIAN:** Absolutely. So first and
 13 foremost, IPCB doesn't regulate for infrasound.
 14 Infrasound is the frequency below 20 hertz. So can
 15 we go back to the slide, the first slide? Second
 16 slide.
 17 **MR. DICK:** The one with the thermometer?
 18 **MR. DOKOUZIAN:** No, that one there. So as
 19 I tried to explain, and it's tough to understand,
 20 but 31.5, 63, 125, those are all low frequencies.
 21 Low frequency is like a bass, you know, a very low
 22 bass. Infrasound is even lower than that. So
 23 that's what infrasound is. So in numerical value,
 24 it would be 20 and below. So you see that column

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1 doesn't go 20 and below. That's in terms of
 2 numerical value what is infrasound, 20 hertz and
 3 below. In real life what it is, it's sound that is
 4 getting quite low, so it's very low bass basically.
 5 That's what infrasound is. Very, very low
 6 subwoofer. I tried to mimic it a little bit.
 7 That's what infrasound, that's what infrasound is.
 8 **MR. DEAN:** Thank you.
 9 **CHAIRMAN FINNIGAN:** You were talking about
 10 the wind speeds of 24 to 25 mile an hour. You don't
 11 actually use the, all that wind, do you? At a
 12 certain level, does it -- you start backing the
 13 blades off or do you use it up to 24 mile an hour?
 14 **MR. DOKOUZIAN:** So we typically use meters
 15 per second and that's why I'm converting, so I'll
 16 try and convert as I'm talking. But a wind turbine
 17 will start spinning at about 3 to 4 meters per
 18 second, so that is -- I have to convert to
 19 kilometers per hour and then to miles per hour, so
 20 give me a second here, so --
 21 **MS. ANTONIOLLI:** Take your time.
 22 **MR. DOKOUZIAN:** So about 10, 8 miles per
 23 hour.
 24 **CHAIRMAN FINNIGAN:** Where do you stop?

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1 **MR. DOKOUZIAN:** So it stops at about 20,
 2 25 meters per second, so let me -- I'll talk in
 3 meters per second first because it's easier and I'll
 4 explain. Then we can convert where it's
 5 interesting. So a turbine will start spinning at
 6 about 3, 4 meters per second. It will reach its
 7 maximum acoustic capacity or power at about 10
 8 meters per second, 9 meters per second, it will
 9 reach its rated power at about 12, 13 meters per
 10 second, and it will start shutting off around 20
 11 meters, 20 to 25 meters per second. It all depends
 12 on the turbine model.
 13 So what happens is that the sound
 14 generated by a wind turbine will keep on increasing
 15 until it reaches about 85 to 95 percent of its rated
 16 power. So at about 10 meters per second, it reaches
 17 its maximum sound. After that, it doesn't -- the
 18 sound does not keep on increasing because it doesn't
 19 rotate faster. It keeps the same rotational speed
 20 and it actually feathers its blade as the wind,
 21 there's more wind. So actually quite often the
 22 sound actually reduces a little bit as the wind
 23 speed increases. Hopefully that's --
 24 **CHAIRMAN FINNIGAN:** You answered my

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1 question. Feather the blades, that's what I was
 2 trying to say when you throw the air away. It's
 3 under the same deal as --
 4 **MR. DOKOUZIAN:** Yes.
 5 **CHAIRMAN FINNIGAN:** That's farmer talk.
 6 **MR. DOKOUZIAN:** Yeah, so you throw, you
 7 start throwing air away at that point.
 8 **CHAIRMAN FINNIGAN:** Yeah, at a certain
 9 point you don't use the full amount of the --
 10 **MR. DOKOUZIAN:** Correct.
 11 **CHAIRMAN FINNIGAN:** -- surface of the
 12 blade.
 13 **MR. DOKOUZIAN:** Correct.
 14 **CHAIRMAN FINNIGAN:** We had testimony, not
 15 tonight, but about low trailing edge blades. Are
 16 these blades quieter than that or any comparison to
 17 that?
 18 **MR. DOKOUZIAN:** Yeah, low trailing edge or
 19 serrated trailing edge is the same thing. So this
 20 project is proposing serrated trailing edge which is
 21 the same as low noise trailing edge. So you've
 22 heard -- there's different terms, so each
 23 manufacturer will use a different acronym. So
 24 acronyms, you'll hear LTNE or LNTE, but I mean the

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1 proper name is a serrated, serrated blade. So
 2 that's the same thing. So yes, the sound is reduced
 3 by a couple decibels. So each -- it changes from
 4 manufacturer to manufacturer.
 5 **CHAIRMAN FINNIGAN:** Thank you.
 6 **MS. TURNER:** You said that you used
 7 conservative or, you know, you gave us an example of
 8 quite a few conservative -- ways that you were
 9 conservative in your estimate. What is the margin
 10 of error for these models and combine the margin of
 11 error for your model as well as the specs from the
 12 company.
 13 **MR. DOKOUZIAN:** So good question. The
 14 model itself, when it was designed and validated
 15 quite a while ago, the margin of error was plus or
 16 minus 3 decibels at the time. That's the margin of
 17 error for the model's propagation model 9613-2. The
 18 wind turbine itself, the specifications, the wind
 19 turbine manufacturers will produce specifications
 20 and then will add an uncertainty to that. Quite
 21 often they're on the safe side. So they will
 22 measure a few turbines, and then the acoustic
 23 specification that they will produce will be above.
 24 So in general, the acoustic specification we use is

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1 not really the top value, it's on the safe side,
 2 okay, typically. But what they will publish, I
 3 don't have that number for the Vestas V136, but it's
 4 in the order of 1 to 2 decibels. Now, what's
 5 important is you cannot add two uncertainties, you
 6 have to add the square, the square root of the --
 7 yes, so actually --
 8 **MS. TURNER:** I'll take your word for it.
 9 **MR. DOKOUZIAN:** So you cannot add 2 plus
 10 5 -- 2 plus 3 and say the uncertainty is 5. It
 11 doesn't work that way. The uncertainty would
 12 actually tend to 3 by adding those two. So now what
 13 we do to counteract, if you will, or to mitigate
 14 against that is that we use conservative assumptions
 15 so that way we're -- we're making sure that the top
 16 end still falls below the sound level limit. So
 17 when we go -- I mean what we want to avoid is go and
 18 measure and show noncompliance. As a consultant, we
 19 don't want to make that mistake, and that's why we
 20 use conservative assumptions. So there are
 21 uncertainties, but using conservative assumptions
 22 moves the value a little bit lower.
 23 **MS. TURNER:** How often have you used this
 24 model with these specific conservative assumptions

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1 and what types of projects have you used them on?
 2 **MR. DOKOUZIAN:** We've used the model for
 3 over a hundred projects, and that's my own
 4 experience in North America. We're a global
 5 company. I would say that it's several hundred
 6 times in Europe and elsewhere in the world. So as a
 7 company, we are 20, 30 individuals that work in
 8 acoustics. We meet frequently, we share
 9 information, we share our procedures and then we
 10 improve them, so we've used it I would say hundreds
 11 of times.
 12 In terms of the parameters, they've
 13 evolved, so as we've gained more experience in
 14 measurements, we've actually adapted the parameters
 15 to be more in line with what we're seeing in the
 16 measurements. So they evolved through time, yes.
 17 So we were maybe less conservative, if you want to
 18 put it that way, ten years ago as opposed to now,
 19 even five years ago.
 20 **MS. TURNER:** Could you talk to me a little
 21 bit about the advantage -- why be conservative? Why
 22 is it so important to you as a consultant on sound
 23 and also to the wind company that you be under or
 24 that you do this conservatively? Business reasons.

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1 Okay, I mean I --
 2 **MR. DOKOUZIAN:** Yes.
 3 **MS. TURNER:** We hear people say that and
 4 it would be very easy to say, well, they want it to
 5 look good on paper.
 6 **MR. DOKOUZIAN:** Well, being a large
 7 company, we're there for the long run. We want this
 8 to be sustainable, we support wind energy and we
 9 want wind energy to have a good reputation, and for
 10 us, it's -- we want to model appropriately, we want
 11 the results to be accurate, on the conservative
 12 side, so there's no surprises. And this is how we
 13 operate at DNV GL and we think it's better for our
 14 business to have accurate results that don't exceed
 15 the sound level limits, yes.
 16 **MS. TURNER:** And if you didn't have
 17 accurate results in your hundreds of projects, if
 18 you had been consistently over, what would happen to
 19 you as a business?
 20 **MR. DOKOUZIAN:** I don't think we would be
 21 doing sound assessments anymore. If we would be
 22 always over the limit, I don't think large companies
 23 would come and see us to do their assessments
 24 anymore.

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1 **MS. TURNER:** So once they built the
 2 projects, if they were over the limit, the
 3 mitigation that they would have to take would keep
 4 them from getting the full use of the project.
 5 **MR. DOKOUZIAN:** Yes, in that sense of the
 6 question, correct. If you apply mitigation measures
 7 after the fact, you are -- you are curtailing the
 8 energy in certain ways, so -- and that's for 20, 25
 9 years, however long the project is operating. So
 10 yeah, it's an error you don't want to do.
 11 **CHAIRMAN FINNIGAN:** How do the Illinois
 12 levels, IPCB levels compare to other places?
 13 **MR. DOKOUZIAN:** It's a good question
 14 because you can't compare them. They're -- well,
 15 the levels are per frequency and there's no other
 16 jurisdiction that does that. So basically other
 17 jurisdictions it's one value you've got to meet
 18 while Illinois it's different values for each
 19 frequency. So the advantage is that they do
 20 regulate low frequency. You know, we often hear low
 21 frequency, a lot about low frequency. 31.5 to 200
 22 is the low frequency range, but it -- you can't
 23 compare apple to apples. I would say that if you
 24 sum all of that up, it's similar to other

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1 jurisdictions, states in the area that have
 2 regulations, but it's not a direct comparison.
 3 Sorry, didn't answer that right, but I'll
 4 give you an example. Other jurisdictions will say
 5 you've got to meet 50 decibels at night. That's it,
 6 it's one number. Here it's a bunch of numbers, each
 7 for one, for a breakdown of the sound component. So
 8 you take sound, you break it down into these six,
 9 seven frequencies, and then you compare against a
 10 limit.
 11 **CHAIRMAN FINNIGAN:** So would you say one's
 12 better than another or it doesn't make any
 13 difference?
 14 **MR. DOKOUZIAN:** I can't really opine on
 15 that. I wouldn't know what's better in terms of
 16 regulations unfortunately.
 17 **MR. KURITZ:** Is this more difficult to
 18 meet?
 19 **MR. DOKOUZIAN:** It's more difficult to
 20 model for, but it's not more difficult -- I wouldn't
 21 say it's more difficult to meet. I mean our job is
 22 to meet it, so you just make sure that it meets the
 23 regulations.
 24 **MR. KURITZ:** But it does take, it does

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1 take more work to model though, to model for this
 2 than it does for the one sound level.
 3 **MR. DOKOUZIAN:** It does.
 4 **MR. KURITZ:** Okay.
 5 **CHAIRMAN FINNIGAN:** Any questions from
 6 staff?
 7 **MR. DICK:** Do you have any idea how close
 8 to meeting these standards the two houses that are a
 9 little bit closer than the 1647 feet, that they
 10 would meet?
 11 **MR. DOKOUZIAN:** I don't know off-hand. I
 12 would have to look in the report.
 13 **MS. TURNER:** Are they included in your
 14 tables of -- for your receiver IDs? You didn't take
 15 those out that were closer?
 16 **MR. DOKOUZIAN:** No, those are in. All
 17 residences, participant or not, are included in the
 18 report. Shall I look and -- I just don't have it
 19 offhand.
 20 **MR. DICK:** No, that's what I wanted to
 21 know. If it's in the report, that's fine.
 22 **MR. DOKOUZIAN:** It is.
 23 **MS. TURNER:** I'm also wondering, I don't
 24 see it in your report here, if you differentiated

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1 between participating houses, in other words people
 2 who have a contract for a turbine, versus those that
 3 did not participate. Did you do any output that
 4 would show the difference in those?
 5 **MR. DOKOUZIAN:** We didn't differentiate in
 6 the report. We considered everyone equally.
 7 **MS. TURNER:** Okay, and you made sure that
 8 everyone met the sound levels regardless of whether
 9 they have a turbine on their land or not.
 10 **MR. DOKOUZIAN:** Correct.
 11 **MR. KURITZ:** The IPCB level, correct, the
 12 sound measurements are at the property line, and I
 13 know that our code says it's at the foundation of
 14 the house, but we do defer to the IP or IPCB
 15 standards, so where did you model to?
 16 **MR. DEAN:** I'm not sure that's correct.
 17 Phil, can you help? We have a disagreement here on
 18 -- are we using, does IPCB use the property line?
 19 **MR. DICK:** Yes.
 20 **MR. DEAN:** Okay, thank you, I was wrong.
 21 **MR. DOKOUZIAN:** So the way IPCB is
 22 designed, it's a Class C to Class -- it defines the
 23 source as Class A, Class A being the residence, so
 24 we model to the house not to the property line.

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1 **MS. ANTONIOLLI:** And can I ask a question
 2 about where in the IPCB regulations you find that
 3 the receiving property is measured at the property
 4 boundary? Do you have a place that you're referring
 5 to?
 6 **MR. DOKOUZIAN:** It's the same for me. I'm
 7 not sure it's at the property line. I think it
 8 would be --
 9 **MS. TURNER:** I have a feeling we'll find
 10 out soon.
 11 **MR. DOKOUZIAN:** Okay.
 12 **MR. LUETKEHANS:** I'll have a question
 13 about it.
 14 **MR. KURITZ:** We just got through one of
 15 these, so -- and at that point in time we saw the
 16 regulation, and I've slept since then, so there's --
 17 I couldn't quote the number that day, so --
 18 **CHAIRMAN FINNIGAN:** Any other questions
 19 from the board or staff? Anyone in the audience
 20 have questions? Come forward.
 21 **MR. LUETKEHANS:** Do you mind if I call you
 22 Shant or Shant, because I'll screw this name up so
 23 bad, you'll hate me.
 24 **MR. DOKOUZIAN:** Shant is good.

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1 **MR. LUETKEHANS:** Shant?
 2 **MR. DOKOUZIAN:** Shant.
 3 **MR. LUETKEHANS:** Shant.
 4 **MR. DOKOUZIAN:** Shant.
 5 **MR. LUETKEHANS:** I can't do it either way.
 6 **MR. DOKOUZIAN:** Mr. Dokouzian then.
 7 **MR. LUETKEHANS:** Mr. Dokouzian, how's
 8 that?
 9 **MR. DOKOUZIAN:** No, I'm just kidding.
 10 Shant.
 11 **MR. LUETKEHANS:** I actually can do
 12 Dokouzian I think better rather than Shant.
 13 **MS. ANTONIOLLI:** The Chicago accent is
 14 acceptable.
 15 **MR. LUETKEHANS:** Well, my Chicago accent
 16 is really bad, so --
 17 **CHAIRMAN FINNIGAN:** We've got to have your
 18 name first.
 19 **MR. LUETKEHANS:** Phil Luetkehans,
 20 L-U-E-T-K-E-H-A-N-S, 105 East Irving Park Road,
 21 Itasca.
 22 **QUESTIONS BY**
 23 **MR. LUETKEHANS:**
 24 Q. You did not validate -- if I go to page 4

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1 of your report, do you have your report handy?
 2 **A. I'm on page 4.**
 3 Q. Okay, DNV GL did not validate the actual
 4 reception points on site. Just you got what you --
 5 you put in what you received from the client.
 6 **A. Correct.**
 7 Q. Okay. You say that you measured -- if you
 8 go to page 7, the last paragraph, right above that
 9 you talk about the plus or minus 3 dB for the ISO
 10 9613, correct? And then the paragraph below that
 11 says: The sound impact was calculated for each
 12 dwelling located in the vicinity of the project
 13 modelled as a point of reception. Is that one point
 14 of reception or was it multiple points for a house?
 15 **A. One point for each house.**
 16 Q. So you put a dot in the middle of the
 17 house approximately?
 18 **A. Correct.**
 19 Q. Okay, you didn't do the outside
 20 foundation, just one dot right in the middle.
 21 **A. Correct.**
 22 Q. Okay. Do you have an opinion as to
 23 whether, as to whether noise emissions that exceed
 24 the limits or that do not exceed the limits in

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1 Section 901.102 can or cannot violate the IPCB
 2 standards?
 3 **A. I'm not sure I understand your question.**
 4 **If the sound level limits are below the IPCB, do**
 5 **they violate?**
 6 Q. Could they still violate the IPCB, other
 7 IPCB standards?
 8 **MS. ANTONIOLLI:** What standards are you
 9 referring to?
 10 **MR. LUETKEHANS:** Well, right now I'm just
 11 talking generally. We'll get to it. I want to know
 12 if he knows the answer first.
 13 **A. If the results are below the sound level**
 14 **limits in the table presented in the standard, then**
 15 **they are in compliance with the values presented in**
 16 **the table in the standard.**
 17 Q. Okay. Could you have a -- results that
 18 are below the table in the standard but still
 19 violate other provisions of the IPCB regs to your
 20 knowledge?
 21 **A. To my knowledge, there's no other**
 22 **quantitative IPCB sound level limits.**
 23 Q. How about qualitative?
 24 **A. To my knowledge, there's nothing that I**

1 could compare the sound level limits to that are
2 modelled to something else in the IPCB regulations.

3 Q. Okay. Is it possible for sound to still
4 be a nuisance under the IPCB regulations even though
5 they comply with the IP -- with the limits set forth
6 in the IPCB standard Section 901.102?

7 MS. ANTONIOLLI: I object. He's asking
8 for a legal conclusion.

9 MR. LUETKEHANS: I'm asking if he knows.
10 He's an expert acoustician, he's been talking about
11 IPCB Illinois regulations, Illinois law. I want to
12 know if he knows.

13 CHAIRMAN FINNIGAN: Somebody's got to turn
14 their mic off.

15 MR. LUETKEHANS: Sorry.

16 CHAIRMAN FINNIGAN: My counsel says that
17 he doesn't have to answer that question.

18 BY MR. LUETKEHANS:

19 Q. Have you ever heard of the Knox versus
20 Turriss case from the IPCB?

21 A. No.

22 Q. Are you familiar with the rest of the
23 noise regulations of the IPCB other than these
24 limits, the numerical limits?

1 noise pollution in Illinois or so violate any
2 provision of this chapter?

3 MS. ANTONIOLLI: With the caveat that he's
4 not familiar with all of the provisions of the
5 Illinois Environmental Protection Act, he can answer
6 this question to the extent he can.

7 A. My answer would be that the IPCB does not
8 quantify what is noise pollution, what level is
9 noise pollution, and therefore as an engineer
10 providing a sound impact assessment, I've modelled
11 the sound and compared against the numerical values
12 in the assessment. So this paragraph would be
13 against noise pollution, but I have no way to
14 determine what that is.

15 Q. Okay. So you don't know if the levels
16 that you've presented in your report could cause
17 problems with sleep?

18 A. That's not my field of expertise. I'm not
19 a health expert.

20 Q. Fair enough, thanks. Your report cites
21 Section 901.102, correct? I think it's page 2
22 probably of your report. It's early on, I remember
23 that. It's actually page 3 -- or excuse me, it's --
24 yeah, it's page 2.

1 A. I have read through them and I'm familiar
2 with them, yes.

3 Q. Okay, are you familiar with the fact that
4 Section 900.102 says that no person shall cause or
5 allow the emission of sound beyond the boundaries of
6 its property?

7 MS. ANTONIOLLI: Hold on, let me get there
8 for us to read together.

9 MR. LUETKEHANS: Well, I'll give you a
10 copy of it.

11 MS. ANTONIOLLI: I've got a copy here.

12 A. Excuse me a second, I forgot my glasses.

13 Q. Take your time.

14 A. So I'll go get my glasses --

15 Q. Please take your time.

16 A. -- at the back. Okay, so this is under
17 noise pollution?

18 Q. Yes. This is part of the IPCB regulations
19 to your knowledge on noise?

20 A. So what is your question?

21 Q. Doesn't Section 900.102 say no person
22 shall cause or allow the emission of sound beyond
23 the boundaries of its property, as property is
24 defined in Section 25 of the IEPA, so as to cause

1 MS. ANTONIOLLI: Page 2 is here.

2 Q. Got it?

3 A. Yes.

4 Q. The one Section 2.1?

5 A. Yes.

6 Q. Okay. Well, there's two page 2s. That's
7 why I was making sure we're on the same page. And
8 if you look at according to Section 901.102A and B,
9 the definition talks about to any receiving Class A
10 land, correct?

11 A. Correct.

12 Q. And it says when measured at any point
13 within such receiving Class A land, correct?

14 A. Correct.

15 Q. However, your models are -- and that's the
16 same -- if you go to the next page, 901.106, again
17 it talks about no person shall cause or allow the
18 emissions of any prominent discrete tone, et cetera,
19 et cetera, to any receiving Class A, B or C land,
20 correct?

21 A. Correct.

22 Q. Doesn't talk about structures, it talks
23 about the land use, right? Is that correct?

24 A. Well, Class A land is characterized as the

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1 **residence, yes.**
 2 Q. Where? Where in the IPCB regulations do
 3 you find that Class A land is only the residential
 4 structure?
 5 **A. I believe that's under the urban planning**
 6 **code, isn't it?**
 7 Q. No. Do you have it?
 8 **A. I don't.**
 9 Q. Okay.
 10 **A. It's been a while since I've read it.**
 11 Q. Okay. And in fact the urban -- the land
 12 classification basis is only based upon the land
 13 use, correct, not actually -- just based on land
 14 use, correct, not structures; isn't that correct?
 15 Or you don't know?
 16 **A. I'm sorry, I'm not following.**
 17 Q. The classification standards that are
 18 referred to in the IPCB regulations --
 19 **MS. ANTONIOLLI:** Can you say the full
 20 title of those classification standards?
 21 Q. I think it's Appendix B to the standards.
 22 Talks about land use, it doesn't talk about the word
 23 structures, does it? If you know. If you don't
 24 know, you don't know.

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1 **A. Can I see where that is?**
 2 Q. Right now I just want to know if you know
 3 it.
 4 **A. I'm not sure what you're talking about.**
 5 Q. Okay, that's fair enough. If an entire
 6 property is used for residential purposes and is not
 7 a farm, none of it is farmed, your model just
 8 measures at the beginning -- at the middle of the
 9 building and nowhere else, correct?
 10 **A. Our model models at the middle of the**
 11 **building, correct.**
 12 Q. Okay. If I move the model 50 feet closer
 13 to the wind turbines, that could change the dB
 14 levels, correct?
 15 **A. Negligible, but it could.**
 16 Q. It could change it up to .3 decibels,
 17 correct?
 18 **A. I haven't done that calculation, so I**
 19 **can't comment.**
 20 Q. Okay. If I model it at a hundred feet
 21 closer, it would -- it would be a little greater,
 22 correct?
 23 **A. It would -- as you get closer to the**
 24 **turbines, the sound level increases.**

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1 Q. Okay. One of the things that your -- that
 2 the application talks about is the ability to move
 3 turbines a hundred feet; is that correct? Are you
 4 familiar with that?
 5 **A. I am not familiar with that.**
 6 Q. Okay. Let's talk about your contour maps
 7 for a second. If you could go to, or let's go --
 8 stop for a second. Let's go to your table Appendix
 9 B I think it is. I'm sorry, I don't remember the --
 10 Table 5.1, I apologize. It's on page 9 of your
 11 report. Now, if you go to receptor 13, that models
 12 at the 1,000 level at 40.9, correct?
 13 **A. Correct.**
 14 Q. Okay. And that is 1670 feet away from the
 15 nearest turbine?
 16 **A. Correct.**
 17 Q. So that's outside of this area that Ms.
 18 Chapman talked about earlier that I think was 1660
 19 feet that you went back and tried to get neighbor
 20 agreements at. Do you recall her testimony of that?
 21 **A. Yes, I didn't follow.**
 22 Q. Her testimony or --
 23 **A. Not for agreements, no.**
 24 Q. Okay. If you go to receptor point -- at

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1 the 1,000 hertz level, receptor 13 is only .1
 2 decibels below the IPCB limits, correct?
 3 **A. Correct.**
 4 Q. Okay. And if I go to receptor 68, again
 5 at the 1,000 decibel level, it is only .1 decibels
 6 below the 40, the IPCB limit, correct?
 7 **A. Correct.**
 8 Q. And at the 2,000 decibels, it is only .2
 9 below the IPCB limits, correct?
 10 **A. Correct.**
 11 Q. Okay. Let's go to your contour maps for
 12 those two sites if we could, and that would be pages
 13 B3 -- let's start with B3. Do you have that handy?
 14 **A. I have B3 open.**
 15 Q. Okay, great. If I look, can you -- if I
 16 look at B3, I'm seeing -- let's look at the top
 17 right circle contour map. You know what I'm talking
 18 about?
 19 **A. Yes, I see.**
 20 Q. In the middle it's T101, T167 and T171.
 21 **A. Yes.**
 22 Q. Okay. And then I see a turbine or then I
 23 see a point for receptor 68, 69 and 70. Do you see
 24 that just to the left and bottom of that?

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1 **A. Yes, I do.**
 2 Q. In fact, 68 looks like it's actually
 3 crossed by both these lines, is that a fair
 4 statement, the point where 68 is?
 5 **A. Due to the scale on the map, it looks**
 6 **crossed, but in reality it's just above it, yes.**
 7 Q. Okay. The 40.9 is just above it because
 8 40.9 is in the middle of the house. You don't know
 9 what the edge of the house is, correct?
 10 **A. I haven't calculated that, no.**
 11 Q. Okay. You could have blown this map up so
 12 we could actually see where it was in relation to
 13 the house, correct? You have that ability? You
 14 just didn't do it and put it in your report?
 15 **A. We have that ability. We typically don't**
 16 **do it, no.**
 17 Q. Okay. And then let's go to page B5 which
 18 talks about Table 13. Or excuse me, I'm sorry, one
 19 second please.
 20 Okay. Table B5 in the middle of the page,
 21 just --
 22 **A. Do you mean figure B5?**
 23 Q. Page B5, I'm sorry.
 24 **A. Page B5.**

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1 Q. It's two pages later from the contour map
 2 we were just looking at. And then you'll see a
 3 circle somewhat in the middle, I guess it's kind of
 4 the middle of the map, maybe a little north of
 5 middle, where it says T46, 47 and 48; is that
 6 correct?
 7 **A. Yes, correct.**
 8 Q. Okay. And to the bottom of that you have
 9 again receptor 13. Do you see that?
 10 **A. Yes, correct.**
 11 Q. Okay. And take your time. With the
 12 glasses on, I understand, trust me. I have to wear
 13 contacts, I just cheat.
 14 13 up here again right on the edge, we
 15 talked about earlier, it's at 40.9.
 16 **A. Correct.**
 17 Q. Because of the scale, you say it crosses
 18 over, but it's -- the scale is what makes it look
 19 like that one of the two measurements is crossing
 20 over, correct?
 21 **A. One of the two contour lines, yes.**
 22 Q. Okay. Which contour line is the red? Is
 23 that the 1,000 or 2,000?
 24 **A. The 1,000.**

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1 Q. Okay.
 2 **A. Purple is 1,000.**
 3 Q. Okay, sorry, I can't tell colors either.
 4 So let's talk about that. Okay, this -- showing you
 5 what has been marked as SLG Exhibit 13.
 6 **MS. ANTONIOLLI:** Can you give us a
 7 foundation for this?
 8 **MR. LUETKEHANS:** Well, let me ask the
 9 question. I'm about to.
 10 Q. This is receptor 13, and as you can see,
 11 it's on I -- or E 2500 North. Do you see that, Mr.
 12 Dokouzian?
 13 **A. I see what's written on the page, yeah.**
 14 Q. Okay.
 15 **A. I can't confirm.**
 16 **MS. ANTONIOLLI:** Can you explain a little
 17 bit about how this was -- this came about? I'm not
 18 sure who took the picture or how this was created.
 19 **MR. LUETKEHANS:** You know, we can get to
 20 that, I'll have an expert come in and talk about
 21 that when the time's right, but right now I'm
 22 cross-examining him about this to see if he knows
 23 anything.
 24 **MS. ANTONIOLLI:** Okay, are you going to

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1 allow this in without any foundation?
 2 **MR. LUETKEHANS:** I don't think I'm asking
 3 it to come in yet, so I'm not sure where we are on
 4 that. I haven't asked it to be admitted.
 5 **MS. ANTONIOLLI:** We're still -- should we
 6 be talking about it?
 7 **MR. LUETKEHANS:** It's cross-examination.
 8 It doesn't -- I don't have to have something
 9 admitted to cross on it.
 10 **CHAIRMAN FINNIGAN:** You're kind of getting
 11 into testimony with what you're doing.
 12 **MR. LUETKEHANS:** I'm not trying to
 13 testify. I'm about -- I'm trying to ask a question.
 14 **CHAIRMAN FINNIGAN:** But you are.
 15 **MR. LUETKEHANS:** I'm only getting into
 16 testimony in response to her questions.
 17 **CHAIRMAN FINNIGAN:** You've handed out
 18 stuff.
 19 **MR. LUETKEHANS:** I handed out stuff,
 20 you're absolutely correct, and I'll ask a question
 21 on it.
 22 **BY MR. LUETKEHANS:**
 23 Q. Is it possible that point 13, receptor
 24 13 -- okay, if I were to tell -- if you're to assume

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1 that the red is above 41.0 and the green is below
 2 41.0, or 41.0 and below, is it possible that
 3 receptor 13 would look like this?
 4 **MS. ANTONIOLLI:** Listen, I'll allow Mr.
 5 Dokouzian to answer the question, but just I sustain
 6 my objection.
 7 **A. My question would be look like what? If**
 8 **this image is receptor 13?**
 9 Q. 13.
 10 **A. I, I don't know.**
 11 Q. Is it possible that given the place that
 12 you measured the houses, that certain of the houses,
 13 such as receptor 13 and receptor 68, have part of
 14 the house that are above 41.0 and part are below
 15 41.0 or 41.0 and below?
 16 **A. I have not calculated it and estimated it,**
 17 **so I cannot say. What I can say is since the**
 18 **modelling is very conservative, the real life, the**
 19 **real values that would be measured, I would have no**
 20 **question that at the foundation of the house that is**
 21 **shown in this plan that the levels would be under**
 22 **the IPCB.**
 23 Q. Okay, you talk, you keep talking about the
 24 model being conservative. What ground attenuation

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1 factor did you use, .5?
 2 **A. Correct.**
 3 Q. You could have used 0.0 if you wanted to
 4 be very conservative, couldn't you have?
 5 **A. That's completely unrealistic. I've**
 6 **assumed that half of the whole project area is flat**
 7 **and polished cement.**
 8 Q. In the winter in Illinois, as I'm sure it
 9 is in Canada, we have a lot of snow and ice,
 10 correct?
 11 **A. Correct.**
 12 Q. In fact, you can look out the window and
 13 see that today. Snow and ice reflects much
 14 different than normal farm conditions, correct?
 15 **A. Well, I'm glad you asked that because**
 16 **there's a misconception on snow and ice. Actually**
 17 **snow absorbs a lot more sound and even ice/snow,**
 18 **because of the shape of it, actually is pretty**
 19 **absorptive, so a lot of tests have been done to show**
 20 **that that's actually a misconception.**
 21 Q. What's the ground attenuation on ice?
 22 **A. It's -- that's a good question. Actually**
 23 **I don't have that answer.**
 24 Q. Fair enough. Have you seen other

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1 acousticians when they're trying to be conservative
 2 use 0.0 as the ground attenuation factor?
 3 **A. I can't comment on that.**
 4 Q. You've never seen anyone else use 0.0 as
 5 their ground attenuation factor?
 6 **A. I've seen some jurisdictions where a**
 7 **ground factor of zero is required.**
 8 Q. Okay. And so you've seen certain -- in
 9 fact, you've used zero at times, correct?
 10 **A. I cannot recall seeing one sound impact**
 11 **analysis in North America with a ground factor of**
 12 **zero for a wind farm, no.**
 13 Q. How about anywhere else?
 14 **A. Neither.**
 15 Q. But certain jurisdictions require it.
 16 **A. Correct. However, I've not seen the sound**
 17 **impact assessments of those jurisdictions.**
 18 Q. If you used a ground attenuation factor of
 19 zero, is it likely that receptors 13 and 68 are
 20 above the 41.0 limit?
 21 **A. I would have to calculate it to be**
 22 **certain, but it is likely.**
 23 Q. Is it also likely that receptors 13 and
 24 68, if you did your contour map to the level of one

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1 foot intervals, would show that part of the house
 2 under your modelling is above 41.0?
 3 **A. Without calculating that, I cannot -- I**
 4 **cannot attest to that.**
 5 Q. So you don't know if it's likely or not
 6 likely?
 7 **A. I don't know.**
 8 Q. Okay. But it's true -- I mean if you
 9 wanted to be conservative, as conservative as
 10 possible, you could use 0.0 as your ground
 11 attenuation factor, correct?
 12 **A. Well, we feel that we're already very**
 13 **conservative, and as I've mentioned, since we've**
 14 **done a lot of post construction measurements, we're**
 15 **able to really align the results to be as accurate**
 16 **as possible on the conservative side. So adding**
 17 **even more conservatism, yes, it is possible, but we**
 18 **have not done that. We've tried to align ourselves**
 19 **as best as possible with measurements on the**
 20 **conservative side.**
 21 Q. Do you have any of those studies that you
 22 have provided to the Zoning Board of Appeals for
 23 their review?
 24 **A. No, I don't.**

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1 Q. Okay. You talk about you assume the
 2 wind -- in your model, you assume the wind is coming
 3 from both sides at once, correct?
 4 **A. Correct.**
 5 Q. That's not an assumption you made, that's
 6 an assumption in the model though, correct?
 7 **A. That is how the model is designed,**
 8 **correct.**
 9 Q. Okay.
 10 **A. It's not an assumption that I've added to**
 11 **the model.**
 12 Q. The 27 wind turbines that'll have serrated
 13 edges, those are all in your models already,
 14 correct?
 15 **A. That is already inclusive of the model,**
 16 **correct.**
 17 Q. And did you use those 27 serrated edges to
 18 get below the -- the reason I assume you used them
 19 was to get below the IPCB limits?
 20 **A. Those were one of the reasons, correct.**
 21 Q. What other reasons?
 22 **A. Well, to design -- yeah, to design the**
 23 **layout in a way that the sound meets IPCB**
 24 **regulations, correct. That's the reason.**

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1 Q. That's fine. We don't have dBAs in your
 2 study, right?
 3 **A. Correct, it's not required under IPCB.**
 4 Q. But dBA is an average. Is that what you
 5 were talking about earlier when you were talking
 6 about jurisdictions that had one limit was dBA?
 7 **A. Correct.**
 8 Q. And dBA is like decibel average, I mean
 9 the A stands for average weight or some weighting
 10 scale somehow that's beyond me, but is that a fair
 11 statement?
 12 **A. No, not really. Frequencies are in dBs**
 13 **and overall values are in dBs as well. dBA is how**
 14 **the human ear perceives sound.**
 15 Q. Okay. And you said dBA values of -- or
 16 you had dBA values in other jurisdictions you talked
 17 about earlier, other jurisdictions used dBAs; is
 18 that correct?
 19 **A. Some jurisdictions, yes.**
 20 Q. What jurisdictions are those to your
 21 knowledge?
 22 **A. Minnesota for example.**
 23 Q. Okay. Anybody else?
 24 **A. Ontario.**

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1 Q. Okay. Anybody else?
 2 **A. Oregon.**
 3 Q. Okay. Anybody else you can think of?
 4 **A. Alberta.**
 5 Q. Alberta, Canada, okay. Anybody else?
 6 **A. We could go on for a long time.**
 7 Q. Okay, well, let's just go with the four we
 8 have. What's the dBA level of Minnesota?
 9 **A. 50.**
 10 Q. How about Ontario?
 11 **A. 40.**
 12 Q. And how about Oregon?
 13 **A. It depends. It's 34 to start and then it**
 14 **goes up as you measure.**
 15 Q. Goes up to what?
 16 **A. As high as 10 decibels over what you've**
 17 **measured as the ambient sound.**
 18 Q. How about Alberta?
 19 **A. 40.**
 20 Q. What's the World Health Organization's
 21 suggested level for nighttime?
 22 **A. 40 decibels.**
 23 Q. 40 dBA, correct?
 24 **A. (Nods head).**

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1 Q. Okay. Would it be fair to say that the
 2 dBA levels for receptors 13 and 68 are well above 40
 3 dBA?
 4 **A. I haven't calculated it so I don't know.**
 5 Q. How long would it take you to calculate
 6 it?
 7 **A. Half an hour maybe, I don't know, 15. I**
 8 **have to have my tools.**
 9 Q. Do you have those with you today?
 10 **A. No, I don't.**
 11 Q. Okay. Do you have any reason to believe
 12 that receptors 13 and 68 would not be above 40 dBA?
 13 **A. I haven't calculated it, so I prefer**
 14 **calculating before providing an answer.**
 15 Q. Okay. You said that the lower hertz, 31.5
 16 to 125 hertz levels, are kind of like a bass sound,
 17 right?
 18 **A. Low frequency is up to 200.**
 19 Q. Yeah, and I think you talked about, and
 20 I'm awful with technology, but sounds like a
 21 subwoofer at the really low levels?
 22 **A. Correct.**
 23 Q. Okay. And you've had -- have you ever had
 24 the instance with a subwoofer where you actually

1 feel the vibrations in your ear because of the
 2 subwoofer?
 3 **A. Listening to music, yes.**
 4 Q. Yeah, yeah, okay.
 5 **A. While the intensity was high.**
 6 Q. Fair enough. I'm sorry, I think I'm done.
 7 I just want to go through the report real quick to
 8 make sure I'm not missing anything.
 9 **MR. LUETKEHANS:** Thank you. Appreciate
 10 your time.
 11 **MR. DOKOUZIAN:** Pleasure.
 12 **CHAIRMAN FINNIGAN:** We're going to take a
 13 ten minute break and it's up on the screen, so when
 14 that comes to zero, just kind of come back.
 15 (Recess at 8:03 p.m. to 8:14 p.m.)
 16 **CHAIRMAN FINNIGAN:** Is there anyone else
 17 want to ask questions of this witness? Please come
 18 forward.
 19 **MR. TAYLOR:** The left one or right one
 20 again? Right? All right, Travis Taylor, 28686
 21 North 3050 East. I just want to make sure.
 22 **QUESTIONS BY**
 23 **MR. TAYLOR:**
 24 Q. According to your project map that I was

1 looking at earlier, I'm the recipient on or
 2 residence 50 on the map.
 3 **A. Okay.**
 4 Q. And I was looking at one of the charts
 5 that you guys submitted. I don't know if you want
 6 to -- it might be easier to look at your book.
 7 **A. What chart is that? The table with the**
 8 **results?**
 9 Q. Yeah, the table with the results.
 10 **A. Okay.**
 11 Q. I can tell you a little bit more here. I
 12 was just reviewing some of the, where we kind of
 13 stood on it to make a better understanding, and it
 14 seemed to be that at the -- I don't know, I'll wait.
 15 Are you there?
 16 **A. Yeah.**
 17 Q. Recipient 50. At the 1,000 -- 1,000
 18 level, it shows my house would be at the 40.2 and at
 19 the top it says that the limit's 41. When I talked
 20 earlier with Katie this past week, she contacted me
 21 a couple times and we talked, she asked which
 22 building on the property specifically was our house
 23 and assumed that it was the center building on our
 24 property. And our house is actually -- we have two

1 residences, we have a guesthouse that we use and the
 2 main residence, so there's two buildings that are
 3 considered residences on our property, and wanted to
 4 make sure that the readings were done at the right
 5 buildings not at the center property. I mean the
 6 center of the property is our barn essentially. So
 7 I wanted to make sure that the readings were right,
 8 and if that changed that, if it would bring us
 9 closer to the limit since it's less than a decimal
 10 away. It just concerns us a little bit with the
 11 noise and if you're not on the right building.
 12 So I mean I would feel more comfortable if
 13 it was at the property line since we have a couple
 14 different spots, you know, if there was a way to
 15 maneuver something and make it work. I definitely
 16 want to make sure that's something that's looked at
 17 and reviewed with our house in particular since it's
 18 so close. You think that's something that you guys
 19 could reevaluate and come up with or --
 20 **A. Yeah, I mean that's a good question. We**
 21 **would have to put it in the model and see what kind**
 22 **of results we get at different locations. If the,**
 23 **if our center point is not located on your house,**
 24 **then we should move it. We did not, we received**

1 **the --**
 2 Q. Okay.
 3 **A. -- location of the houses, so we did not**
 4 **validate it ourselves, so I cannot comment on how**
 5 **that was done.**
 6 Q. Okay.
 7 **A. But yes, it would -- it would be a good**
 8 **idea to evaluate what the sound level is. It**
 9 **shouldn't change that much.**
 10 Q. Yeah, it just makes me nervous, you know,
 11 when you're getting that close.
 12 **A. I understand, yeah.**
 13 Q. Also with the residence -- and there's
 14 been a lot of talk of the different edged blades and
 15 so forth. And like you said earlier with the 3
 16 percent decimal, that it could be a variance that
 17 could go up, you know, or down, that made me
 18 nervous. But have you guys actually done testing on
 19 the same turbine blades and measured the sound
 20 levels at the house levels like to come up with some
 21 of these? Like are these blades so new that there's
 22 only a limited number of them and you haven't had
 23 enough time to do the research or is it something
 24 that's been out long enough to actually measure it

1 on real-life applications, you know? Is that
2 something with these particular blades and windmills
3 because there's different kinds of blades and
4 different windmills. It looks like on my house in
5 particular there's two different blade styles,
6 there's one with the cutting edge below, whatever,
7 and then there's one further, further is a relative
8 term, a couple hundred feet difference, from my
9 house. Is that something that real life has shown?

10 **A. A good question as well. The technology**
11 **itself, so serrated blades, exists and has -- you**
12 **know, it's been measured. I actually measured some**
13 **on a different model, so it does work and it**
14 **actually does reduce by several decibels the sound.**
15 **I don't -- in the case of this wind turbine which is**
16 **fairly new, I don't -- I have not received the**
17 **measurement reports, the underlying measurement**
18 **reports that show, you know, the sound levels.**
19 **However, the acoustic specifications that I got, so**
20 **those are the documents from the manufacturer, that**
21 **those are what I receive, Vestas is the manufacturer**
22 **of this turbine, they have or had the most**
23 **installed -- the most installed turbines in the**
24 **world. I mean they're very -- they have a lot of**

1 experience. And typically when they come out with
2 specifications, which I've used in the model,
3 they're pretty good, they're on the safe side a
4 little bit. That's what I can tell you at this
5 point. I don't have a specific answer for you if
6 that blade with and without serration has been
7 tested yet. That I don't have that.

8 Q. Okay.

9 **A. But it's something that I think the**
10 **project could follow up on.**

11 Q. Okay. Do you guys have any studies on --
12 I heard a lot of talk about how the older wind
13 turbines, you couldn't adjust the blades and change
14 them a lot and do a lot of that kind of stuff. Do
15 you have any studies that can show over -- like a
16 lot of the sound levels that we see here is based
17 off projections and stuff like that. If the wind
18 turbine is going to be there for 20 years, is there
19 any way to predict some of the -- as they age what
20 the sound levels are going to be in 20 years as
21 opposed to the sound levels that are going to be
22 there right off the bat? Is it going to go up a
23 decimal or down a decimal or, you know, as bearings
24 go out or -- I mean and I know there's some

1 variation and you can't predict everything, but I --
2 even Katie and I talked about how the wind turbines
3 at Twin Groves are starting to age and they're
4 getting to be a little bit noisier than what they
5 were when you first put them up. Now residents may
6 adapt to it, but especially with some of the
7 windmill new technology, is there any way to have
8 some error for projection of noise 15, 20 years down
9 the line?

10 **A. You're asking all the good questions. Two**
11 **things to answer that. Typically a turbine that's**
12 **noisier is less productive, so basically a turbine**
13 **can get noisier if the blade starts to -- if the**
14 **blades are dirty, get dirty, start chipping and all**
15 **that kind of stuff. And typically a project owner,**
16 **what I've seen from my experience, they will go and**
17 **remedy against that because it's lost revenue,**
18 **right? So they will go out and repair the blades,**
19 **and in some wind farms, I see them out every three**
20 **to five years. It's typically the blades that could**
21 **create more sound. So the owner has really an**
22 **incentive to go out and repair them. So that's --**
23 **you know, so typically I've been to wind farms that**
24 **have been running for ten years measuring, because**

1 in some jurisdictions you measure 5, 10, 15 years,
2 and the sound has not increased because they have
3 maintained their blades to keep the same energy
4 production. Now, I can't attest to what kind of
5 maintenance will be done on this wind farm, but I
6 can at least say that.

7 **Second of all, that's why I come back to**
8 **those conservative assumptions quite often. That**
9 **helps remedy against that. So the sound might --**
10 **you know, if that maintenance is not happening right**
11 **away in six months or one year later, the buffer in**
12 **our model should cover you. You know, the sound**
13 **level -- see, the sound levels in this report are**
14 **really, really worst case and even conservative, so**
15 **actually you should even be lower than that as the**
16 **project goes in, so even if it goes up a bit, you**
17 **should remain under it. But those are good**
18 **questions, yeah.**

19 Q. And as -- I mean in your experience, it
20 seems like you've been doing this a while, I'm not
21 sure that I saw any sound readings after they've
22 been put in or not as part of the study, but it
23 sounded like, have you been hired before in the past
24 to come in and do sound studies at certain

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1 residences after they've been put in to make sure
 2 that they do meet it, you know, as part of the
 3 agreement, you know?
 4 **A. Yeah, those are called post construction**
 5 **noise measurements or audits.**
 6 Q. Sure.
 7 **A. And they -- those kind of audits are done.**
 8 Q. They're common? I mean --
 9 **A. They're common.**
 10 Q. Okay.
 11 **A. They're more common in certain states than**
 12 **others.**
 13 Q. Okay.
 14 **A. But again, they're common and it can be**
 15 **done for sure.**
 16 Q. Okay.
 17 **MR. TAYLOR:** I think that covers most of
 18 my questions then. I appreciate it.
 19 **MS. CHAPMAN:** I'm so glad you came up.
 20 **MR. SLAGEL:** John Slagel, 308 East
 21 Mirlynbeth Lane. That's M-I-R-L-Y-N-B-E-T-H Lane.
 22 **MR. DICK:** Could you spell your last name?
 23 **MR. SLAGEL:** Slagel, S-L-A-G-E-L.
 24 **QUESTIONS BY**

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1 **MR. SLAGEL:**
 2 Q. Hi.
 3 **A. Hello.**
 4 Q. In your, you said that you -- over time
 5 you've tweaked the parameters, the inputs into your
 6 model?
 7 **A. Improved them, I prefer the word improved.**
 8 Q. Yeah, yeah.
 9 **A. I've changed the parameters over time.**
 10 Q. Okay. What exact parameters did you
 11 change over time?
 12 **A. Ground factor.**
 13 Q. Okay.
 14 **A. Definitely ground factor.**
 15 Q. Okay. You went from what to what?
 16 **A. Where -- you know, it depends on the**
 17 **terrain, so in an area with flat terrain, fairly**
 18 **flat terrain like here, we use .5 which aligns well**
 19 **with the worst case results.**
 20 Q. Okay, so -- but you used to not? Like you
 21 said, you've tweaked your inputs over time, so
 22 that's what you've always done or you changed it to
 23 that?
 24 **A. When -- you know, when the wind industry**

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1 **started or when we started, there were very little**
 2 **measurements, so we relied on what the model told us**
 3 **to do.**
 4 Q. Okay.
 5 **A. As we gained experience through doing**
 6 **measurements, so real-life measurements, we've**
 7 **adapted our parameters to fit with reality.**
 8 Q. Okay. So the ground factor, you changed
 9 it from something to .5 to fit reality in this case.
 10 What other factors? What other inputs?
 11 **A. Well, we use the maximum sound power level**
 12 **of the turbine.**
 13 Q. Okay. Does that change from project to
 14 project?
 15 **A. It can.**
 16 Q. Okay. So before you used the max sound
 17 power level, what did you use before that?
 18 **A. We did not always use the max sound power**
 19 **level.**
 20 Q. Okay, glad you learned to do that.
 21 Anything else, any other parameters exactly that you
 22 changed?
 23 **A. We applied corrections for concave**
 24 **terrain.**

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1 Q. Okay. Did you use that in this case?
 2 **A. No.**
 3 Q. Okay. Any other corrections?
 4 **A. We always use conditions that are**
 5 **favorable, very favorable to sound propagation,**
 6 **while before we used to use humidity and temperature**
 7 **which was more common at a site.**
 8 Q. Okay.
 9 **A. So we would use the site specific. Now we**
 10 **just use what's the worst case even if it doesn't**
 11 **happen very often.**
 12 Q. Okay.
 13 **A. So even if we're in Mexico, we'll still**
 14 **use cold conditions --**
 15 Q. Right.
 16 **A. -- although it's unrealistic.**
 17 Q. Okay. And like how long ago were you
 18 using the site specific instead of the worst case?
 19 **A. Sorry?**
 20 Q. How long, like when was the last time you
 21 used the site specific instead of worst case to
 22 model?
 23 **A. I can't tell.**
 24 Q. Okay. A year, two years?

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1 **A. No, before that.**
 2 Q. Ten years?
 3 **A. It's through time that --**
 4 Q. Okay.
 5 **A. -- we have made adjustments --**
 6 Q. Okay.
 7 **A. -- because we didn't have the amount of --**
 8 **you know, we felt that those adjustments were**
 9 **needed --**
 10 Q. Okay.
 11 **A. -- to be in line with all the measurements**
 12 **we were doing.**
 13 Q. Okay.
 14 **A. And now we don't feel that more**
 15 **adjustments are needed because we have enough**
 16 **measurements --**
 17 Q. Okay, any --
 18 **A. -- to be really comfortable.**
 19 Q. Sorry, didn't mean to interrupt you.
 20 **A. I can't think -- I mean there's some**
 21 **things that I'd rather keep proprietary to how we do**
 22 **our work, but I'm open to giving you those ones.**
 23 Q. Well, there's only so many inputs to the
 24 model, so I'm -- when you said you tweaked them over

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1 time, I'm --
 2 **A. Well, there were corrections, right? As a**
 3 **firm with a lot of knowledge, we apply post**
 4 **processing onto the model when we feel necessary, so**
 5 **those are things I cannot discuss here**
 6 **unfortunately.**
 7 Q. Okay, but you didn't apply any of those to
 8 this model, right?
 9 **A. No, I didn't -- we didn't feel it was**
 10 **necessary.**
 11 Q. Okay, so in the last ten years of those
 12 parameters, what have you actually changed in the
 13 methods that you -- over the ten years or five years
 14 even? Like what inputs have you -- were you using
 15 differently five years ago than today?
 16 **A. The ones I -- well, I don't know if it's**
 17 **five years ago, but the inputs in general that have**
 18 **evolved over time are the ones we just discussed.**
 19 Q. Okay. And this evolution has happened in
 20 the last five years?
 21 **A. Frankly I can't say, but I've been doing**
 22 **it for 11 years and it's been gradual.**
 23 Q. Okay, I won't beat this dead horse, we'll
 24 move on. Sorry, my phone locked. Okay, could we

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1 pull up the thermometer graph that he had on the
 2 screen?
 3 So this graph -- you know, I've had a lot
 4 of arguments maybe over a beer with somebody about
 5 how this graph works and relates. So you're showing
 6 this as an example of dB levels, correct?
 7 **A. Correct.**
 8 Q. Okay, so on this, let's just pick the one
 9 we talked about already, the brand-new dishwasher,
 10 right, or something that's on here. Let's say that
 11 the printer sitting there, that's about even with
 12 the 50 it looks like.
 13 **A. More or less.**
 14 Q. Sure. Where does the wind turbine come in
 15 here? Like where is that on this graph?
 16 **A. So what is emitted by the wind turbine --**
 17 Q. Well --
 18 **A. -- or what's received by the wind turbine?**
 19 Q. -- I guess on here you have a picture of a
 20 printer.
 21 **A. So that's what's received.**
 22 Q. Right, so where would you draw the picture
 23 of the turbine on here?
 24 **A. It depends where you are. If you're just**

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1 **next to the turbine, it's just above the printer.**
 2 **If you're standing right next to it, it's just above**
 3 **the printer.**
 4 Q. Okay, so like for the printer here, when
 5 they put the printer on this, they assumed you were
 6 standing some distance from it?
 7 **A. Yeah. I mean, as you can see, the image**
 8 **is not exact.**
 9 Q. Right.
 10 **A. The images are put in kind of roughly in**
 11 **there.**
 12 Q. Right.
 13 **A. But yes, when we talk about -- that's**
 14 **about at a, you know, a foot to a meter distance,**
 15 **the printer, correct.**
 16 Q. Okay. And then so -- so these are dBs,
 17 which I think we're all trying to understand here.
 18 How do these relate to the dB numbers in the sound
 19 study you did? Like say for 500 hertz, if the house
 20 says it's 40 dB, how does that come in here on this
 21 chart?
 22 **A. It doesn't directly relate.**
 23 Q. Okay.
 24 **A. You would have to do some -- you'd have to**

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1 **do a calculation.**
 2 Q. Right, and what would that calculation
 3 then produce? What would it produce?
 4 **A. It would produce an overall dB value.**
 5 Q. Okay.
 6 **A. So if you sum up for each row of the**
 7 **results table --**
 8 Q. Okay.
 9 **A. -- if you summed them up, and it's not a**
 10 **simple summation --**
 11 Q. Okay.
 12 **A. -- it's a little bit more complicated.**
 13 Q. Is that the same as what you said you'd
 14 need your equipment for to do?
 15 **A. Well, ideally you need an Excel, yeah --**
 16 Q. Okay.
 17 **A. -- and the formulas in it.**
 18 Q. Like when you were in college, you didn't
 19 have to do these by hand for tests? Am I correct?
 20 **A. It's probably doable by hand, but we don't**
 21 **do it by hand anymore, but yeah, so you would have**
 22 **to sum up the values --**
 23 Q. Okay.
 24 **A. -- in each row of the report --**

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1 Q. Okay.
 2 **A. -- and come up with an overall decibel**
 3 **value. But once again, I caution you not to just**
 4 **plainly sum them up. It's more complex than that.**
 5 Q. Right, okay.
 6 **A. And then you could actually fit it on the**
 7 **graph.**
 8 Q. Right, and is that the same as what people
 9 have been saying is the dBA value?
 10 **A. Well, the discrete frequency, so, you**
 11 **know, the values we presented, they are in dB**
 12 **because IPCB wants them in dB.**
 13 Q. Okay.
 14 **A. You can convert them in dBA.**
 15 Q. Okay.
 16 **A. And the same units can apply to each**
 17 **frequency or can apply to the overall value.**
 18 Q. Okay. So this would be dBA?
 19 **A. It's written dB there. It was taken from**
 20 **a database. It could read dBA. It's so imprecise**
 21 **that it could be -- I could put an A. The printer**
 22 **is about 50 to 60 dBA, library is about 30 dBA,**
 23 **speech is 60 to 70, 75 --**
 24 Q. Okay.

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1 **A. -- in that range, so --**
 2 Q. Okay.
 3 **A. -- rarely do we work in dB in**
 4 **environmental noise, we work in dBA. However, IPCB**
 5 **wants us to work in dB which complicates things a**
 6 **little bit, but anyway.**
 7 Q. Okay. So had in your application you
 8 converted these to the overall dBA, we could've sort
 9 of compared them with this graph.
 10 **A. Correct.**
 11 Q. Okay. And then the other thing about this
 12 graph, there's -- so there isn't a distance. Like a
 13 lot of people say, well, something's no louder than
 14 a dishwasher, but that's the dishwasher when you're
 15 standing near it generally, right?
 16 **A. Correct.**
 17 Q. And so when you're in your bedroom or
 18 something, the dishwasher wouldn't be the same dBA
 19 value --
 20 **A. Correct.**
 21 Q. -- right?
 22 **A. So basically the sound produced by all of**
 23 **the turbines operating at maximum capacity, 20 miles**
 24 **per hour wind, humid day, cold, pretty reflective**

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1 **ground, the sound experienced outside of a house**
 2 **around this project would be the same as standing**
 3 **beside a very quiet dishwasher outside.**
 4 Q. Okay, right, and you're not going to
 5 extrapolate how that goes into the bedrooms?
 6 **A. Into the what?**
 7 Q. The bedrooms of the houses.
 8 **A. Typically you have a 10 to 15 decibel**
 9 **reduction from outdoor to indoor --**
 10 Q. Okay.
 11 **A. -- with the windows open. With the**
 12 **windows closed, it's more.**
 13 Q. Okay. So would you, the amount of -- it's
 14 very hard for me to quantify like what a dBA and
 15 these noise levels, how they relate. So if
 16 currently today you go in your backyard and it's --
 17 and you sit around a campfire or something and you
 18 hear the birds, the crickets chirping and it's
 19 quiet, right? When these are built, would you go
 20 outside and say it's quiet?
 21 **A. I can't really answer that question.**
 22 Q. Okay.
 23 **A. Depends what you mean by quiet.**
 24 Q. Okay.

1 **A. I mean when it's not windy outside, it's**
 2 **quiet. As the wind builds, it gets noisier --**
 3 **Q. Right.**
 4 **A. -- right? And I would say that when it's,**
 5 **there's no wind outside, the turbines wouldn't**
 6 **produce any sound or very little sound.**
 7 **Q. Right.**
 8 **A. And as it gets 20 miles per hour around**
 9 **your campfire, that's when that dishwasher would be**
 10 **running.**
 11 **Q. Okay.**
 12 **A. More or less. I -- more or less,**
 13 **generally speaking.**
 14 **Q. Okay, but you wouldn't quantify it as**
 15 **saying it's quiet. When the turbines are at max**
 16 **power in your backyard, when you're right up against**
 17 **the IPCB limits, would you quantify that as quiet?**
 18 **A. Well, compared to the sound that's**
 19 **probably going to be experienced around the houses.**
 20 **So I've measured ambient sound around farm, you**
 21 **know, like buildings where there's trees and**
 22 **activity, and when the wind picks up, you know, it's**
 23 **noisier than we think. You know, it will go up to**
 24 **35, 40, 45 decibels just with the sound blowing**

1 **Q. So like you said this one's over it and**
 2 **they moved something?**
 3 **A. Correct.**
 4 **Q. Okay, so did -- when they came in, did**
 5 **they, did they require you in order to be -- to know**
 6 **whether they're IPCB or not or could they have done**
 7 **that themselves in their software?**
 8 **A. I don't know, I think you'd have to ask**
 9 **them, I can't answer that, but -- sorry, I can't**
 10 **answer that.**
 11 **Q. Okay.**
 12 **A. I don't know if they knew how to meet**
 13 **regulation or not.**
 14 **Q. Okay, would you say before they came to**
 15 **you the project was 90 percent the same as it was**
 16 **when they left you?**
 17 **A. I can't remember, I'm sorry.**
 18 **Q. Okay. Do you remember how many iterations**
 19 **went back and forth?**
 20 **A. Not really. I don't think there were --**
 21 **so there weren't a lot of changes, but I can't, no.**
 22 **Q. Okay. And are you the one that actually**
 23 **made the contour maps?**
 24 **A. No, I -- and that's the reason why. I**

1 **around the trees. So, okay, if you have maybe no**
 2 **trees, no farm buildings, nothing happening, it**
 3 **might not be as much, but especially during**
 4 **summertime when the leaves are out, when the crops**
 5 **are in, if there are crops, it can get actually**
 6 **extremely loud. So that's why I can't really answer**
 7 **your question because it might not be that quiet**
 8 **when those wind turbines are producing their max**
 9 **power or, you know --**
 10 **Q. Right.**
 11 **A. -- or starting to really spin because**
 12 **there's a lot of sound happening. Not always but**
 13 **quite often.**
 14 **Q. Okay.**
 15 **A. So it's hard to answer.**
 16 **Q. Okay. Did you -- how does this process**
 17 **work? Did the company come to you and say here's**
 18 **our layout of turbines and here's the houses, can**
 19 **you map this and prove we're under IPCB limits, or**
 20 **were you interactive in the process of building the**
 21 **map or the layout of the turbines?**
 22 **A. It's interactive. In this case, the**
 23 **project owner did most of the work to design it and**
 24 **we checked and it was an integrative process.**

1 **checked, reviewed and approved the work.**
 2 **Q. Okay, so who made the contour maps?**
 3 **A. My staff.**
 4 **Q. Okay. I'm -- how did they make them?**
 5 **A. With software.**
 6 **Q. Okay. Did the software print out on**
 7 **crumpled paper?**
 8 **A. I don't -- I don't understand the**
 9 **question.**
 10 **Q. If you look in the application, the**
 11 **contour maps are basically on crumpled paper, like**
 12 **it's not a smooth white background, it's kind of**
 13 **crumpled.**
 14 **MS. ANTONIOLLI: Can you point us to a**
 15 **page?**
 16 **A. Yeah, what do you mean by that?**
 17 **Q. Is that the elevation or --**
 18 **A. Oh, that's, I think that's -- you're**
 19 **talking about the -- so that's our --**
 20 **Q. Yeah, yeah.**
 21 **A. Okay, so the engineering staff --**
 22 **Q. Right.**
 23 **A. -- runs the contour lines. We have**
 24 **mapping people that put this together on a map.**

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1 Q. Okay.

2 A. **And so --**

3 Q. So the crumpled look is the elevation?

4 A. **Yes, that is elevation.**

5 Q. Okay, thank you.

6 A. **Yes, the crumples.**

7 Q. Yeah, yeah, well --

8 **MR. SLAGEL:** Okay, that's all I have,

9 thank you very much.

10 **MR. DOKOUZIAN:** Pleasure.

11 **CHAIRMAN FINNIGAN:** Any other questions?

12 You have to come forward. You got to do your name

13 again, sorry.

14 **MR. HANEY:** Daryl Haney, 31631 East 3100

15 North Road, Chenoa.

16 **QUESTIONS BY**

17 **MR. HANEY:**

18 Q. Would you please clarify a little bit

19 here, and this may help the board a little bit too,

20 everybody's talking about sound above 31 hertz in

21 most cases here. You're telling me IPCB does not

22 regulate anything below 31 whatsoever?

23 A. **What I'm saying is that it doesn't provide**

24 **a sound level limit to be under, so it doesn't**

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1 **provide a value to be under below 31.5.**

2 Q. So they, in other words, don't give a care

3 how loud it is at those frequencies?

4 A. **That's a tough one to answer. I don't**

5 **know if they don't -- when modelling, I have no**

6 **number to be under, right, so --**

7 Q. So it can be anywhere.

8 A. **So they -- in theory they could, but**

9 **they're typically below. So wind turbines have low**

10 **low frequencies, so basically those values actually**

11 **drop. So in general if you meet the 31.5, right,**

12 **you would meet even lower.**

13 Q. Then explain the chart. The dB was going

14 up as we went down in frequency, from 500 down to 63

15 and then on down to 31 hertz, the dB levels were

16 going up on the chart.

17 A. **In which chart, sorry?**

18 Q. The one you had up on the screen and it's

19 also on the McLean County website. 500 hertz,

20 daytime 58 dB, nighttime 47; drop down to 63 hertz,

21 goes to 74; 31 and a half goes to 75.

22 A. **So that's what's allowable. That's not**

23 **what the turbines are emitting. That's --**

24 Q. Understand.

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1 A. **Yeah, that column there is -- so basically**

2 **what that says is that --**

3 Q. So --

4 A. **-- is that at 31.5 at night Illinois**

5 **requires you to be below 69. So if I were to guess,**

6 **if there was a 20, it -- you know, it might be 70 or**

7 **72 or 73 dB, but that's just a guess, right? So**

8 **they decided not to regulate below 31.5.**

9 Q. But would it be safe to say that those

10 frequencies down there, that's considered a safe

11 level?

12 A. **You mean the ones that are in the table?**

13 Q. No, you just said that -- I think, if I

14 understood you right, you said in the neighborhood

15 of 20 hertz it could be 70 dB --

16 A. **Oh, I --**

17 Q. -- possibly?

18 A. **Okay, I was just looking at the trend of**

19 **the levels that they put.**

20 Q. Yes.

21 A. **I -- I guessed, so frankly I don't have an**

22 **opinion of what a safe level could be because I'm --**

23 **I understand your question, it's a good question,**

24 **but I'm not a health expert, so I don't know what is**

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1 a good or a bad level. My, what I really -- what my

2 work is is to predict as well as possible, as

3 accurately as possible, what the levels will be and

4 make sure they meet those levels in that table, but

5 that would be more a question for a health expert.

6 Q. Have you ever measured any of those levels

7 at various problems that crop up around the country?

8 A. **I've -- we've measured, so we've measured**

9 **all the way down to 20, yes.**

10 Q. And not below.

11 A. **It requires pretty specialized instruments**

12 **to go below.**

13 Q. I realize that.

14 A. **Yeah, we've not -- and no, we've not been**

15 **required to measure below.**

16 Q. Are you aware of various things around --

17 articles that people are having trouble with large

18 turbines, 500 foot plus, with frequencies down below

19 20 hertz creating issues?

20 A. **Well, I'm aware that there's a lot of good**

21 **literature, good and bad, I mean there's both out**

22 **there, you know. There are some studies, pretty**

23 **thorough studies, that have been done that show that**

24 **there aren't problems from infrasound. However,**

1 like I say, I'm not in a position to say what level
2 of infrasound is good or bad for someone.

3 Q. Well, that would vary with people I'll
4 admit, but there are articles out there where people
5 have had to leave their homes because of it and
6 there are no cures for it. You can't insulate from
7 it from what I've been told. There's nothing you
8 can do other than shut the turbine down or move it
9 away from the property. Am I correct on that?

10 A. Well, what I can say for Illinois, since
11 we're in Illinois, they do regulate for low
12 frequency, right, and actually the 31.5 there goes
13 all the way to 20, so it's actually lower. So in
14 some ways, Illinois has a regulation that protects
15 you against low frequency in the upper bound of
16 infrasound. So in a certain way they are limiting
17 and they've established what they think is an
18 appropriate level that can be generated outside your
19 home.

20 Q. Do you feel like the IPCB is up-to-date
21 with their chart and what their recommendations are
22 based on the fact that this was done umpteen years
23 ago and they never heard of a turbine back then,
24 especially one as big as what you're proposing?

1 noisier, some models are less noisier than before.
2 So I think that's important to understand and that
3 might alleviate a little bit of your concerns
4 hopefully.

5 Q. In regards to the special blades that you
6 got serrated on the edges, what happens when that
7 builds up with ice?

8 A. It's somewhat out of my expertise, but
9 when a turbine accumulates ice, it will stop.
10 There's various -- there's sensors on a turbine.
11 There are also -- a turbine will evaluate its
12 production, and as soon as there's ice on a turbine
13 blade, the production drops and it will know right
14 away that there's ice and it will stop the turbine.
15 So in general a turbine is operated in a way that it
16 should not be spinning when there's ice.

17 Q. Okay.

18 MR. HANEY: That's all I have. Nothing
19 further, thanks.

20 MR. DOKOUZIAN: Pleasure.

21 MS. MORAN: My name is Deann Moran. It's
22 D-E-A-N-N, last name is Moran, M-O-R-A-N. I'm at
23 503 North Orange Street in Lexington.

24 QUESTIONS BY

1 A. I'd like to help you on that one. Once
2 again, I've never been involved in establishing
3 what's an appropriate level. I think what's
4 important to understand is all of the turbines are
5 bigger today; they're not necessarily noisier. I've
6 been modelling sound for ten years, and even if the
7 turbines are bigger and produce more energy, they're
8 about the same order of magnitude of sound that they
9 produce.

10 So effectively what's happening is that
11 you're having less sound generated in general from a
12 wind farm of the same capacity, so I don't know if
13 you follow me, because it is not correct to think
14 that the bigger the turbine is the more sound it
15 produces. Size doesn't matter in this case. It's
16 really the speed at which it rotates, how the blades
17 are designed, and how they're pitched. And turbine
18 manufacturers know that they cannot have very loud
19 turbines out there because you won't be able to
20 install them.

21 So I would say that wind turbines are not
22 noisier than before and you actually need less of
23 them to generate the same amount of electricity. I
24 mean not noisier. Some models are a little bit

1 MS. MORAN:

2 Q. Hi.

3 A. Hello.

4 Q. Just a couple quick questions. How many
5 studies or models have you created for Bright Stalk
6 or EDP?

7 A. For Bright Stalk, it's one model.

8 Q. Okay.

9 A. So we created --

10 Q. For the company, for EDP, how many have
11 you -- how many times have you been hired by them?

12 A. I couldn't say exactly, but a few times.

13 Q. Okay.

14 A. I don't have an exact number.

15 Q. Like under ten?

16 A. Yes, likely under ten.

17 Q. Okay. How many of those have been in
18 Illinois?

19 A. Personally, it's the only one that I know
20 of, yeah.

21 Q. How many of the other projects that you
22 have done models for have been with turbines over
23 550 feet tall?

24 A. A lot.

1 Q. A lot.

2 **A. I cannot, I cannot say how many because**
3 **right now it's the trend to have bigger turbines and**
4 **less of them, right?**

5 Q. Yes.

6 **A. So there's a lot. So we do -- most of our**
7 **modelling now is with big machines, yeah.**

8 Q. We don't necessarily think bigger means
9 better, but how long ago were you contacted to
10 create your models for the Bright Stalk project?

11 **A. I don't know. I would say in the last**
12 **year --**

13 Q. Okay.

14 **A. -- but I don't have an exact date. Since,**
15 **as I've mentioned, I review, check and approve the**
16 **work, so I don't know exactly the date it really**
17 **started.**

18 Q. Okay, we've just had our, a lot of our
19 friends and neighbors that have not known about the
20 project until not too long ago, so that's why I'm
21 asking that question.

22 **A. Okay.**

23 Q. And you said you have adjusted turbines
24 after an audit after a project completion. Did you

1 that didn't have wind turbines, but this is where I
2 am now.

3 **MS. MORAN:** Thank you.

4 **MR. DOKOUZIAN:** Pleasure.

5 **CHAIRMAN FINNIGAN:** Any other questions?

6 **MR. TAYLOR:** If I can ask one more, if
7 that's okay.

8 **CHAIRMAN FINNIGAN:** Go ahead.

9 **MR. TAYLOR:** Briefly again, I'm Travis
10 Taylor. Do you need everything? I can repeat it.

11 **CHAIRMAN FINNIGAN:** Maybe get a little
12 closer to the mic.

13 QUESTIONS BY

14 **MR. TAYLOR:**

15 Q. I was just wondering if there's an effect
16 on decibel level. Like we have a lot of steel
17 buildings on our property. Is there an echo effect
18 or a noise effect that's going to be based off of
19 the steel buildings and roofs and stuff like that
20 that would change any of that or amplify it? I mean
21 I guess I ask this because in the past, a couple of
22 my neighbors are close enough that if it's late at
23 night and they're having conversation outside, it
24 will echo off of the buildings and you can hear it.

1 ever shut off a turbine after some of your findings
2 or abandon one?

3 **A. So I don't shut them off for example.**

4 Q. Right --

5 **A. I understand.**

6 Q. -- but your study, has that ever created
7 the fact that they would shut one off or abandon it?

8 **A. In a -- no, I'm not aware of situations**
9 **where it had to be shut down completely because**
10 **there's always been mitigation measures that could**
11 **be implemented.**

12 Q. Do you know if anyone had ever abandoned
13 their home due to the complaints or the sound
14 issues?

15 **A. I'm not aware of people abandoning homes,**
16 **no.**

17 Q. And just a question, do you live by any
18 turbines in Canada personally?

19 **A. I don't live close to any turbines. I**
20 **think there's -- you know, I think there's different**
21 **reasons why someone lives somewhere and different**
22 **factors. So no, I don't.**

23 Q. That's true. I mean I moved to where --
24 I'm a military child that moved to a specific place

1 You know, like we don't have air conditioning, older
2 house, hundred year old house, open the windows in
3 the summertime and you're listening to your neighbor
4 talk to his girlfriend about things you don't want
5 to know.

6 So is there things that, you know, is the
7 windmill going -- there's quite a few within a mile
8 and a half and my neighbor's a half mile down the
9 road and there's going to be turbines within a half
10 mile of my house. Is that something that could echo
11 off of and amplify or decrease the sounds because of
12 it?

13 **A. It really depends on the configuration of**
14 **where your -- it's tough to say without, you know,**
15 **knowing exactly what's the orientation of your**
16 **buildings. So I think -- I think it's important to**
17 **understand that, you know, you might hear them in**
18 **some instances, but, you know, the regulation is not**
19 **set in a way where you're never going to hear them,**
20 **right?**

21 So -- however, I think once again I'm
22 going back to the fact that normally they create --
23 you know, the sound levels in my report is when it's
24 pretty windy outside and humid, and so while

1 those -- while those conditions are present, I don't
 2 know if you hear your neighbor talking, you know --
 3 Q. Sure.
 4 A. -- during very windy conditions, right?
 5 It's probably there's enough sound happening outside
 6 already that you're not hearing echoes from your
 7 neighbors. It's on that very quiet night.
 8 Q. Yeah.
 9 A. So if you put your ear against a building,
 10 will you have a bit of an echo? It's really tough
 11 to say. Will you have an echo at a distance? You
 12 won't perceive that. In terms of rattling things in
 13 your home, I have not set those limits, but looking
 14 at them, they seem to be designed in a way that the
 15 sound levels will be low enough that they cannot
 16 rattle anything in the structure, right? So the low
 17 frequency limits, IPCB set them in a way that
 18 they're -- you know, they know that they're low
 19 enough that they cannot create rattling, right,
 20 because --
 21 Q. Sure. I mean I'm assuming -- our house is
 22 in the middle of like eight of them. If you look on
 23 the map, you know, it sits right in a row. I mean I
 24 guess my thought was is you've got a two mile span

1 of the buildings as opposed to just like you say a
 2 lot of times people hear more when it's wide open.
 3 Well, half of our property is open and half of it's
 4 closed and so it's -- the wind varies where the
 5 sound can travel through it, and I didn't know if it
 6 was like a funnel effect that's possible because of
 7 it or if it's something that's just either going to
 8 be there or not, you know.
 9 A. So if your property has a lot of buildings
 10 and trees, you're actually blocking. So you might
 11 have a little bit of echo in a building, but you
 12 might have some blockage effect as well, so you
 13 might have a bit of both.
 14 Q. Yeah.
 15 A. It's not like air passes through things
 16 and reaches you, sound will get blocked, but it can
 17 echo a little bit.
 18 Q. Okay.
 19 A. But it's very, very low levels we're
 20 talking about, right? I go back to, you know, it's
 21 probably on the order of a dishwasher, a very quiet
 22 dishwasher outside.
 23 Q. Okay.
 24 A. So, you know, it's an echo of a very quiet

1 and you've got eight of them in a row and the sound
 2 might travel through me, but if it's echoing off the
 3 buildings and causing -- you know what I mean, it's
 4 just one of those like concerns that I wondered if
 5 there was something that would be affected off the
 6 buildings in particular more so than if there was
 7 wide open space to go through, that's all.
 8 A. Since there's more turbines, they had to
 9 be like spaced further away. You know, if it was
 10 only one machine, it could maybe -- and you can tell
 11 yourself that, as I've mentioned before, we've
 12 assumed that the wind is blowing always from all of
 13 the turbines to your house in this model. This
 14 won't be the case. Although you might have turbines
 15 on one side and on the other side, you probably
 16 won't get -- you'll get very little sound from the
 17 ones that are -- you know, that you're not downwind
 18 from, so that can also alleviate a little bit of
 19 that potential echo at night.
 20 Q. Okay.
 21 A. I think echo of that sort happens on a
 22 very quiet night I would assume.
 23 Q. Yeah, I mean I just didn't know if that
 24 was something that's ever been studied, the echo off

1 dishwasher.
 2 Q. Sure. No, that makes sense.
 3 MR. TAYLOR: I appreciate it.
 4 MR. DOKOUZIAN: Okay, pleasure.
 5 MR. POWELL: Jeff Powell, 32897 East 2700
 6 North, Chenoa.
 7 QUESTIONS BY
 8 MR. POWELL:
 9 Q. You were talking about how when it's, when
 10 it's windy, there's a lot of noise rustling through
 11 trees and stuff, whatnot, so you're hearing the
 12 sound of the wind. Is there, is there studies that
 13 are done based on the height of these things,
 14 because at 550 feet, is it possible that it can be
 15 calm at ground level and relatively still, but these
 16 windmills are catching a breeze at 550 feet that's
 17 not happening on ground level; therefore, the sound
 18 is relatively quiet on the ground, but the turbine
 19 is spinning and making noise.
 20 A. It's a good question. I'd say in areas
 21 where we call complex terrain, like Maine or other
 22 areas, you could have more of that effect. It's
 23 pretty flat, relatively flat here, so you wouldn't
 24 -- I mean, yes, there is a difference between what's

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1 **happening on the ground and what's happening up at**
 2 **the turbine, but you would still have -- it wouldn't**
 3 **be an extreme difference where there's absolutely no**
 4 **wind at the base and the wind turbines are producing**
 5 **at the max up top. But I mean it can happen, I'm**
 6 **not saying it's not -- you know, like on some**
 7 **occasions the winds might be a little bit low around**
 8 **your house and the turbines are producing sound,**
 9 **yes.**

10 Q. Well, so in that instance where if it was
 11 relatively still at ground level but the turbine was
 12 catching a wind and working making energy, would it
 13 be louder in that situation?

14 A. **No. So that's a good question. So the**
 15 **wind farm has to meet those limits right there**
 16 **regardless if it's windy or not at your residence,**
 17 **so -- and that's what we've modelled for that it has**
 18 **to be. When those turbines are producing their max**
 19 **power, that's the limits at your house, outside of**
 20 **your house.**

21 MR. POWELL: Okay, thank you.
 22 MR. DOKOUZIAN: Pleasure.
 23 CHAIRMAN FINNIGAN: Any other questions?
 24 You can see why we did noise first. So I think if

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1 you want to go ahead with your testimony on flicker.
 2 MS. ANTONIOLLI: Thank you. You can pull
 3 up the next presentation.
 4 MR. DOKOUZIAN: Okay, so the next set of
 5 slides is a summary of the flicker analysis, shadow
 6 flicker analysis that was done for the Bright Stalk
 7 wind project. So a bit of an intro on shadow
 8 flicker.
 9 What is shadow flicker? It's basically
 10 the shadow that's cast around a wind turbine when
 11 the sun is shining. And for someone that is
 12 standing that's stationary around the turbine as the
 13 blades rotate, that that shadow moves and creates a
 14 flicker effect basically, so you get a shadow once
 15 every second or roughly a little bit less than that
 16 actually from the blade. That's what shadow flicker
 17 is. There's an image in my slide to the left and
 18 there's a diagram there to the right. And shadow
 19 flicker is noticeable outside. It can also be
 20 noticeable inside through window openings.
 21 So there are a lot of factors that can
 22 influence shadow flicker. Definitely wind
 23 direction. So as the turbine basically rotates to
 24 face the wind, it's not necessarily facing the sun,

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1 so that shadow behind the turbine will change,
 2 right? It's going to get wider or narrower and its
 3 location might change, so wind direction is
 4 important. Orientation of the buildings and windows
 5 relative to the turbine; the distance from the
 6 turbine definitely; turbine height and diameter, so
 7 the geometric -- the geometry of the turbine; the
 8 time of day and year; weather conditions. Whenever
 9 there's clouds or whenever it's cloudy, there is
 10 basically no shadow flicker. Vegetation and
 11 obstacles, so those will have a shielding effect and
 12 will actually stop flicker. And the operational
 13 status of turbines. So when turbines are not
 14 turning, you know, such as when the wind speeds are
 15 low or very high or whenever there's maintenance on
 16 the turbine, there's no shadow flicker. There's a
 17 shadow if it's sunny, but that's similar to any
 18 stationary structure basically.

19 In terms of the methodology, it's a
 20 geometric analysis that takes into account the
 21 position of the sun, position of the turbine and the
 22 position of the viewer. And we've gained -- well,
 23 not me, but I guess the human race has gained a lot
 24 of knowledge on what's the path of the sun, so we

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1 know pretty accurately where the sun is in
 2 relationship to earth and we can therefore estimate
 3 a worst case shadow flicker pretty accurately
 4 actually because those are very known things.
 5 What are the sources in this case? 58
 6 V136, Vestas 136, 3.6 megawatt turbines at a 99
 7 meter hub height. We chose the higher hub height
 8 for the flicker analysis because it creates a longer
 9 shadow, so we wanted to go with a worst case. We've
 10 modelled shadow flicker to the residences up to
 11 about 5,000 feet from turbines and we've modelled
 12 two cases and this is why we do that. It's industry
 13 standard, we've been doing it for a while, most
 14 people do it so we still do it, but we model what we
 15 call a worst case. A worst case is really, the
 16 other term for it is an astronomical worst case, so
 17 it doesn't consider any attenuation. It assumes
 18 that it's always sunny, which could be nice, and
 19 that the wind turbine is always facing the sun.
 20 However, it's not going to be facing the sun all the
 21 time, it's going to be facing the wind. So the
 22 results, the worst case results are actually not
 23 realistic, but we put them in for information.
 24 Then what we do is we model an expected

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1 case, and the expected case considers two of the
 2 main attenuations. So one is cloud cover, so we use
 3 statistics, monthly cloud cover statistics from a
 4 nearby environmental station, and we consider as
 5 well the wind rows, wind rows being what is -- you
 6 know, where do you expect the wind to come from at
 7 the site and then apply that. So for that, we've
 8 used the site measurements to have, you know, wind
 9 direction rows from the site.

10 The expected case is still conservative
 11 because it's difficult actually to model all of the
 12 other attenuations and that's why we don't do it.
 13 So what are the other conservative assumptions that
 14 are not included basically that would reduce the
 15 results in our report if we would include? It's we
 16 assume that the turbines are always operational, but
 17 they're not, right? 10, 15 percent -- I don't have
 18 the number, but I've heard in the area, in the range
 19 of 5 to 15 percent of the time that they may not be
 20 operational on average depending on the sites, so
 21 you would not have flicker during those cases.
 22 While there's maintenance as well. We haven't
 23 considered vegetation as well or any shielding
 24 around the residences from farm buildings or

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1 vegetation. That actually plays a large role in
 2 rural areas where it's fairly typical to have
 3 windbreaks with evergreen trees or barns.

4 And the last but not least is that we
 5 assume that a house -- we use what we call a
 6 greenhouse scenario is the term often used in the
 7 industry, that we consider that a house is one big
 8 window. So if -- so the results in our report are
 9 based on the fact that if flicker reaches that
 10 window, we account for that, that minute of flicker,
 11 although, you know, we know that buildings have
 12 orientation and in some cases a window might be
 13 fairly small on one face of the facade and flicker
 14 won't actually reach that window, but that was
 15 considered in this case.

16 So in terms of the results, well, as
 17 mentioned before, there are no regulations for
 18 shadow flicker in Illinois or McLean County, so the
 19 study is done in a certain way out of good faith to
 20 show what the results are. In terms of the results,
 21 the highest modelled shadow flicker is 35 hours per
 22 year and that's the expected case. In real life, we
 23 could expect that to be lower if we include those
 24 other, you know, attenuations that we weren't able

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1 to model. But for the purpose of the model, what we
 2 were able to model, we come up to, we get it to 35
 3 hours. And to the right is a map that you can find
 4 in the report. We call those butterflies quite
 5 often. It's an image basically of the amount of
 6 expected shadow flicker that one could expect at
 7 different areas at the site. The actual results can
 8 be found in the report.

9 And that sums it up.

10 **MS. ANTONIOLLI:** So I move at this time to
 11 submit a PDF copy of Mr. Dokouzian's shadow
 12 presentation as -- into the record as Exhibit 4.

13 **CHAIRMAN FINNIGAN:** That would be fine.

14 **MR. DICK:** We'll call that Applicant's
 15 Exhibit 4.

16 **CHAIRMAN FINNIGAN:** Questions from the
 17 board?

18 **MS. TURNER:** Is it safe to assume that
 19 those at the top of your chart, 30 being at the very
 20 top, is it safe to assume that they're there because
 21 they have multiple windmills around them? Well, I
 22 can see now you do have the turbines listed there.

23 **MR. DOKOUZIAN:** Just give me a minute,
 24 I'll turn to the shadow flicker report.

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1 **MS. TURNER:** I'm looking at the page B1.

2 **MS. ANTONIOLLI:** Okay.

3 **MS. TURNER:** Appendix B.

4 **MR. DOKOUZIAN:** Yeah, so if you see, we do
 5 list the turbines that would cast, potentially cast
 6 shadow flicker, and the answer is not necessarily.
 7 It really depends on the orientation where those
 8 wind turbines are and at what distance and to some
 9 extent what's the wind direction, but you'll often
 10 find that since we're in the northern hemisphere,
 11 you know, the sun goes from east, you know, it's
 12 south to west, so straight north you'll cast less,
 13 they'll cast less -- sorry, straight south you'll
 14 cast less of a shadow. So not necessarily.

15 **MS. TURNER:** I see that now that I look at
 16 how many are next to some of these. I'm not fully
 17 understanding the closest turbine, the distance and
 18 the turbine ID. Can you -- so what you're saying is
 19 T73 is 541 feet away from the receptor?

20 **MR. DOKOUZIAN:** Thank you for asking that.
 21 That is a typo and it should say meters.

22 **MS. TURNER:** Okay, thank you.

23 **MR. DOKOUZIAN:** So our tool works in
 24 meters.

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1 **MS. TURNER:** All right.
 2 **MR. DOKOUZIAN:** And the table had feet in
 3 there.
 4 **MS. TURNER:** All right.
 5 **MR. DOKOUZIAN:** And that is a typo, so --
 6 **MS. TURNER:** Okay, alarms were going off.
 7 **MR. DOKOUZIAN:** Yes, I can understand
 8 that, yeah.
 9 **MR. DEAN:** Talk a little bit about the
 10 seasonality of the shadow flicker. It's different
 11 in the wintertime than it is in the summertime.
 12 **MR. DOKOUZIAN:** Yeah, two things would
 13 play a role there. It's cloud cover, so during some
 14 seasons there's more cloud cover than others, so
 15 during seasons where there's more cloud cover
 16 there's less shadow flicker, but also the position
 17 of the sun, right? So, you know, flicker would
 18 extend further away during the winter season when
 19 the -- when the sun's lower.
 20 **MR. DEAN:** Is it more problematic in the
 21 winter season for the neighbors or less?
 22 **MR. DOKOUZIAN:** It's difficult for me to
 23 comment. I -- I personally have not been involved
 24 in any complaints for flicker. Often if there is

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1 someone that's bothered, it's remedied pretty easily
 2 so it doesn't come back to us, the modelers. So
 3 people would add, you know, trees for example and
 4 then cut it off. I mean you start with blinds and
 5 then eventually it could be trees, but it never gets
 6 back, all the way back to us, you know.
 7 **CHAIRMAN FINNIGAN:** Any questions from the
 8 board? Staff?
 9 **MR. DICK:** No.
 10 **CHAIRMAN FINNIGAN:** Anyone in the
 11 audience?
 12 **MR. LUETKEHANS:** Thank you. Phil
 13 Luetkehans, 105 East Irving Park Road, Itasca.
 14 **QUESTIONS BY**
 15 **MR. LUETKEHANS:**
 16 Q. When you talk about expected numbers in
 17 Table B1 or page B1 of Appendix B, talking about it
 18 says expected case with monthly cloud cover and wind
 19 rows. So is that an average? Does that mean some
 20 years could be greater than 30 or the first one
 21 could be greater than 35 and some would be less or
 22 it's never going to be more than 35 in any given
 23 year ever?
 24 **A. Sorry, yeah, that is an annual average, an**

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1 **annual long-term average. On one year it could be**
 2 **higher, one year it could be lower.**
 3 Q. So one year it could be 40, the next year
 4 it could be 25, et cetera, give or take.
 5 **A. It would vary around that number, yes.**
 6 Q. Okay. Do you know what the Wisconsin
 7 standards, state standards are for shadow flicker?
 8 **A. No, I don't.**
 9 Q. You've never seen those before?
 10 **A. No, I don't, I haven't.**
 11 Q. Do you know what the Canada, the Canada
 12 guidelines are for noise[sic] flicker?
 13 **A. There aren't any guidelines. Well, there**
 14 **are no regulations in Canada for shadow flicker.**
 15 Q. Is the ability -- let me ask this
 16 question. We would agree that the likelihood of an
 17 astronomical worst case of any turbine in a
 18 particular year is very, very unlikely, correct?
 19 **A. I would even venture saying impossible.**
 20 Q. Okay, but if you go to the minutes on the
 21 worst day to the left, that's not the case there,
 22 correct? I mean that is a, that is a possibility
 23 that in one year, one day they are going to hit 108
 24 on receptor 30.

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1 **A. Correct.**
 2 Q. Okay. Are you aware of any guidelines or
 3 regulations that would require that the owner
 4 mitigate shadow flicker if it was to average
 5 between, if it was to -- if a residence was to
 6 expect, was experiencing 20 hours or more per year
 7 of shadow flicker?
 8 **A. No, I don't know of any guidelines that**
 9 **limit flicker to 20.**
 10 Q. Showing you what has been marked as SLG
 11 Exhibit 12, I assume you've never seen this before?
 12 **A. No, I haven't.**
 13 Q. Okay. This is state statutes of
 14 Wisconsin. If you could go to PSC 128.15 which is
 15 the shadow flicker. If you go to paragraph 2, it
 16 says, does it not: An owner shall operate the wind
 17 energy system in a manner that does not cause more
 18 than 30 hours per year of shadow flicker at a
 19 nonparticipating residence or occupied community
 20 building. Do you see that?
 21 **A. Yes.**
 22 Q. Okay. And then if you go to 3B, it goes
 23 on to say: An owner shall provide reasonable shadow
 24 flicker mitigation at the owner's expense for a

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1 nonparticipating residence or occupied community
 2 building experiencing 20 hours or more per year of
 3 shadow flicker. Do you see that?
 4 **A. Yes, I do.**
 5 Q. Have you ever heard that the worst case
 6 shadow flicker limit values for Canada was 30 hours
 7 per day[sic] and 30 minutes per day?
 8 **A. No, there's no regulation in Canada for**
 9 **shadow flicker.**
 10 Q. Is that a common practice in Canada?
 11 **A. I would say that it's somewhat of a, you**
 12 **know, the industry in some areas have -- the aim has**
 13 **been to try and respect the 30 hours --**
 14 Q. How about --
 15 **A. -- but without regulation, but yes, 30**
 16 **hours has come up --**
 17 Q. How about --
 18 **A. -- where projects --**
 19 Q. Sorry.
 20 **A. -- you know, aim to reach that level, yes.**
 21 Q. How about 30 minutes per day? Have you
 22 seen projects try and reach that level as well?
 23 **A. No. In general, people put much less**
 24 **importance in the number of minutes on a day, it's**

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1 **more the number of hours in a year from my**
 2 **experience.**
 3 Q. So you've never seen the practice of
 4 industry standards being at 30 minutes per day?
 5 **A. I don't know of regulations that limit it**
 6 **at 30 minutes per day, no.**
 7 Q. I didn't ask about regulations. I asked
 8 about industry standards or industry trying to limit
 9 things to 30 hours per day -- or 30 minutes per day
 10 shadow flicker.
 11 **A. No, from my experience, and once again**
 12 **I've worked in jurisdictions where there's no**
 13 **regulation, but let's say in good faith I've seen --**
 14 **I've worked with developers that have tried to be in**
 15 **the, you know, in the order of 30 or below hours per**
 16 **year, but not to -- and I've heard residents discuss**
 17 **the hours per year aspects, but the minutes per day**
 18 **hasn't really been a topic of discussion or it**
 19 **hasn't been sort of a goal that people have tried to**
 20 **really reach, no.**
 21 Q. Have you ever --
 22 **A. We do include it in our study however.**
 23 Q. Have you ever seen any country limit,
 24 either by legislation or guideline, shadow flicker

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1 per day to 30 minutes per day? Are you aware of any
 2 country that's ever done that?
 3 **A. No, I'm not.**
 4 Q. Okay. When does shadow flicker occur
 5 mostly during the day?
 6 **A. That's, that's all dependent on the**
 7 **configuration, so where is the turbine in**
 8 **relationship to the sun and the house, so it varies.**
 9 Q. I assume, though, it's not at noon,
 10 correct, it's not midday when the sun is right above
 11 us most of the time, so it's less of a problem
 12 midday than it is the beginning of the day or
 13 towards the end of the day, correct?
 14 **A. Oh, yeah, that's what you mean by that**
 15 **question. Yeah, you would expect it to be more**
 16 **towards the beginning and end.**
 17 Q. Right. Could be before and after people
 18 go to work, correct?
 19 **A. Yes, it could.**
 20 Q. In fact, the majority would be in those
 21 kind of early or later daylight hours, correct?
 22 **A. Depends on the time of year I'd say, but I**
 23 **could not say majority because we would have to**
 24 **calculate that.**

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1 Q. Well --
 2 **A. But it would depend on the time of year.**
 3 **During winter when the sun sets pretty early and**
 4 **rises pretty late, I wouldn't say the majority. It**
 5 **all depends on people's profession and --**
 6 Q. No, I'm sorry, the question wasn't about
 7 if they were home or not or whether they were
 8 working. The question was a significant or a
 9 majority of the shadow flicker occurs either as the
 10 sun is rising or as the sun is setting, correct?
 11 **A. Tough to say again, because not just**
 12 **rising, I mean it rises, I mean we have to limit --**
 13 **like it rises and at some point, yes, it's over the**
 14 **wind turbine, so it's not just that little portion**
 15 **where it rises there is shadow flicker. Once again,**
 16 **it depends on the configuration. If a house, sorry,**
 17 **is north of the wind turbine, it's not getting**
 18 **shadow flicker when the sun is rising, right? So**
 19 **it's -- you can't just provide, I cannot provide a**
 20 **blanket answer. I would really have to estimate it**
 21 **on a, you know, house by house specific.**
 22 Q. Okay, but there's no doubt, is there, that
 23 at the midday point of the sun, no house is getting
 24 shadow flicker, correct?

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1 **A. I would say likely, yeah.**
 2 **Q.** Almost no houses are getting shadow
 3 flicker, correct?
 4 **A. It's quite likely, yes.**
 5 **MR. LUETKEHANS:** Nothing further, thank
 6 you. I don't -- I can do it later, but while I'm
 7 thinking about it, I'd just -- I'd ask that SLG
 8 Exhibit 11 be admitted into evidence. If you want
 9 me to wait, I'll do it later, but just so no one
 10 forgets about it.
 11 **CHAIRMAN FINNIGAN:** Which exhibit are we
 12 talking about?
 13 **MR. LUETKEHANS:** It's the -- I'm sorry,
 14 it's SLG Exhibit 12, I apologize. It's the
 15 Wisconsin regulations.
 16 **CHAIRMAN FINNIGAN:** We can hold onto them
 17 and you can put a basis to it when you do your
 18 testimony. Would that be okay?
 19 **MR. LUETKEHANS:** I don't think I need a
 20 basis for a state statute. I mean if you want me to
 21 be the basis, but I'm not going to have someone come
 22 in and testify to a state statute that is law that
 23 we can all find and see. There's no reasons and no
 24 precedent for us to have to put in a foundation for

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1 a statute.
 2 **CHAIRMAN FINNIGAN:** You can talk to my
 3 counsel.
 4 **MR. LUETKEHANS:** Well, I guess I would
 5 like a ruling from your counsel.
 6 **MS. WALLEY:** I don't give rulings, the
 7 chairman does.
 8 **MR. LUETKEHANS:** Well, I guess I would ask
 9 for a ruling from the chair then, because that's the
 10 foundation you're going to get from me unless you
 11 want me to swear that it's a state statute.
 12 **CHAIRMAN FINNIGAN:** Do you want to admit
 13 it now or later? It's up to the board.
 14 **MR. DEAN:** Now is fine.
 15 **MR. KURITZ:** I'll do whatever.
 16 **CHAIRMAN FINNIGAN:** We're going, we're
 17 going to take it as an exhibit right now.
 18 **MR. LUETKEHANS:** Thank you very much.
 19 **CHAIRMAN FINNIGAN:** We're going to have to
 20 give it a number.
 21 **MR. LUETKEHANS:** It's 12.
 22 **CHAIRMAN FINNIGAN:** Okay.
 23 **MR. DICK:** This is Exhibit, SLG Exhibit
 24 12.

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1 **CHAIRMAN FINNIGAN:** Any other questions?
 2 **MR. TAYLOR:** Travis Taylor. Do you need
 3 my address again? 28686 North 3050 East Road,
 4 Chenoa, Illinois.
 5 **QUESTIONS BY**
 6 **MR. TAYLOR:**
 7 **Q.** A couple different questions. Is there
 8 any other states surrounding us or near us that do
 9 have regulations on shadow flicker?
 10 **A. I don't know of any.**
 11 **Q.** Okay.
 12 **A. I knew of one, one county that requested**
 13 **to do a flicker study, but that's about it, in**
 14 **Illinois.**
 15 **Q.** Okay.
 16 **A. But a limit, no.**
 17 **Q.** A limit, no. Is there a distance from the
 18 house that inflicts -- like if you increase the
 19 distance of the turbines from the houses, would it
 20 be -- like I guess if there's like a threshold that
 21 most of the flicker occurs at, so like if --
 22 currently the standard is three times the turbine,
 23 so it's like, you know, for the distance that most
 24 of them are following the rules for, if you increase

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1 that distance, is there a threshold at which you
 2 become less likely to encroach on other properties
 3 with shadow flicker I guess? You know, is it 2,000
 4 or is it 1,000 or, you know, like how much of a
 5 variance would it take to reduce the amount of
 6 flicker off of houses?
 7 **A. You have all the good questions. I'll**
 8 **offer you a job. I'm kidding. So yeah, that's a**
 9 **really good question. So in theory, there isn't,**
 10 **okay? You know, you could -- in theory, you know,**
 11 **it's a mathematical formula, it just can go on. In**
 12 **reality, there are several publications of what the**
 13 **maximum distance can be to perceive flicker, right?**
 14 **So what I'm saying here is that, you know, if you**
 15 **put the sun behind a wind turbine, you know, in**
 16 **theory the flicker would go very, very large**
 17 **distances. The reality is, due to pollutants in the**
 18 **air, right, and what I mean by pollutants, it's just**
 19 **particles in the air, aerosols, you know, there's**
 20 **more than you think, and what that does, it**
 21 **basically attenuates that flicker. So there's a few**
 22 **studies that looked at up to what distance, and we**
 23 **show it in our report, what distance is feasible,**
 24 **and typically we -- the studies are all up to about**

1 **500 to 1,000 meter. That's the distance. We -- to**
2 **be conservative, we go further than that. We use**
3 **ten times the tip height of the turbine.**

4 **So in our case, we are at 1600 meters. So**
5 **we've assumed in our report -- so maybe that doesn't**
6 **answer your question, but I'll just answer it with**
7 **this first. In our report, we've assumed that**
8 **flicker is possible up to 1600 meters. It can be**
9 **perceived. In reality, I would challenge you to**
10 **perceive the flicker at that distance. So I would**
11 **say that it's really dependent on the day where the**
12 **flicker is occurring. Some days it's clear, you**
13 **know, the sky is really clear, the flicker can maybe**
14 **go a couple hundred meters extra distance, while on**
15 **other days the flicker doesn't go that far. So**
16 **what's certain is that as you move away from a**
17 **turbine, that that flicker effect is less and less**
18 **perceived, right, you just won't perceive it**
19 **anymore. Do I have a distance? No, but I'd say,**
20 **you know, three times tip height is the significant**
21 **distance, you know. That when I've perceived**
22 **flicker, I was within tip height of the turbine, but**
23 **that is my own personal experience. I mean probably**
24 **the best thing to do is to go near a wind farm and**

1 Illinois after the turbines are there for -- no?
2 **A. No, no, not in Illinois. For sound you**
3 **mean? No.**

4 **Q. No, for flicker. I thought you said that**
5 **you had done flicker studies. Have you done any**
6 **flicker studies after the turbines have gone in to**
7 **see if your projections correlate to the actual**
8 **readings after I guess is what I'm getting to? You**
9 **know, like if my house is modelled, the house is 50**
10 **again and there's quite a few around me, and like**
11 **she said earlier, we're at 29 out of 30 hours, so**
12 **I'm just under that 30 threshold, the imaginary**
13 **threshold, you know. So I guess is -- how accurate**
14 **is your projections that you've come up with to**
15 **actual readings? Are there any studies that**
16 **happened after the fact?**

17 **A. There's a few things there. There has --**
18 **you know, when shadow flicker models came out for**
19 **wind turbines, there were measurement campaigns to**
20 **validate them and those campaigns showed that it was**
21 **pretty accurate, just because, as I've explained**
22 **earlier, we're -- we know where the sun is and, you**
23 **know, we're very good at knowing where earth and sun**
24 **are in relationship to each other, so we predict**

1 **see how far you can perceive that flicker on a**
2 **really clear day. It's probably the best thing.**

3 **Q. I guess that's my next question. Do you**
4 **know of a wind farm with turbines this size that you**
5 **could go and like take a look at, I mean within**
6 **relative perspective, I mean within -- is there any**
7 **in Illinois or Wisconsin or Indiana that are this**
8 **tall because I think we tried to talk about this**
9 **briefly before, but I didn't know if since he does**
10 **studies on them a lot, if he's done any on --**

11 **A. Close by, unfortunately I don't, but I**
12 **think even, even a machine that's -- you know, like**
13 **as mentioned before -- well, I'm sorry, something**
14 **else in my mind here. I think even a smaller**
15 **machine will give you a good sense of how far**
16 **flicker can go, right? If the sun is behind the**
17 **small machine, it's the same. If you're looking at**
18 **what distance, up to what distance flicker can go,**
19 **the size doesn't really matter, right? If it's**
20 **behind, if you're at a distance of -- go 500 meters**
21 **away from the turbine, and if the sun is behind, to**
22 **see if you can perceive it.**

23 **Q. You mentioned earlier that you guys have**
24 **done some studies in Illinois or done a study in**

1 **shadow flicker. And it's light, it's pretty -- it's**
2 **pretty easy to model it, so those results are pretty**
3 **accurate. However, they're still conservative,**
4 **right? So there's a few things that are not**
5 **accounted in those numbers.**

6 **So that 29 is on average likely going to**
7 **be less, and it also assumes that you can actually**
8 **perceive flicker from turbines that are a mile away,**
9 **1.6 kilometers. So our model, those 29 hours also**
10 **includes any turbine that would be at that distance.**
11 **So I'm getting back to that notion of how far can**
12 **you perceive flicker. With our model, we assume**
13 **that you can, but perceiving flicker at a mile is --**
14 **you know, so I would say that 29 is, if you go**
15 **outside of your home for a full year and sit**
16 **there --**

17 **Q. I do spend a lot of time outside, so --**

18 **A. -- I'm curious how much time you'll clock**
19 **actually, how much of that, you know, flicker you'll**
20 **actually perceive, because for the further turbines**
21 **you'll probably not even perceive it, you won't**
22 **realize that there's flicker, although we've**
23 **accounted for it here in that 29 hours. I can't**
24 **tell you how much --**

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1 Q. Sure.

2 **A. -- but see that as an upper bound, that 29**

3 **hours, although as mentioned before, on one year it**

4 **could be a little bit more than 29, one year a**

5 **little bit less, but still that's pretty**

6 **conservative.**

7 Q. And was the study done for the flicker on

8 our house itself or -- like I'm an outside person, I

9 enjoy working outside, clean the yard, you know, a

10 nice property that we take care of. So was the

11 study individually to the house again or was it

12 something that was to the property itself?

13 **A. It's to the house, it's to the house.**

14 Q. So that was -- so depending on what part

15 of the yard you might be in or what areas you might

16 work in. And then my also question is if the house

17 was specified as a barn, it changes, so --

18 **A. Again, we could look into that. We could**

19 **reevaluate at a different location on your property**

20 **what it would be.**

21 Q. Okay.

22 **A. And once again, that's a yearly number, so**

23 **you would have to be in that corner of your yard --**

24 Q. True.

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1 **A. -- all days for the whole year to**

2 **experience that amount --**

3 Q. Some parts of --

4 **A. -- or close.**

5 Q. -- the year more than others, so it would

6 affect me, but no, I appreciate it.

7 **A. Okay, but yes, we can provide those**

8 **results.**

9 **MR. TAYLOR:** Okay.

10 **CHAIRMAN FINNIGAN:** Any other questions?

11 **MR. POWELL:** Jeff Powell, 32897 East 2700

12 North, Chenoa.

13 **QUESTIONS BY**

14 **MR. POWELL:**

15 Q. I see on your graph here that this shows

16 up to, as we talked about, 30 hours a year. How far

17 out can we go? Is it a mile, is it more, that you

18 might experience shadow flicker even if it's just

19 one hour a year, you know, for any time of the day?

20 **A. Yes, so the map shows up to 30; the table**

21 **of results goes all the way. So if you have a**

22 **certain location, a certain house you want to look,**

23 **the table of results goes all the way down to 1**

24 **basically.**

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1 Q. So it's safe to say if you can see it,

2 chances are that at some point of the year you'll

3 experience shadow flicker.

4 **A. Not necessarily. You know --**

5 Q. Relative to let's say if it was to your

6 west and the sun sets in the west, then if you can

7 see it in the west --

8 **A. It depends how far that turbine is.**

9 Q. Okay.

10 **A. So, you know, once again, if that turbine**

11 **is a mile to the west, I -- even if the sun is**

12 **behind it, I don't think you'll be able to feel that**

13 **flicker.**

14 Q. Okay.

15 **A. Even maybe half a mile on some days or**

16 **even less, so that it really depends on the specific**

17 **day. On some days, the flicker can go maybe a**

18 **little bit further or a little bit less, but we've**

19 **assumed in our report that it always goes up to a**

20 **mile.**

21 Q. Okay. My other concern is has your

22 industry ever done studies as far as driving safety

23 and shadow flicker? I just had a little girl and

24 I'm concerned about, you know, safety driving to and

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1 from work and where we go, and my concern is how is

2 the flicker along the roads going to impact the

3 safety driving to and from where we need to go?

4 **A. So that's a good question because it has**

5 **been discussed in the past, and it was determined**

6 **that if you're driving along a road that's lined**

7 **with trees, right, just a row of trees on a sunny**

8 **day, you have that flicker effect which is way more**

9 **pronounced because the feature, the tree, is pretty**

10 **close to you, and, you know, the flicker that's from**

11 **a turbine that is further out, maybe just one of**

12 **them, has actually less of an impact. So if you**

13 **feel safe driving on roads that are lined by tall**

14 **trees, you'll probably feel safe, even safer driving**

15 **along roads where there's a turbine --**

16 Q. I guess --

17 **A. -- in terms of flicker.**

18 Q. -- more of my concern was a distraction as

19 far as seeing a shadow coming quickly across the

20 road as you're driving on it. I mean -- I mean

21 would you agree that that is a distraction when

22 driving?

23 **A. I mean everyone -- you know, you might**

24 **find it distracting and I can't, you know, and that**

1 -- I can't really comment on that. Having driven in
 2 wind farms at a certain speed, I don't find it
 3 distracting because I'm at a certain speed. I'll
 4 find much more distracting, as I've mentioned,
 5 driving along a road where there's a lot of trees
 6 and there's your -- you know, there's a shadow from
 7 a tree, then sun, then a shadow, you know, and that
 8 kind of effect. So just one flicker passing by
 9 while I'm driving, I personally haven't experienced
 10 it as being unsafe. I don't know neither of any --
 11 you know, I've never been aware of an accident due
 12 to flicker on a road, but once again, I think that's
 13 a little bit subjective. You know, you might feel
 14 it distracting, it's possible.

15 **MR. POWELL:** Okay. Thank you.

16 **MR. DOKOUZIAN:** Pleasure.

17 **CHAIRMAN FINNIGAN:** Any other questions?

18 **MS. ANTONIOLLI:** Could I have one minute
 19 and I may have a clarifying question?
 20 (Brief pause.)

21 **MS. ANTONIOLLI:** Nothing further.

22 **CHAIRMAN FINNIGAN:** Okay. We only have
 23 about 15 minutes left, I don't think we can get
 24 another witness and do cross-examination and get it

1 reconvene here February 20th --

2 **MR. LUETKEHANS:** Mr. Chairman --

3 **CHAIRMAN FINNIGAN:** -- six o'clock.

4 **MR. LUETKEHANS:** -- before you recess,
 5 could I talk about schedule for a couple minutes and
 6 try and understand the schedule? Unfortunately I am
 7 out of town on business the week of February 20th.
 8 I would ask for a continuance from that week. That
 9 I guess would be first.

10 **MR. DEAN:** What?

11 **CHAIRMAN FINNIGAN:** My counsel says we'll
 12 take that under advisement.

13 **MR. LUETKEHANS:** Well, I guess I -- it's a
 14 little late for me to take it under advisement, I
 15 mean we're not going to meet again before the 20th,
 16 so I'm trying to understand if I can -- if this
 17 board would grant me the courtesy since I'm out of
 18 town on business to continue until the next week.
 19 If the answer is no, it's no. I just need to know,
 20 I just need to know.

21 **MS. ANTONIOLLI:** I would for the record
 22 object to that since it's the first we're hearing of
 23 it. I understand he's out of town for business, but
 24 we've also made lots of plans and accommodations to

1 all done, so it's kind of unfair if we just get it
 2 presented and don't move on with the questions and
 3 stuff. So I think the best thing we can do is to
 4 call it quits for tonight.

5 **MS. ANTONIOLLI:** Okay.

6 **CHAIRMAN FINNIGAN:** And I've been told our
 7 next day is February 20th at seven o'clock.

8 **MS. ANTONIOLLI:** Before --

9 **CHAIRMAN FINNIGAN:** Six o'clock she says.

10 **MS. ANTONIOLLI:** At six o'clock, okay.

11 And before we end for tonight, I'd like to enter in
 12 one more exhibit. We have for you an executed copy
 13 of the Agricultural Impact Mitigation Agreement, and
 14 I think by entering it in tonight, this would give
 15 you all time to take a look at it. So I would
 16 propose to submit it as I think we're at Applicant's
 17 Exhibit No. 5.

18 **MR. DICK:** 4.

19 **MR. LUETKEHANS:** No, 5.

20 **CHAIRMAN FINNIGAN:** It is 5.

21 **MR. DICK:** It's 5.

22 **CHAIRMAN FINNIGAN:** That would be fine.

23 **MS. ANTONIOLLI:** Okay.

24 **CHAIRMAN FINNIGAN:** So we're going to

1 meet the schedule that was set by the board.

2 **MR. LUETKEHANS:** I guess I don't know what
 3 the schedule is by the board. Ms. Walley was kind
 4 enough to tell me last week, I think it was late or
 5 early this week, excuse me, Monday or Tuesday, about
 6 the 20th. This is the first time we've had a chance
 7 to be in front of you at that time. And honestly I
 8 don't know what the schedule is beyond the 20th and
 9 I would like to know that now as well so I can plan
 10 my experts, because if Ms. Antonioli knows
 11 something, she knows more than I do it sounds like.

12 **MS. WALLEY:** I can tell you that the
 13 tentative dates that we have right now are the 20th,
 14 the 21st and the 22nd and that is it.

15 **MR. LUETKEHANS:** I would also ask that Mr.
 16 DeClark who is their appraiser, my understanding is
 17 he does not have a report, but I think he was here
 18 tonight to testify. We would ask for his
 19 PowerPoint. It's a very technical area of the law
 20 or very technical area, and under Klaeren we would
 21 ask that we get it ahead of time so we don't have to
 22 ask for a continuance when he comes in. The rest of
 23 these we now have reports on ahead of time,
 24 everybody else we had the report, other than -- but

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1 Mr. DeClark does not have a report, so all we're
 2 getting is a PowerPoint at some point, and I would
 3 like to have that ahead of time so we do not have to
 4 delay these proceedings.
 5 **MS. WALLEY:** Is that something you're
 6 comfortable providing next week?
 7 **MS. ANTONIOLLI:** I don't think we object
 8 to submitting whatever we can in advance of the
 9 meeting.
 10 **MR. LUETKEHANS:** I guess the question is I
 11 don't know what -- I mean he was, I think he was
 12 here to testify tonight. Is there a PowerPoint
 13 that's ready tonight? If I get it -- you know, I
 14 hear that, and if I get it the day before the
 15 hearing, that doesn't do us a lot of good. We'd
 16 like to get it as soon as possible.
 17 **MS. ANTONIOLLI:** Just to clarify, he was
 18 not here tonight and we assumed that we would have
 19 time at a subsequent meeting to hear his
 20 presentation.
 21 **MR. LUETKEHANS:** I guess I would ask for
 22 his presentation seven days before the hearing.
 23 **MS. ANTONIOLLI:** No objection. But we do
 24 have one more, in the interest to get this into the

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1 record as well, one more exhibit we'd like to
 2 submit, and that is a post construction monitoring
 3 study plan for the Bright Stalk wind project, and
 4 that would be, I would submit that as Applicant's
 5 Exhibit 6.
 6 **CHAIRMAN FINNIGAN:** No objection?
 7 **MR. LUETKEHANS:** I don't know if I can
 8 object or not since I haven't seen it. I mean
 9 that's a little hard for me to -- I guess the
 10 question I have, is someone going to testify to this
 11 that actually has done the study?
 12 **MS. ANTONIOLLI:** Yes.
 13 **MR. LUETKEHANS:** Okay, then I would just
 14 ask that we wait until that time before it actually
 15 be admitted. I understand it's offered, but you
 16 have rules about what studies can and can't come in,
 17 and until I actually hear that, I don't really have
 18 a basis to know if it's proper or not.
 19 **CHAIRMAN FINNIGAN:** I think he's probably
 20 right on this. We just don't look at this. We've
 21 got it, we've got it in our packet. Don't look at
 22 it until the expert is here to testify to it. Is
 23 that okay? We can give them back to Phil if you
 24 want to, so we don't -- yeah, let's just do that.

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1 We'll just give them back and that way it --
 2 **MS. ANTONIOLLI:** Yeah, it was done -- and
 3 we'll wait with it. It was done by WEST who was
 4 prepared to present tonight, so that's why I have it
 5 ready to go.
 6 **CHAIRMAN FINNIGAN:** Well, we have them in
 7 the exhibits, that's fine, but we'll just pass them
 8 out when it's time. Same thing about when you come
 9 up here and pass out stuff. Don't just pass them
 10 out, ask first, because it's kind of up to these
 11 guys what we're going to see. So you've done that
 12 twice tonight, passed out stuff to the board without
 13 asking. I'd appreciate it if you don't do that.
 14 **MR. LUETKEHANS:** Okay, we would ask that
 15 we be -- that I have SLG Exhibit No. 1, which is our
 16 client list, which I know in the past we've been
 17 asked for, I would like to just get that on the
 18 record because right now I'm kind of cross-examining
 19 with no client list in front of you and I don't
 20 think that's proper for you.
 21 **CHAIRMAN FINNIGAN:** That'd be fine. Thank
 22 you very much.
 23 **MR. LUETKEHANS:** Can I just ask one final
 24 question, I apologize? Do we have any idea of dates

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1 after the 22nd? Just given what we've seen so far
 2 and the timing, I don't see us being done by the
 3 22nd, given the last hearing.
 4 **MS. WALLEY:** We do not.
 5 **MR. DEAN:** Can we go ahead and get some
 6 dates out to next week?
 7 **CHAIRMAN FINNIGAN:** We're already the week
 8 of the 20th. The 20th is our next meeting. That's
 9 not next week, is it?
 10 **MS. TURNER:** No.
 11 **MR. DEAN:** What does the calendar look
 12 like, the next Tuesday, what's the date? Not March
 13 6, is it?
 14 **MS. TURNER:** It would be the 27th.
 15 **MR. DEAN:** Yeah, it would be. There you
 16 go, you are good.
 17 **MR. DICK:** Tuesday is the 27th and the
 18 28th is Wednesday and March 1 is Thursday. Are we
 19 all available those three days? Oh, you're not.
 20 **MR. KURITZ:** I'll be gone.
 21 **COURT REPORTER:** Do you want this on the
 22 record because I can't hear you guys.
 23 **MR. DEAN:** No, we don't want it on the
 24 record.

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