

STATE OF ILLINOIS)
)SS
COUNTY OF LEE)

In the Matter of the Petition

of

Shady Oaks Wind 2, LLC

Lee County, Illinois

Testimony of Witnesses
Produced, Sworn and
Examined on this 9th day
of June, A.D., 2020,
before the Lee County
Zoning Board of Appeals

Present:

Craig Buhrow
Mike Pratt
Gene Bothe
Rex Meyer
Glen Hughes
Bruce Forster, Chairman

Alice Henkel, Secretary
Dee Duffy, Zoning Enforcement Officer

Honorable Judge Tim Slavin, Facilitator

1 APPEARANCES:

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4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

INDEX

Witness: CHRIS HOWELL

Examination Page

Attorney Kennedy (Direct) 10
 By Mr. Buhrow 23
 By Mr. Pratt. 24
 By Ms. McInnis. 29

Witness: AARON ANDERSON

Examination Page

Attorney Kennedy (Direct) 32
 By Mr. Buhrow 52
 By Mr. Pratt. 52
 By Ms. McInnis. 54

Witness: SEAN FAIRFIELD

Examination Page

Attorney Kennedy (Redirect) 57
 By Mr. Forster. 59
 By Mr. Pratt. 59
 By Ms. McInnis. 66

Witness: AARON ANDERSON

Examination Page

Attorney Kennedy (Redirect) 71
 By Ms. McInnis. 74

Witness: JEFFERY ZIRPOLI

Examination Page

Attorney Kennedy (Direct) 78
 By Mr. Hughes 99
 By Ms. McInnis. 100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

INDEX

EXHIBITS

Exhibit	Marked
Petitioner's Exhibit Number 6	6

Certificate of Shorthand Reporter	104
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1 JUDGE SLAVIN: Good evening, everyone.
2 Welcome back to what is technically session
3 number three of Algonquin Power, doing business
4 as Liberty Power, Shady Oaks Wind 2, LLC's
5 petition for 28 Special Uses.

6 We have gone over the notices that this
7 hearing has been given and notices that have
8 been published and posted.

9 I remind everyone, if you're trying to
10 join us either on YouTube, to see and hear us
11 but not participate, or to participate on Zoom,
12 it is the same meeting ID and password as last
13 night's session. If you need technical
14 assistance to join us, again either by YouTube
15 or Zoom videoconferencing or Zoom telephonic
16 conferencing, the number to call is
17 815.288.3643, and there is someone standing by
18 to, at least hopefully, try to assist you with
19 any technical difficulties. When it gets to the
20 point of having any questions of witnesses, I
21 will go over the raising-your-hand protocol.

22 I will note that this evening we are
23 joined by all, I think, of the august members of
24 the Lee County Zoning Board of Appeals.

In Totidem Verbis, LLC (ITV)
815.453.2260

In Totidem Verbis, LLC (ITV)

1 Mr. Forster, Chair, is with us; Mr. Buhrow, Vice
2 Chair; Mr. Pratt; Mr. Hughes; Mr. Bothe; and
3 Mr. Meyer are all present.

4 Ms. Courtney Kennedy is present on behalf
5 of the Petitioner. The fine Zoning Officer, Dee
6 Duffy, is present. Mr. Boonstra, your Lee
7 County State's Attorney, is present.

8 And we're ready to proceed. Ms. Kennedy,
9 the ball is in your court.

10 MS. KENNEDY: Thank you, Judge.

11 As a quick preliminary matter, with last
12 night's testimony and the testimony that we will
13 hear tonight, I'd like to admit the zoning
14 application, this binder, into evidence. I
15 forget what number we're at now.

16 JUDGE SLAVIN: That would be Petitioner's
17 Number 6.

18 MS. KENNEDY: Thank you.

19 (Petitioner's Exhibit Number 6
20 marked for identification.)

21 JUDGE SLAVIN: And I assume that was
22 already on file with Ms. Duffy. So it's kind of
23 proforma, but I appreciate the --

24 MS. KENNEDY: Thank you.

1 JUDGE SLAVIN: What do we call it, an
2 application binder? Does that sound okay?

3 MS. KENNEDY: That works for me.

4 And then I would like to call Chris Howell
5 as my first witness.

6 JUDGE SLAVIN: Okay. Mr. Howell. We can
7 see Mr. Howell's name. We can't see Mr. Howell.

8 MR. HOWELL: Hello, can you see me?

9 JUDGE SLAVIN: No, but we can see a share
10 file, but we would love to see you.

11 MR. HOWELL: Okay. I am sharing video.
12 So it should show up.

13 JUDGE SLAVIN: We can hear the family dog
14 though.

15 MR. HOWELL: Yeah, she's outside.

16 JUDGE SLAVIN: We do need to see you
17 though.

18 MR. HOWELL: I -- yeah, I apologize. I am
19 sharing video. It's showing up on my screen as
20 me showing video.

21 MS. KENNEDY: Judge, if I may real quick,
22 I think Mr. --

23 JUDGE SLAVIN: There we go. Now we can
24 see you, but we cannot see the share file yet.

1 Now you're -- now you're big and real.

2 MR. HOWELL: I'll sit back a little bit.

3 JUDGE SLAVIN: No, that's fine. But
4 there's a way to split the screen between the
5 share file and your -- I think.

6 MS. KENNEDY: I believe Mr. Fairfield is
7 sharing the screen, and then Mr. Howell is --

8 MR. HOWELL: Correct. Does my face show
9 up when I'm talking?

10 JUDGE SLAVIN: No.

11 MS. HENKEL: That might be a view thing on
12 my end. I'm not sure how to change it.

13 JUDGE SLAVIN: Now we see you but not the
14 share screen.

15 Mike McBride?

16 Chris, can you --

17 MS. DUFFY: I have got him.

18 JUDGE SLAVIN: -- holler at Mike, please?

19 Understandably testifying remotely is
20 fine, but we really -- to judge a witness's
21 creditability, you've really got to see them,
22 and I don't want the Board just to hear your
23 voice.

24 MR. HOWELL: Understood.

1 JUDGE SLAVIN: We see your sound study
2 face page but not you. Now we see you.

3 MS. HENKEL: And that's me, and I don't
4 know how to make it so you can see both.

5 JUDGE SLAVIN: Hold on, Mr. -- Chris.
6 We'll get there.

7 MR. HOWELL: Sounds good.

8 JUDGE SLAVIN: I hope.

9 Do we have any kids in the house under 12?
10 Maybe they know how to do. And that's not a
11 slam against you. They know more than anybody
12 else in the room.

13 MS. KENNEDY: Mike McBride is working on
14 it right now.

15 JUDGE SLAVIN: Oh, he's working on it
16 right now?

17 MS. KENNEDY: Yes, Mike McBride is working
18 on the issue.

19 JUDGE SLAVIN: Oh, okay. Off the record.

20 (A discussion was held off the
21 record.)

22 JUDGE SLAVIN: Okay. I think we have got
23 it solved largely, although Mr. Howell is a
24 little small but that's all right.

1 You may inquire, Ms. Kennedy.

2 MS. KENNEDY: Back on the record?

3 JUDGE SLAVIN: Yeah, back on the record.

4 CHRIS HOWELL,

5 being first duly sworn, was examined and

6 testified as follows:

7 DIRECT EXAMINATION

8 BY MS. KENNEDY:

9 Q. Can you state your name for the record, please.

10 A. Yes, it's Chris Howell.

11 Q. And how are you employed?

12 A. I am a project manager at Burns & McDonnell
13 engineering company.

14 Q. And what exactly do you do there?

15 A. I manage projects where I am in charge of
16 licensing and permitting large-scale generation
17 projects, a specific focus on acoustical
18 studies.

19 Q. And how long have you been with Burns &
20 McDonnell?

21 A. I have been with Burns and Mac for 18 years at
22 this point, and prior to that I worked for
23 another company for two years. So 20 years
24 total environmental studies experience.

1 Q. And can you provide a brief summary of your
2 educational background?

3 A. Yes. I have a bachelor's of science in
4 mechanical engineering from Kansas State
5 University. I took additional courses, graduate
6 level, in acoustics while there.

7 Q. And do you hold any certificates or licenses?

8 A. No specific licenses. I am an elected member
9 of the Institute of Noise Control Engineering.
10 It takes an elected member to recommend me for
11 membership into the Institute, and there is a
12 rigorous check of my academic and professional
13 background before they allow you into the
14 Institute.

15 Q. Do you have any other professional
16 affiliations?

17 A. No.

18 Q. Have you published any articles?

19 A. I have a -- recently published an article in
20 our magazine dedicated to noise from
21 reciprocating engines. I often teach courses in
22 acoustics for different industries. Recently
23 have been invited to provide education to IEEE
24 for transformer noise.

1 Q. And have you had the occasion to testify at
2 this type of hearing before?

3 A. Yes, I have. I have testified in roughly ten
4 states. This will be my third time testifying
5 in front of Lee County.

6 Q. And you understand that Burns & McDonnell was
7 retained by Shady Oaks 2 in regard to this Lee
8 County project?

9 A. Yes.

10 Q. And what exactly were you retained to do?

11 A. Burns & McDonnell was retained to identify
12 applicable regulations for the development, as
13 well as perform ambient sound monitoring and
14 predictive monitoring for a future build-out,
15 and then convey those results.

16 Q. And do you always testify in favor of a wind
17 project?

18 A. I don't testify in favor or against the wind
19 farms in general. I testify to the analyses
20 that were done; however, there has never been an
21 opponent to a wind farm hire me for testimony.

22 Q. And you're familiar with Shady Oaks 2's
23 petition and proposal in this matter; is that
24 correct?

1 A. Yes.

2 Q. Did you physically visit the proposed site to
3 conduct your survey?

4 A. I did not. I had a team from our Chicago
5 office visit the site.

6 Q. And do you recall roughly when that was?

7 A. It was -- I apologize. I believe it was in
8 September.

9 Q. Would that be of 2019?

10 A. Yes.

11 Q. And did you issue a report based upon their
12 findings?

13 A. Yes.

14 Q. And I understand that you have a PowerPoint
15 presentation that you would like to go through?

16 A. Yes, I do.

17 Q. Please proceed.

18 A. Thank you.

19 And thank you again for having me in front
20 of you to go over the results of the study.

21 Real quick, we'll cover an intro. We
22 mostly just covered it, but then we'll do an
23 overview of wind turbine sound in general, I'll
24 cover the modeling that was performed, and then

1 the results of that modeling.

2 As mentioned, I'm a member of the
3 Institute of Noise Control Engineering, 20
4 years. This will be my 13th year for wind
5 farms. I have done studies in every state,
6 including Illinois.

7 Burns & McDonnell is a very large firm.
8 We have fully-integrated engineering,
9 construction, environmental, and consulting.
10 Founded in 1898. Roughly 7500 employees, and we
11 are the top-ranked power and T&D firm in the
12 United States.

13 All right. So an overview of wind
14 turbines and how they make noise. The most
15 common sound associated with wind turbines is
16 the woosh that they create. It's an aerodynamic
17 effect of air passing over the rotor blades.
18 There are blade tip vortices that can be created
19 and different things like that that all have
20 little amounts of noise that all add up to that
21 overview woosh.

22 The turbine nacelle, basically the hub,
23 the center of the blades, there are mechanical
24 components that will have their own noise that

1 they can generate. However, most of those are
2 insulated, vibration mounted, things like that,
3 which all go to reducing the noise from the
4 nacelle itself. And typically they won't be
5 making considerable noise that is audible over
6 the whoosh of the blades as well.

7 Then for an overall wind farm, there are
8 other electrical components such as transformers
9 and things like that that make noise.

10 All right. So the first that we had in
11 our study was to identify what the local
12 regulations were. Having worked in this county
13 before, we were quite familiar. There are no
14 federal laws applicable to wind turbines. The
15 Illinois Pollution Control Board does regulate
16 noise for sources such as this. It's Title 35,
17 Subtitle H, Chapter I. It has a very
18 prescriptive method for how to comply with the
19 regulations.

20 And then moving down to the county level,
21 the County Code, Chapter 10-15-15, Wind Energy
22 Systems, states that wind farms have to meet the
23 IPCB regulations. So everything falls back to
24 the State regulations.

1 Digging into, the IPCB regs, they limit
2 noise based on the receiving and the emitting
3 type of land. So if you are an agriculture
4 area, you have different regulations than if
5 you're a residential area or a business or an
6 industrial area, which residential would be A
7 and industrial would be C.

8 Agricultural land is actually
9 unclassified. It does not have regulations. So
10 the way that the IPCB treats that is, you apply
11 the residential limit at the physical residence
12 on an agricultural property.

13 The IPCB also regulates sound differently
14 for daytime and the nighttime. There are higher
15 limits in the day, when people are less affected
16 by noise, and then obviously lower nighttime
17 limits when people are trying to sleep and need
18 to enjoy a more quiet, peaceful setting.

19 Illinois does also go a step -- a couple
20 steps further than most places, in that they
21 regulate each octave band frequency, which is a
22 tone that you could possibly hear. They further
23 limit one-third octave band prominent discreet
24 tones, which is not applicable for a source like

1 this.

2 For this analysis, we used the nighttime
3 limits as the most stringent limits for this
4 type of source, and we are a Class C operation.
5 A wind turbine would be considered industrial to
6 a Class A residential property at the physical
7 residence. So that -- this analysis assumes
8 that it's always nighttime and the turbines are
9 always operating as loud as they possibly can.

10 Ambient monitoring was performed to
11 establish the background sound levels in the
12 area. We used an ANSI Type 1 sound level meter.
13 It's one of the best you can get. It's highly
14 accurate and measures individual octave bands,
15 things like that, that are required for this
16 type of study.

17 Some of those ambient sound levels
18 actually exceeded Illinois regs on their own
19 with cooperation with sources in the area. The
20 most common sounds that were noted during the
21 ambient study were traffic noise. The
22 interstate there was audible at all of the
23 measurement points during all times of day, as
24 well as insect noise, dogs, things like that,

1 local traffic.

2 As you can see on that figure before,
3 there were ten different locations. We logged a
4 considerable amount of data over a full day.
5 And as mentioned, several locations had
6 exceedances. We captured various metrics that
7 are used for acoustical analysis, and then notes
8 were taken for each time, each point.

9 All right. So then moving on, the next
10 step in our analysis was to perform acoustical
11 modeling. We use a model called CadnaA. It's
12 one of the most prevalent predictive modeling
13 software packages out there. It's a
14 three-dimensional modeling program. So it takes
15 into account all of the geometrical spreading of
16 sound over space. It calculates propagation
17 based on ISO 9613-2, the most common method of
18 predicting noise in the environment;
19 internationally-accepted method.

20 Cumulative impacts of all turbines at any
21 given time were predicted at every residence.
22 So it was assumed every single turbine was
23 operating at maximum sound levels at all times.
24 The model assumes, because of ISO 9613, that

1 there is a moderate ground-based inversion that
2 is occurring, which means you have low clouds
3 and the sound cannot get to the atmosphere,
4 potentially causing it to travel further than it
5 would on a normal day. Again, another very
6 conservative method of approach to sound
7 propagation at distance.

8 And then the model allows us to look at
9 the individual frequencies that are required for
10 the IPCB regulations. We input all 28 turbines.
11 There were 16 V150's and 12 G114 turbines.
12 Additionally, it was requested that we include
13 the Shady Oaks 1 Wind Project into the
14 assessment to determine if there would
15 potentially be cumulative impacts between the
16 two wind farms.

17 There were 509 residential locations
18 analyzed for cumulative impacts for all
19 turbines. Furthermore, there were no obstacles
20 modeled, which is highly conservative. We got
21 rid of all trees, all buildings, anything like
22 that, that could potentially block sound from
23 getting to a residential receptor.

24 Public data was used for terrain. We used

1 10-foot contours. That's fairly standard and
2 sufficient for the overall distances that we're
3 talking about between sources and receptors.
4 Going beyond that doesn't provide significant
5 difference in results.

6 We assumed a semi-reflective surface.
7 This is pretty standard. There -- basically we
8 assumed the ground would reflect half of the
9 sound that hits it, as opposed to absorbing the
10 sound. In a rural area like this where the
11 ground is pretty soft, there's typically crops,
12 there's grass and things like that, the ground
13 is actually going to be very soft, and assuming
14 a semi-reflective surface is pretty
15 conservative. There's been some empirical
16 studies done that demonstrates that that is a
17 decently conservative approach in predicting
18 sound in areas like this.

19 Then the last conservative assumption
20 that's made is, the model assumes that every
21 single house is downwind of every single
22 turbine. So when you have two turbines and a
23 house right in between them, it assumes the wind
24 is actually blowing from both directions at the

1 same time and both downwind sound levels hit
2 that house. So that's a pretty conservative
3 approach, especially if someone has two turbines
4 near them.

5 All right. This table here demonstrates
6 the input levels that we used and also the hub
7 heights that were used for the individual
8 turbines. As mentioned, there were a certain
9 number of 114 turbines, a certain number of 150
10 turbines, a total up to a potential of 28
11 turbines for the Shady Oaks 2.

12 And then the GW82 and the GW100 there are
13 the existing Shady Oaks 1 wind turbines. Those
14 sound levels were taken from the HFP acoustical
15 study that was performed in 2011 for that wind
16 farm.

17 So all of that data was then taken and
18 placed in the model, using all of the
19 conservative assumptions that we mentioned
20 already and then assuming everything was
21 simultaneously operating at maximum sound
22 levels.

23 So then CadnaA predicts a bunch of
24 discrete and gridded impacts for the entire area

1 of the project. We get individual predictions
2 at all of the houses, as well as these gridded
3 contours, to help us visually understand what
4 the sound levels were doing. So that allows us
5 to do some real fast analysis with the figures
6 like this, and digging into the individual
7 residential receptors allows us to do a much
8 more in-depth dive into the data.

9 What we determined was that compliance is
10 expected at all of the residences inclusive of
11 Shady Oaks 1. So even a cumulative analysis of
12 any houses in between the two wind farms
13 demonstrated that they would comply for the
14 addition of this wind farm. Now, this does not
15 include highway noise and things like that,
16 which is how the Illinois regs are written; only
17 the source itself is required to meet the
18 limits. So that's part of why the ambient is
19 established, so you can determine the individual
20 source of impact to the residences later on.

21 The model did predict that the turbines as
22 modeled would meet the requirements.

23 Of note is that these figures are for the
24 1000 hertz frequency, which is typically the

1 dominant frequency for wind turbines of this
2 size. Otherwise I would have had to create nine
3 different figures for you here.

4 So summing that all up, there's 71
5 existing and 28 proposed turbines. We looked at
6 509 receptors, and none of them exceeded the
7 IPCB regulations.

8 Thank you. I will take questions.

9 JUDGE SLAVIN: Yes, you will.

10 All right. Questions of this witness,
11 Mr. Boonstra?

12 MR. BOONSTRA: No questions, Your Honor.

13 JUDGE SLAVIN: Members of the Board.

14 Mr. Forster.

15 MR. FORSTER: No questions.

16 JUDGE SLAVIN: Mr. Burhow.

17 EXAMINATION

18 BY MR. BUHROW:

19 Q. Mr. Howell, we haven't talked about distance to
20 residences here. Just from what you recall --
21 we haven't really talked about this yet in our
22 meetings -- but what's the closest that you're
23 looking at for one of the turbines to a house in
24 making this noise study?

1 A. I would have to look that up so that I don't
2 give you an off-the-cuff answer.

3 I know there are minimum setbacks to
4 residences from the turbines, and nothing would
5 encroach on that.

6 Q. So you think they would be -- whatever the
7 County recommendation is would be where you were
8 taking the measurements. I mean, if they were
9 1200 feet or 1400, whatever the County
10 recommendations were, is what those were based
11 on then?

12 A. So the -- everything was geospatially located
13 appropriately for where it is. So the expected
14 locations of the turbines were modeled. They
15 weren't placed at a discreet distance from a
16 residence.

17 Did I misunderstand the question? I'm
18 sorry.

19 JUDGE SLAVIN: No, you just answer the
20 question the best you can. Thanks.

21 THE WITNESS: Okay.

22 MR. BUHROW: That's all.

23 JUDGE SLAVIN: Mr. Pratt?

24 EXAMINATION

1 BY MR. PRATT:

2 Q. Did the company give you the locations of the
3 different size of turbines?

4 A. Yes, they did. I don't know if you can see it
5 on the figure. There was a difference in colors
6 between the -- I'll go back to sharing my
7 screen.

8 There's a difference in colors of the
9 turbines between yellow and orange here. It's
10 kind of hard to see on the screen, I apologize.
11 But those specific colors represent which
12 turbines they were considering for those
13 locations. So the Vestas machine, as well as
14 the -- I'm sorry -- Gamesa machines were
15 identified by color in the figures.

16 Q. But the company told you where they would be
17 placed?

18 A. Correct. They gave me discrete coordinates for
19 each of those turbines.

20 Q. You made the statement that it meets
21 requirements --

22 JUDGE SLAVIN: Just interrupt a minute.
23 Would you come back on the screen there,
24 Mr. Howell, please?

1 THE WITNESS: Yes.

2 JUDGE SLAVIN: Okay. Thanks.

3 Q. (By Mr. Pratt:) You made a statement that it
4 met requirements. What requirements?

5 A. So the IPCB has very specific values for each
6 octave band frequency. So the center bands of
7 the octave bands -- or the center frequencies of
8 the octave bands are 31 and a half hertz,
9 63 hertz, 125 hertz, 250 hertz, 500 hertz,
10 1000 hertz, 2000 hertz, 4000 hertz, and
11 8000 hertz. So we predicted sound levels for
12 each of those individual frequencies at every
13 house for all turbines operating simultaneously,
14 so a cumulative sound level at that specific
15 frequency for each residence.

16 So the IPCB then regulates each of those
17 frequencies with a single value. When I said
18 earlier the thousand hertz is the dominant
19 frequency, it's pretty quick.

20 If you look at a thousand hertz in the
21 report, if you have that handy, in Appendix A
22 there is a detailed listing of what the
23 individual octave band sounds levels are for
24 each residence. So we would have compared each

1 of those nine frequency levels for each
2 residence to the specific limit.

3 So that's what I was referring to when I
4 was saying met the criteria.

5 MR. PRATT: No further questions.

6 JUDGE SLAVIN: Mr. Hughes, as long as
7 you're in here tonight?

8 MR. HUGHES: No questions.

9 JUDGE SLAVIN: To the Board members
10 remotely. Mr. Bothe?

11 MR. BOTHE: No questions.

12 JUDGE SLAVIN: Great.

13 Mr. Meyer?

14 MR. MEYER: No questions.

15 JUDGE SLAVIN: Okay. All right.

16 Interested parties, Mr. Henkel, are there any
17 folks downstairs? Would you check one last time
18 for me, please?

19 MR. HENKEL: There is nobody there.

20 JUDGE SLAVIN: There is nobody there,
21 okay.

22 On Zoom, folks with any questions, I
23 remind you that we would appreciate it, if you
24 are participating by videoconferencing, that you

1 click the "participants" link near the bottom of
2 the screen and then click "raise hand."

3 If you're teleconferencing, remain on the
4 phone but hit star, or asterisk, nine and we
5 will see a raised hand.

6 If you're on Zoom, just raise -- we
7 haven't got that many people. So if you just
8 raise your hand, I can probably see you.

9 So questions -- yes, Ms. McInnis. Just a
10 minute, we have got to unmute you. We can't
11 hear you yet.

12 MS. HENKEL: It's being slow to respond.

13 JUDGE SLAVIN: Technology is a little slow
14 to respond tonight, so. There we go. Let's see
15 if we can hear you.

16 MS. McINNIS: Okay.

17 JUDGE SLAVIN: Very good.

18 MS. McINNIS: Very good.

19 JUDGE SLAVIN: Would you state your -- do
20 you solemnly swear or -- no, you're asking
21 questions. Never mind.

22 Would you state your name and what city or
23 rural part of Lee County you live in.

24 MS. McINNIS: My name is Karen McInnis. I

1 live in the Village of Compton proper.

2 JUDGE SLAVIN: Thank you. Questions of
3 Mr. Howell.

4 EXAMINATION

5 BY MS. McINNIS:

6 Q. Yes, I am wondering if there is a louder level
7 of noise heard the longer the blade of the
8 turbine is? In other words, the first Shady
9 Oaks 1 rotor was 164 feet long; whereas, the
10 Shady Oaks larger turbine is 246 feet long. Is
11 there a difference in the noise that occurs, the
12 swoosh?

13 A. So between the two specific turbines of Shady
14 Oaks 1 and Shady Oaks 2, yes, there is a
15 difference in sound level. The turbines for
16 Shady Oaks 2 are slightly louder than the Shady
17 Oaks 1 turbines; however, I believe they are
18 potentially further away from residences.

19 Q. How --

20 JUDGE SLAVIN: Go ahead.

21 Q. (By Ms. McInnis:) Okay. How far away from the
22 residences are they?

23 A. I don't know the specific setbacks for each
24 residence. The -- in general, just from looking

1 at the map that I put up, every residence fell
2 outside of the 41 dB contour for the thousand
3 hertz. So having a louder source, with
4 everybody still falling outside of that same
5 contour, it would be a little further away.

6 Q. The 509 residences that you did the study in,
7 were these residences located only within the
8 footprint of either Shady Oaks 1 or Shady Oaks
9 2?

10 A. The residential file that was provided to me
11 appeared to include residences all the way
12 around both wind turbines -- or both wind farms.

13 Q. Did they include any residences in the Village
14 of Paw Paw or the Village of Compton?

15 A. We had specifically requested a set -- a buffer
16 outside of the nearest turbine. I don't
17 remember the exact number, but residences were
18 included in all directions out to the point
19 where the model is not predicting any impacts
20 anymore in any direction.

21 Q. Could we get a determination at some point of
22 what that distance -- the distance of that
23 buffer was?

24 A. Sure. I believe it was -- I'll have to get

1 back to you, but I believe it was 3,000 feet.

2 Q. Because we do hear the swoosh.

3 JUDGE SLAVIN: That's a statement. We
4 have got to be careful.

5 MS. McINNIS: I'm sorry. I'm sorry.

6 JUDGE SLAVIN: It's easy to do. Asking
7 questions is hard without adding editorial
8 comments, no doubt about it.

9 MS. McINNIS: Thank you.

10 Q. (By Ms. McInnis:) Is the noise level affected
11 if there are more than two turbines close to a
12 residence; in other words, does it amplify the
13 noise?

14 A. The more turbines you add, the more noise
15 there's going to be, yes.

16 Q. So if there were ten turbines around a
17 residence, the noise would be higher, louder?

18 A. Yes.

19 MS. McINNIS: Thank you. That is all that
20 I have.

21 JUDGE SLAVIN: Thank you.

22 Other interested parties, either -- well,
23 I can only see Ms. McInnis. So I can't see
24 anybody else, I don't think. So you have got to

1 raise your hand, and I'll give you a few seconds
2 to get that done, either by hitting star nine on
3 your cell phone or telephone or by raising
4 your -- by hitting "participant", "raise hand"
5 on the Zoom videoconferencing.

6 Seeing none, that's all the questions
7 there are. Thank you, Mr. Howell.

8 THE WITNESS: Thank you.

9 JUDGE SLAVIN: Ms. Kennedy, you may
10 continue.

11 MS. KENNEDY: Thank you. I'd like to call
12 Aaron Anderson next.

13 JUDGE SLAVIN: Mr. Anderson, can you hear
14 me and can you see us?

15 MR. ANDERSON: I can to both. Can you
16 hear me and see me?

17 JUDGE SLAVIN: Yes, I can. I'll let you
18 know if we can't.

19 Want to raise your right hand, please.

20 AARON ANDERSON,
21 being first duly sworn, was examined and
22 testified as follows:

23 DIRECT EXAMINATION

24 BY MS. KENNEDY:

1 Q. Can you state your name for the record, please.

2 A. Aaron Anderson.

3 Q. And how are you employed, Mr. Anderson?

4 A. I am the director of renewable energy at Burns
5 & McDonnell engineering company.

6 Q. And what exactly do you do at the company?

7 A. I perform different kinds of financial and
8 engineering analyses of wind projects, including
9 shadow flicker studies.

10 Q. And how long have you been with the company?

11 A. I have with Burns & McDonnell for 13 years, and
12 I have 15 years of professional experience.

13 Q. And can you provide a brief summary of your
14 educational background?

15 A. Sure. I have undergraduate degrees in physics
16 and mechanical engineering, and I have a
17 master's degree in engineering management.

18 Q. And do you hold any certificates or licenses?

19 A. I do. I'm a registered professional engineer
20 in a number of states, including Illinois.

21 Q. And do you have any professional affiliations?

22 A. I do not.

23 Q. And have you published any articles?

24 A. I have published a number of articles, but not

1 applicable to shadow flicker that we'll talk
2 about tonight.

3 Q. And have you testified at this sort of hearing
4 before?

5 A. I have. Similar to Mr. Howell, I have
6 testified for this Board for at least two prior
7 projects, so this would be my third time.

8 Q. And you understand that the company was
9 retained by Shady Oaks 2 in regard to this Lee
10 County proposed project?

11 A. Yes.

12 Q. And what exactly were you hired to do?

13 A. We were retained by the developer to perform a
14 shadow flicker analysis for the project, and I
15 supervised that shadow flicker study and the
16 modeling of the projects' wind turbines and the
17 preparation of the shadow flicker analysis
18 report.

19 Q. And do you always testify in favor of a wind
20 project?

21 A. Similar to what Mr. Howell said, I don't
22 present in favor of or against any project, but
23 I often am asked to present the results of
24 studies like these or provide independent

1 technical opinions.

2 Q. And are you familiar with Shady Oaks 2's
3 petition and proposal in this matter?

4 A. I am.

5 Q. And can you tell us what shadow flicker is?

6 A. Yeah, sure. So, you know, like any tall
7 structure, a wind turbine will cast a shadow
8 when the sun is out and visible. So when the
9 wind turbine is operating and those blades pass
10 in front of the sun, you get a flickering or
11 flashing effect when the shadows of those
12 rotating blades cause alternating changes in
13 light intensity at some given location, usually
14 a receptor, where a receptor is a home in this
15 case. So that recurring change in light
16 intensity is what we refer to as shadow flicker.

17 Q. And is shadow flicker governed by any
18 legislation in Illinois?

19 A. Shadow flicker is not regulated at the federal
20 level, and it is also not regulated by the State
21 of Illinois. There are occasionally county
22 requirements in certain areas, but in this case
23 there is nothing governing shadow flicker in the
24 Lee County Ordinance.

1 Q. And did you physically visit the property to
2 conduct your analysis?

3 A. I did not.

4 Q. How did you perform your analysis?

5 A. We performed the analysis on a desktop basis
6 using a software package called WindPRO, which
7 is the industry standard package for these types
8 of studies.

9 Q. And do you recall when you performed that
10 desktop analysis?

11 A. We performed the study in the first quarter of
12 this year, so February/March timeframe, and then
13 prepared a report in March of this year.

14 Q. And did you submit your report to be included
15 in the Applicant's binder?

16 A. We did.

17 Q. And when you conducted your study, do you apply
18 a somewhat conservative approach?

19 A. We do, yes.

20 Q. And what conservative factors did you apply?

21 A. We apply a number that we'll go through here
22 during the presentation, but examples of those
23 would be: every receptor or home, every
24 occupied residence, we model that in what's

1 called greenhouse mode, and it basically treats
2 the house as having windows on every side of the
3 home. So it's effectively susceptible to shadow
4 flicker from every direction.

5 Another example would be that we don't
6 include any obstacles in the model. So where a
7 grain silo or a hedgerow of trees or any other
8 type of outbuilding between a receptor or home
9 and a wind turbine might block a shadow from
10 occurring at that receptor, we don't consider
11 any of those in the model. So it creates a
12 highly conservative representation of how much
13 flicker might actually occur over the course of
14 a year.

15 Q. And I understand that you have a PowerPoint
16 presentation that you would like to go through
17 tonight?

18 A. I do.

19 Q. Please proceed.

20 THE WITNESS: Okay. The document should
21 be sharing. Let me know when that shows up for
22 you guys.

23 JUDGE SLAVIN: That does, but we don't see
24 you yet. I'll let you know when we see you.

1 There, now we see two of you.

2 THE WITNESS: Give me one more shot here.
3 See if we can get the best in technology.

4 JUDGE SLAVIN: There we go --

5 MR. HUGHES: Whoops.

6 JUDGE SLAVIN: -- almost. You appeared
7 and disappeared.

8 We can see most of you.

9 MS. HENKEL: Is it me --

10 JUDGE SLAVIN: There we go. Just hold on.
11 We can see Mr. Meyer at the same time, but
12 that's all right.

13 Okay. It's good enough for me.

14 THE WITNESS: So hopefully you can see the
15 presentation, and then when I talk it will
16 present me.

17 A. (By Mr. Anderson:) So I am going to talk about
18 the shadow flicker analysis we performed for
19 Shady Oaks 2.

20 Brief agenda: I'll give an introduction
21 of myself, just a little more information from
22 what we just talked about, an overview of the
23 study that we performed, the modeling inputs
24 that we looked at, and where different levels of

1 conservativism were built in, and then talk about
2 the results of the study.

3 First some introductions. So, like I
4 mentioned, my name is Aaron Anderson. I am a
5 professional engineer in the state of Illinois.
6 I have got about 13 years of experience in the
7 wind industry doing studies like these in more
8 than a dozen states, including Illinois.

9 And then Burns & McDonnell, Mr. Howell
10 already gave you an overview, so I won't make
11 you guys hear that all over again.

12 Quick overview of shadow flicker. So like
13 I mentioned, shadow flicker is simple in
14 concept. It occurs when the wind turbine blades
15 are in operation and they pass in front of the
16 sun. So there's a couple really important
17 things to extract from that statement, and those
18 are the requirements for what it takes for
19 shadow flicker to occur, and there are a few of
20 them.

21 Number one, it has to be sunny, or it has
22 to be daytime at least. You cannot have shadow
23 if you do not have sun. So that's requirement
24 number one.

1 Second, in order for it to be flicker,
2 where you get those varying light intensities,
3 the turbine has to be in operation; meaning, the
4 blades have to be rotating or spinning.
5 Otherwise it's not shadow flicker, it is just a
6 shadow.

7 Another requirement for shadow flicker to
8 occur at a residence would be that there are no
9 obstructions between the turbine and the
10 residence, what we are measuring or modeling
11 shadow flicker. In this case, we didn't include
12 any obstructions so that doesn't apply.

13 And then, of course, the receptor, or the
14 house in this case, has to be in the line of
15 sight in that turbine. Or if you were to look
16 at the picture, the house would have to be
17 within the shadow that that turbine is casting
18 in order for shadow flicker to be occurring,
19 otherwise it's just in broad daylight.

20 What's noteworthy about shadow flicker is
21 that it is most common at certain seasons and
22 certain times of day. Spring and fall are
23 examples of seasons where shadows tend to get a
24 little bit longer because of the geometry of the

1 earth. And then different times of the day, the
2 most common that we see are early in the morning
3 and late in the evening. The reason for those
4 being that as the sun rises in the morning, the
5 sun is very low on the horizon and it causes
6 very long shadows; and the same in the evening,
7 it causes very long shadows back to the east as
8 the sun sets in the west.

9 Just a quick summary of the Ordinance in
10 Lee County. Like I mentioned, there are no
11 requirements at the federal or State level,
12 which is very common, and there are also no
13 County or other local regulations in this case
14 specific to Lee County; also very common.

15 What we did, though, do in this case --
16 and you'll hear us refer to 30 hours per year a
17 number of times as we go through the report and
18 the presentation here -- is we used 30 hours as
19 a typical industry benchmark. The reason for
20 that is, that's a number that is used throughout
21 the wind industry for, again, a benchmark of
22 what shadow flicker values are measured against.

23 As you'll see in the petition, there are
24 going to be five receptors of the 509 we modeled

1 that exceed that 30-hour-per-year benchmark.

2 And what the Petitioner has agreed to is
3 that there will be some level of mitigation. We
4 will talk about that a little more for those
5 primary structures, or residences in this case,
6 for those five receptors exceeding 30 hours per
7 year.

8 And then for those exceeding 10 but less
9 than 30 hours per year, those would be handled
10 between the project and the homeowner in this
11 case on a case-by-case basis.

12 Q. (By Ms. Kennedy:) Mr. Anderson, if I might
13 interrupt you real quick. Is it normal for a
14 project to exceed that 30-hour benchmark?

15 A. Yes, it's quite common, especially with the
16 number of receptors that we're looking at here.
17 It would have been highly atypical or unusual to
18 have nearly 500 receptors and not have a single
19 one go over 30. So the fact that there were
20 five is actually -- had you asked me before we
21 started this study, I would have probably
22 predicted a number higher than that. So that's
23 actually quite low.

24 Q. Thank you. Please continue.

1 A. I am going to go through a few slides here that
2 give an overview of the different inputs that we
3 used in the WindPRO model.

4 So as I mentioned, WindPRO is a software
5 package. These are a couple of screenshots of
6 what that model looks like, just for frame of
7 reference.

8 WindPRO is very much the industry standard
9 and what is most commonly used throughout the
10 industry for modeling shadow flicker like this.
11 How the software works is, it takes every single
12 wind turbine, it models the position, the exact
13 dimensions for hub height, rotor diameter,
14 operations, et cetera, and it models the sun at
15 each hour of every day of the year, and it looks
16 at where the shadow would be cast if that
17 turbine was in operation. All of those are
18 aggregated for every minute of the year, and
19 that's how we arrive at the totals for the total
20 hours per year, which you'll see in the results
21 here shortly.

22 As we talked about in some of the
23 introductory remarks, we used a very
24 conservative modeling approach to do this. I'll

1 go through some examples of what those included
2 here in a minute.

3 Perhaps the most important modeling input
4 here with the turbines is, we modeled 28 wind
5 turbine positions; 16 of those are the Vestas
6 V150 and 12 are the Gamesa G114, with the
7 dimensions that you see there, which are the
8 same that would have been in the noise study in
9 other analyses that we performed.

10 As Chris mentioned, we modeled receptor
11 coordinates throughout the area. In the case of
12 shadow flicker, a shadow is commonly known to be
13 relevant for up to ten rotor diameters. So if
14 you take the tip-to-tip length of the blades,
15 that would be the rotor diameter, and we
16 multiply that by ten. So in this case, the V150
17 wind turbine has a rotor diameter of 150 meters.
18 So in this case, we would model out to 1500
19 meters, or 150 times 10, and that's how far a
20 shadow would extend.

21 So if you can see it well, in the image to
22 the right there's a yellow buffer going around
23 the outside of the site. You can see a number
24 of little purple dots there. Those are the

1 receptors of the homes that are numbered beyond
2 that distance, at which point shadows start to
3 become so diffuse because of the light because
4 it's such a far distance that shadows are no
5 longer perceptible at that distance.

6 In any event, we take the 509 residences
7 that were modeled within and beyond that 1500
8 meters, in this case, from every turbine, and we
9 model those in WindPRO in what's called
10 greenhouse mode. Like I mentioned, that treats
11 every house as basically a glass house. It has
12 windows on every side. So whereas, you might
13 normally have a small window that occupies part
14 of a wall; in this case, there are windows on
15 every single wall and the entire house is glass.
16 So the entire house is perceptible to flicker in
17 all directions. In reality, if you were living
18 inside that house, you wouldn't see as much
19 shadow because there wouldn't be as many windows
20 for a shadow to come through.

21 Okay. For the wind turbines, these are
22 the dimensions that we used. So we measured the
23 Vestas V150 as having a hub height -- so the
24 distance, on the far right there, from the

1 ground to about the middle of where the blades
2 are mounted -- of 105 meters and a rotor of 150
3 meters. For the other turbine, we used 80 and
4 114. Those are the actual dimensions of the
5 turbines that would be installed for these
6 models, so it's representative of what would
7 actually be in place.

8 We also model the operation of the
9 turbine. So we take wind speed data from the
10 site and we model the actual operation of the
11 machine and how fast the blades are spinning at
12 different times of the year, and that rotational
13 speed -- because you'll remember I mentioned, in
14 order for it to be shadow flicker, the turbines
15 have to actually be operating -- we model that
16 rotation of the blade. So we actually see
17 flicker occurring at different residences at
18 different times of the year. So that's based on
19 actual site data from where the turbines will be
20 operated.

21 More input here, obstacles I had
22 mentioned, things like trees, buildings, et
23 cetera, we do not include. So that would be a
24 worst-case scenario at this point. Any

1 obstacles that we know actually exist at the
2 site would only reduce the amount of shadow
3 flicker that can occur.

4 And then we model terrain within the model
5 based on contours from the USGS. Why that's
6 important is, we want to have a good
7 representation of where each house is with topo
8 relative to where the turbines will be because
9 some turbines will be up high, casting a further
10 shadow, so on and so forth. So we want to do
11 that to be as conservative as possible and
12 realistic with what our modeling will look like.

13 More inputs, we looked at the relevance of
14 shadow flicker. I mentioned the rotor diameter,
15 multiplying it by ten. So that was that yellow
16 buffer on the image a few slides ago, showing
17 how far a shadow can be cast.

18 And then a number of environmental
19 factors. These are just a few of them. For
20 example, we model -- the sun has to be at least
21 3 degrees above the horizon. If you go out in
22 the morning and the sun is just starting to peak
23 out, you'll notice that there are no shadows
24 being cast for the first couple of degrees as

1 it's coming up.

2 So we use 3 degrees. Again, it's sort of
3 a realistic estimate for how high the sun has to
4 be for a shadow to even occur. We look at
5 sunshine probability as well, which you can see
6 there on the right. This is taken from the town
7 of Mendota, which is, oh, five to ten miles away
8 from where the turbines will be sited. And this
9 is actual, historical information showing how
10 likely it is for sunshine to occur in different
11 months, and we model that within the model to,
12 again, give a realistic explanation of when the
13 sun is actually shining.

14 The reason for that is, if we treated the
15 sun as shining every single hour of every single
16 year, the results would go well beyond
17 conservative and no longer be realistic. So we
18 use this local data to provide some realism as
19 to what the results look like.

20 Okay. So once all of that information is
21 aggregated within the model, we start to see
22 results both visually and numerically. So
23 visually you'll see something like what is there
24 on the right side of the screen. Those little

1 yellow and red symbols are wind turbines, in
2 this case, and they cast different shadow
3 flicker shapes that create sort of a butterfly;
4 where you'll notice to the northeast, northwest,
5 southwest, and southeast, those colorful lines
6 around it, which are the duration of shadow
7 flicker, get the longest, and that's because of
8 geometry of the earth. So as the sun rises in
9 the southeast and sets in the northwest, or vice
10 versa, depending on the time of year, that's
11 when the results tend to see it the worst,
12 because, again, like I mentioned, the shadows
13 get the longest during those times of year and
14 times of day.

15 You also see, and you'll notice this
16 within the report, we create what's called a
17 calendar of shadow flicker duration. So this is
18 one example of a particular receptor.

19 What you'll notice is, along the bottom
20 access are different months of the year, and
21 along the Y axis, up and down the left-hand
22 side, are different times of day.

23 So in this particular case, this receptor,
24 this home, experiences shadow flicker from late

1 January through, call it, early to mid-February
2 and then again in early November through roughly
3 the end of November, and mostly in the very
4 early morning. Meaning, as the sun is coming
5 up, that this house is probably west of where
6 the turbine location was, because as the sun
7 rose in the east, it would have caused a shadow
8 to cast in those directions.

9 So just as an example of the results.
10 You'll see in the report of what those mean.

11 And then last but not least, this is an
12 overall summary taking the 28-turbine layout
13 with a mix of 16 V150's and the 12 G114's that
14 we have there. And the 509 receptors that we
15 modeled, a total of five of those 509 experience
16 shadow flicker of greater than or equal to 30
17 hours per year, which, again, was not a
18 regulation of any kind in this case, as much as
19 just an industry benchmark that we use as a
20 measuring stick, so to speak.

21 Just an interesting note here, of those
22 509, almost 460 experienced no shadow flicker at
23 all.

24 This just presents the results

1 graphically. Again, you can see the butterfly
2 shape around the turbines, which are the yellow
3 and red dots throughout the middle of the map.
4 Again, those yellow and red dots represent the
5 turbine models, either the Vestas V150 or the
6 Gamesa G114, and then how far those shadows are
7 being cast, which are the colorful lines around
8 them, the squiggly ones, relative to the houses,
9 which are the purple dots.

10 And then finally, we had mentioned, again,
11 during the introductory remarks, that shadow
12 flicker can be mitigated. There are a number of
13 ways to do that. We have seen countless options
14 for that implemented at different projects
15 throughout the country. It's generally left to
16 a project developer and landowner to discuss and
17 work out. But just by example, some common
18 mitigation techniques that we have seen include
19 installing blinds or curtains, awnings on the
20 houses, planting trees or different kinds of
21 vegetation to block them, consideration of
22 existing obstructions.

23 So as a conservative approach like we used
24 showed an exceedance of 30 hours per year, the

1 actual can only go down from there, because the
2 actual deviations will cause them all to become
3 more realistic and less conservative.

4 Or regulating the turbine operation in
5 different ways, as the case might be.

6 JUDGE SLAVIN: All right.

7 THE WITNESS: That is everything I have
8 for that. I'm happy to take questions.

9 JUDGE SLAVIN: Questions of the witness,
10 Mr. Boonstra?

11 MR. BOONSTRA: No questions. Thank you.

12 JUDGE SLAVIN: Members of the Board.
13 Mr. Chairman?

14 MR. FORSTER: No questions.

15 JUDGE SLAVIN: Mr. Buhrow?

16 EXAMINATION

17 BY MR. BUHROW:

18 Q. Have you reached agreements with these five
19 homeowners yet? Has that been negotiated out?

20 A. I haven't been privy to those conversations.
21 That's beyond my scope, but I understand that
22 those conversations are ongoing.

23 MR. BUHROW: Okay. That's all.

24 JUDGE SLAVIN: Mr. Pratt?

EXAMINATION

BY MR. PRATT:

Q. So you're saying then there's five receptors over 30 hours. So there's 46 --

A. Correct.

Q. -- between 10 and 30 hours? Is that --

JUDGE SLAVIN: I'm not sure he heard you.

A. There were 15 between 10 and 30.

Q. (By Mr. Pratt:) And then 20 -- or 31, less than 10 but still had some, correct?

JUDGE SLAVIN: You're not keeping your voice up.

A. I don't have the number less than ten, yeah.

Q. (By Mr. Pratt:) So in your petition it states that you will deal with all of them, any receptor that has shadow flicker, correct?

A. I wouldn't -- because I don't work for the Petitioner in this case, I'm not part of the company, I'm afraid I can't speak to that.

Q. How do I get that question answered?

MR. PRATT: No further questions.

JUDGE SLAVIN: Mr. Hughes?

MR. HUGHES: No questions.

JUDGE SLAVIN: Mr. Bothe?

1 MR. BOTHE: No questions.

2 JUDGE SLAVIN: Mr. Meyer?

3 MR. MEYER: No questions.

4 JUDGE SLAVIN: All right. To the folks
5 downstairs, anybody down there, Mr. Henkel?

6 MR. HENKEL: No.

7 JUDGE SLAVIN: Thank you.

8 Folks on Zoom, questions? Either raise --
9 click your hand or raise your hand.

10 Ms. McInnis. Whoop, wait a minute. We
11 have got to unmute you. Sorry. It's taking a
12 little while to unmute. Hold on.

13 There you go. All right. You can be
14 heard.

15 EXAMINATION

16 BY MS. McINNIS:

17 Q. All right. Going to the number of 509 houses
18 that were within your study, are those just
19 within the Shady Oaks 2 footprint?

20 A. No, ma'am. We -- how those were derived was
21 the same way as what Mr. Howell described. In
22 our case -- a shadow flicker buffer is actually
23 smaller than a noise buffer. In our case, we
24 would have requested everything within ten rotor

1 diameters of the turbine be included, regardless
2 of where that receptor is relative to Shady Oaks
3 1. It would have been everything relative to
4 Shady Oaks 2, everything within 1500 meters in
5 this case.

6 And there are actually a number of
7 additional ones as well because the noise study,
8 that propagates further. So that gets out to
9 the, I believe, it's 3000 meters in this case
10 that Mr. Howell's team looked at.

11 Q. And you also looked at 3000 meters?

12 A. We included the exact same receptors in our
13 study that he did.

14 Q. Is there a map available of the 509 houses as
15 far as the location of them?

16 A. Yes, ma'am. There's a map and coordinates of
17 every receptor within the report that we
18 submitted.

19 Q. Okay. Does any -- is any shadow flicker
20 anticipated to occur over Route 39?

21 A. Can you repeat the last part? Over what?

22 Q. Over Route 39, U.S. Route 39. That is west of
23 the Shady Oaks 2.

24 A. I don't -- I would have to get back to you on

1 that one. We can verify. But the results that
2 we presented -- because it would be impossible
3 to take every point in space, the results we
4 presented were specific to the homes. But we do
5 have those results and can verify the specific
6 location, what the value was.

7 Q. Could you get back with us then?

8 A. Yeah, of course.

9 MS. McINNIS: That's all I have.

10 JUDGE SLAVIN: All right. Other
11 interested parties with questions? Either raise
12 your hand physically, if I can see you -- of
13 course, you don't know if I can see you or not.
14 I can see Mr. Zirpoli, and then there are a
15 number of names on the screen.

16 If you have a question, if you're
17 videoconferencing, hit "participant," then click
18 "raise hand" and we'll see it. If you're on
19 your cell, if you're on your phone, hit asterisk
20 nine, or star nine, while remaining on the phone
21 and we'll see it.

22 So I'll give you a few seconds here.

23 Seeing none, thank you, Mr. Anderson.

24 THE WITNESS: Thank you.

1 JUDGE SLAVIN: Let's take a break. Some
2 people may need a break.

3 MS. KENNEDY: Okay.

4 JUDGE SLAVIN: We're off the record.
5 About ten minutes, 20 after.

6 (A recess was taken at 8:10 p.m.,
7 and proceedings resumed at
8 8:20 p.m.)

9 JUDGE SLAVIN: All right, ladies and
10 gentlemen.

11 Ms. Kennedy, you may continue.

12 MS. KENNEDY: Thank you. I'd like to
13 re-call Sean Fairfield.

14 JUDGE SLAVIN: All right. If he's still
15 available, that's allowed.

16 MR. FAIRFIELD: Good evening.

17 JUDGE SLAVIN: There's Mr. Fairfield.

18 The Slavin Rule is, it's a different
19 night, so.

20 (Sean Fairfield was duly sworn.)

21 JUDGE SLAVIN: You may inquire.

22 SEAN FAIRFIELD,
23 having been duly sworn, was examined and
24 testified as follows:

REDIRECT EXAMINATION

BY MS. KENNEDY:

Q. And, Mr. Fairfield, can you reiterate your position with the company?

A. I am the senior director of energy projects for our business development group.

Q. And that hasn't changed since last night?

A. No.

Q. So, Mr. Fairfield, you have heard testimony from Mr. Anderson relating to shadow flicker for the proposed project. How does the company intend to handle or address those five residences that are reflecting greater than 30 hours of shadow flicker?

A. Yes, we will work on a case-by-case basis if there's complaints, and we will work, negate it, as commercially responsible.

Q. And is that consistent with previous conditions through your research imposed on other wind farms within the county?

A. That's my understanding, yes.

Q. And how does the company intend to address the 15 residences that reflect between 10 and 30 hours of shadow flicker?

1 A. As indicated in our SUP application, we would
2 work on a case-by-case basis and mitigate using
3 methods such as vegetation, trees, awnings, such
4 as that.

5 MS. KENNEDY: I have nothing further, Your
6 Honor.

7 JUDGE SLAVIN: All right. Mr. Boonstra?

8 MR. BOONSTRA: No questions, based on
9 that. Thank you.

10 JUDGE SLAVIN: ZBA. Mr. Forster?

11 EXAMINATION

12 BY MR. FORSTER:

13 Q. Just out of curiosity, are those five that have
14 more than 30 hours, are they going to be
15 participants in the properties for the wind
16 farm?

17 A. As I can recall, out of the five, one of those
18 is a participating landowner.

19 MR. FORSTER: Okay. Thank you.

20 JUDGE SLAVIN: Mr. Burhow?

21 MR. BUHROW: Nothing.

22 JUDGE SLAVIN: Mr. Pratt?

23 EXAMINATION

24 BY MR. PRATT:

1 Q. In your petition it states that the Petitioner
2 shall commercially -- shall use commercially-
3 reasonable efforts to remedy shadow flicker
4 affecting any property owner that is not a
5 participant in the WECS project for all
6 properties estimated to receive between 10 and
7 30 hours of shadow flicker, and on a
8 case-by-case basis for those properties
9 estimated to receive less than 10 hours or -- I
10 assume that's supposed to be "of" -- of shadow
11 flicker by undertaking measures such as trees
12 and/or vegetation.

13 My question is, it says that the
14 Petitioner shall use commercially-reasonable
15 efforts to remedy shadow flicker affecting any
16 property owner that is not a participant. It
17 doesn't state that it has to fall above 30 hours
18 or 10 to 30 hours.

19 JUDGE SLAVIN: Is that a question?

20 Q. (By Mr. Pratt:) Is that your understanding of
21 the petition?

22 A. I don't have the petition in front of me right
23 now, but what I recall is, those individuals
24 within a certain distance, we would work on a

1 case-by-case basis and mitigate accordingly.

2 Q. In the next paragraph it states that if you
3 receive a verified complaint, you will program
4 the turbine to shut down during certain times of
5 the day.

6 Does it take a verified complaint to do
7 that, to shut down the turbines?

8 A. Yes. According to our petition, we would have
9 to verify the complaint, work with the
10 landowner, and demonstrate that it was a result
11 of the turbine, and then we would mitigate as
12 per the petition.

13 Q. But not for people that have the 30 hours, you
14 will not mitigate by shutting down the turbine?

15 A. As indicated in the petition, those that would
16 be the 15, between 10 and 30 hours, we would
17 work on a case-by-case basis and mitigate using
18 such techniques as vegetation, awnings, or what
19 have you.

20 Q. So can I ask you a question about noise?

21 JUDGE SLAVIN: Go ahead.

22 Q. (By Mr. Pratt:) In your petition it states
23 on -- under Noise Level, Complaint Resolution,
24 that you will respond to any complaint within a

1 one-mile radius beyond any WECS project
2 location.

3 One mile is mandatory? You will not
4 respond to a complaint beyond a mile?

5 A. What we have indicated in the SUP are the
6 minimum standards, but obviously we would
7 consider any complaint on a case-by-case basis.

8 MR. PRATT: Do I keep asking questions?
9 Are you okay, Judge, if I just keep asking
10 questions?

11 JUDGE SLAVIN: Unless there's an
12 objection.

13 Q. (By Mr. Pratt:) I have several other questions
14 here about the petition. Under Liability
15 Insurance, Number C, it states that the
16 Petitioner and its subcontractors shall provide
17 certificates of insurance to the Zoning Board of
18 Appeals.

19 Do you think the Zoning Board of Appeals
20 needs that, or does the administrator need that?

21 A. We -- it would be -- we would provide the
22 necessary insurance information to whomever the
23 County would require that. So if it's the
24 administrator, we would.

1 Q. Another question, in your petition you state,
2 the Petitioner agrees not to commence
3 construction activities associated with the WECS
4 project before 6 a.m., nor continue past 9 p.m.,
5 on any day of the week within 0.25 miles of any
6 nonparticipating landowner unless a waiver is
7 obtained from such landowner.

8 Do you think --

9 A. Correct.

10 Q. -- the 0.25 mile is far enough?

11 A. Yes. As I understand, we have done our
12 research. That's a similar requirement with
13 other wind projects within the county.

14 Q. So on setbacks, you state that --

15 MS. KENNEDY: Can I get a page number,
16 real quick, for where you're at on that?

17 MR. PRATT: Page 9.

18 MS. KENNEDY: Thank you.

19 Q. (By Mr. Pratt:) Setbacks, Number 1, you state
20 that the Petitioner may negotiate a setback
21 easement with the parcel owner to reduce this
22 setback requirement.

23 Will that setback agreement be placed on
24 file?

1 A. If there's one available, we would put it on
2 file.

3 Q. On Page 12, under Maintenance, Number 2, you
4 talk about if the Petitioner decides to change
5 components, like/kind replacements shall not
6 require a certification. Prior to making any
7 physical modification other than a like/kind
8 replacement, the Petitioner shall confer with a
9 relevant third-party certified entity to
10 determine whether the physical modification
11 requires certification.

12 Who is this relevant third-party certified
13 entity?

14 A. Can you repeat the first part of the question?
15 It was just sort of mumbled.

16 Q. If you're going to make changes in your
17 components, like/kind replacements shall not
18 require certification. Other modifications may,
19 based on a relevant third-party certifying
20 entity who is not named.

21 A. It would be probably a registered professional
22 engineer.

23 Q. So the County has no choice in that?

24 A. I can't speak for the County. Sorry.

1 MR. PRATT: No further questions.

2 JUDGE SLAVIN: Mr. Hughes?

3 MR. HUGHES: No questions.

4 JUDGE SLAVIN: Remote Board members.

5 Mr. Bothe?

6 MR. BOTHE: No comments.

7 JUDGE SLAVIN: Mr. Meyer?

8 MR. MEYER: No questions.

9 JUDGE SLAVIN: All right. Mr. Fairfield
10 has been re-called. So members of the public.

11 Anybody downstairs at all, Mr. Henkel?

12 MR. HENKEL: No, there isn't.

13 JUDGE SLAVIN: All right. Those of you on
14 Zoom.

15 Ms. McInnis, you have got your hand
16 raised. Okay. I'll call on you first, but give
17 Alice a chance to get you -- there you go, now
18 you can be heard.

19 MS. MCINNIS: I think it was my fault that
20 you couldn't hear me before. I forgot that I
21 had to press an unmute button.

22 JUDGE SLAVIN: If that's the worst thing
23 that happens in this technology for the next
24 sessions, we will be really good.

1 MS. McINNIS: So, Judge, I have a question
2 to you. I am new to this type of a meeting. If
3 I have questions, other questions that do not
4 have to do with shadow flicker, that have to do
5 with how the wind turbines are constructed --

6 JUDGE SLAVIN: Well, you ask your
7 questions, and if there's an objection, I'll
8 rule on the objection. So if you have got
9 questions of Mr. --

10 MS. McINNIS: All right. Fine.

11 JUDGE SLAVIN: Where did he go?

12 EXAMINATION

13 BY MS. McINNIS:

14 Q. The contractors and subcontractors --

15 MS. HENKEL: He's next to her.

16 JUDGE SLAVIN: There he is. There he is.
17 I couldn't see Mr. Fairfield. My eyes glanced
18 over him. Sorry about that. Go ahead.

19 Q. (By Ms. McInnis:) The contractors and
20 subcontractors that you will employ, they will
21 have to be burying cables; is that correct?

22 A. That's correct.

23 Q. They will need some place to flush their
24 equipment out on a daily basis. Where will that

1 be done?

2 A. I don't know specifically what you're talking
3 about, flushing the equipment out.

4 Q. Correct.

5 A. Can you elaborate? What do you mean by
6 flushing the equipment out?

7 MS. McINNIS: I would have to make a
8 statement then. May I make a statement, Judge?

9 JUDGE SLAVIN: Well, yeah, you can tell
10 him what -- he doesn't ask you questions, but go
11 ahead, tell him what flushing is.

12 Q. (By Ms. McInnis:) Okay. If the equipment gets
13 compacted with the dirt and the contractors are
14 close to the site, they do not go back to their
15 place of business in order to flush their
16 equipment out, but they remove the fire hydrant
17 caps from our fire hydrants and use them to
18 flush them out in our village.

19 A. So you mean cleaning the equipment.
20 Understood.

21 Q. Correct. Correct. Where will this be done?

22 A. Cleaning of equipment will have to be located
23 in specific locations. Cleaning equipment
24 inside a village, in a residential area, is not

1 authorized by the company, will not be
2 authorized by the company. I have been involved
3 in this business for 24 years. I have never
4 seen that for any of our projects that we have
5 built.

6 So it's mandated that they take
7 appropriate, using best practices to mitigate
8 any washing of equipment, and it would be not in
9 the village proper.

10 Q. Okay. Going to how the connection to ComEd is
11 made once the wind turbines -- if they are
12 approved, once they get built and you're ready
13 to basically turn the switch for the very first
14 time, can you describe that process for me as
15 far as how it affects the electricity flow in
16 this little area?

17 A. I'm not an electrical engineer by training;
18 however, when you are commissioning a project
19 and you're, what's called, synchronizing to the
20 grid, there should be no disruption to the
21 distribution system that would flow to
22 residents.

23 Q. And if you have a problem with a unit and you
24 attempt to start it and start it and start it,

1 will that cause any disruption of electric
2 service in the local community?

3 A. No.

4 Q. You're certain?

5 A. Yes.

6 Q. Okay. What is the closest planned turbine to a
7 nonparticipating property line?

8 A. I don't have those figures in front of me.
9 Obviously we would be in compliance with the
10 setback requirements of the Ordinance, but I do
11 not have that exact number at this point.

12 Q. And that distance is determined by the height
13 of the turbine from the base of the turbine?

14 A. Correct.

15 Q. And we have turbine blades for your larger
16 Shady Oaks 2 that measure 246 feet?

17 A. Correct.

18 Q. And that 246 feet protrudes into the distance
19 away from the property line; in other words, the
20 nonparticipating owner sees this rotor that is
21 246 feet closer than the height?

22 JUDGE SLAVIN: Is that correct? I'll help
23 you ask the question.

24 Q. (By Ms. McInnis:) Is that correct?

1 A. Correct, and we comply with the County
2 Ordinance.

3 Q. What is the minimum distance between turbines?

4 A. I don't have that specific number.

5 Q. Could we get it?

6 A. That could be provided to the County, yes. We
7 can get that information to you.

8 MS. McINNIS: That is all.

9 JUDGE SLAVIN: All right. Thank you.

10 Any other interested party? Again, if I
11 see you, raise your hand. If I can't see you
12 and you're videoconferencing, at the bottom of
13 the screen, "participants," click "raise hands."
14 Or, if you're teleconferencing, asterisk nine,
15 and we should see a raised hand.

16 Seeing none, thank you, Mr. Fairfield,
17 again.

18 THE WITNESS: Thank you.

19 JUDGE SLAVIN: Ms. Kennedy.

20 MS. KENNEDY: Thank you. I would like to
21 re-call Aaron Anderson.

22 JUDGE SLAVIN: Mr. Anderson.

23 MR. ANDERSON: I'm here.

24 JUDGE SLAVIN: I'll remind you that you're

1 still under oath or affirmation.

2 MR. ANDERSON: Yes, sir.

3 JUDGE SLAVIN: And you may inquire,
4 Ms. Kennedy.

5 MS. KENNEDY: Thank you.

6 AARON ANDERSON,
7 having been duly sworn, was examined and
8 testified as follows:

9 REDIRECT EXAMINATION

10 BY MS. KENNEDY:

11 Q. Mr. Anderson, I'm going to direct you to
12 Page 72 of the PowerPoint presentation, if you
13 could share your screen, please.

14 A. Okay. On the way.

15 Q. And you were asked a question by Ms. McInnis
16 about the proposed project's potential impact on
17 Route 39. Looking at this map depicted on
18 Page 72, are you able to provide an opinion to
19 that?

20 A. I can. I assume that you can see the screen?

21 Q. Yes, that's correct.

22 A. Okay. So on this map -- and I'll zoom in here
23 in a moment -- Interstate 39 is this red line
24 over to the left of the screen. And what you'll

1 notice, first and foremost, is that the majority
2 of it is outside of the yellow buffer, where the
3 yellow buffer is the extent of how far the
4 shadow flicker is cast. So anything outside of
5 that automatically has a value of zero, because
6 it would be too far away from the turbine.

7 So that means the only thing within that
8 buffer is this small area on the very western
9 side of the project, between here.

10 And what we'll see there is that this
11 furthest-left, sort of butterfly shape would be
12 zero hours per year. The one to the right would
13 be ten hours per year. So roughly speaking for
14 this, I'll call it, one mile or so stretch that
15 passes through the western part of the boundary,
16 you would have somewhere around -- and it's
17 going to vary at every point along the highway,
18 but somewhere around seven to nine hours per
19 year along that stretch.

20 Q. And is that still using the same conservative
21 factors?

22 A. Everything within that methodology would be
23 exactly the same.

24 MS. KENNEDY: Okay. Thank you. I have

1 nothing further.

2 JUDGE SLAVIN: Okay. Members of --
3 Mr. Boonstra?

4 MR. BOONSTRA: No questions.

5 JUDGE SLAVIN: Ms. Duffy?

6 MS. DUFFY: No questions.

7 JUDGE SLAVIN: Members of the Board.
8 Mr. Forster?

9 MR. FORSTER: No questions.

10 JUDGE SLAVIN: Mr. Buhrow?

11 MR. BUHROW: No questions.

12 JUDGE SLAVIN: Mr. Pratt?

13 MR. PRATT: No questions.

14 JUDGE SLAVIN: Mr. Hughes?

15 MR. HUGHES: No questions.

16 JUDGE SLAVIN: Mr. Bothe?

17 MS. BOTHE: No questions.

18 JUDGE SLAVIN: Mr. Meyer?

19 MR. MEYER: No questions.

20 JUDGE SLAVIN: Interested parties, back up
21 on the screen.

22 Ms. McInnis has her hand raised, so we'll
23 call on her first. And the rest -- before you
24 start talking, Ms. McInnis, the rest of you, if

1 you do have a question, right now please, either
2 if you're videoconferencing, click
3 "participant," "raise hand," or if you're
4 teleconferencing, hit star nine, then I'll be
5 ready for you when Ms. McInnis is finished.

6 You may proceed. You may ask,
7 Ms. McInnis.

8 EXAMINATION

9 BY MS. McINNIS:

10 Q. Have there been any complaints as shadow
11 flicker occurs on highways like this? I know
12 that it's very disturbing --

13 JUDGE SLAVIN: That's a statement. Let's
14 be careful of that. You're not under oath.
15 Nobody is going to cross-examine you.

16 MS. McINNIS: I don't know how to phrase
17 my question.

18 JUDGE SLAVIN: You asked a perfectly good
19 question. Have there been any complaints on
20 highways like this?

21 A. Yeah, not that I'm aware of, and that would be
22 predominantly because, you know, in this case
23 that's only a one-mile-or-so stretch, and it
24 would have to be such a specific, exact time

1 that you pass through there when flicker was
2 even occurring during those -- again, you're
3 talking eight hours out of 8,760 in a year that
4 it would even be possible to occur, and you
5 would have to drive through at that exact time
6 when it was occurring. And even then, if you
7 were driving even 60 miles per hour for a mile,
8 it would only occur for a minute.

9 So no, I'm not aware of anything, to
10 directly answer your question, and I would
11 candidly be surprised to know of any widespread
12 complaints like that.

13 Q. You answered the question as if the miles per
14 hour, the posted speed limit was 60 miles. It
15 is posted -- I believe it is posted 70 miles,
16 and many people go 80 miles --

17 MS. KENNEDY: Judge, that's a statement.
18 I'm going to object.

19 JUDGE SLAVIN: Yeah, that's a statement.

20 Karen, you have got to be careful of that.
21 You're not under oath and nobody can ask you any
22 questions. I know it's hard.

23 MS. McINNIS: Okay.

24 JUDGE SLAVIN: He's there to answer your

1 questions.

2 MS. McINNIS: Okay.

3 A. If --

4 JUDGE SLAVIN: No, no.

5 A. I'll answer it anyway. If --

6 JUDGE SLAVIN: No, no, we're not going to
7 go there.

8 THE WITNESS: Okay.

9 JUDGE SLAVIN: We will be here forever if
10 we start that.

11 THE WITNESS: Understood.

12 Q. (By Ms. McInnis:) Are there issues if cars
13 travel higher than 60 miles; in other words
14 about 80 miles per hour --

15 A. Sure.

16 Q. -- if there are truckers --

17 A. So the same would be true as what I said a
18 minute ago. And the one minute or so that I
19 said that they would be driving through that
20 area would be even less. So they would have to
21 be driving through there at the exact amount of
22 time. And if they were driving even faster
23 because they have a heavy foot, the amount of
24 time they would be exposed to it would be even

1 less than that one minute.

2 MS. McINNIS: Okay. That's it.

3 JUDGE SLAVIN: Thank you. I don't see any
4 other hands raised. So, Mr. Anderson, you are
5 finished.

6 And, Ms. Kennedy, you may proceed.

7 THE WITNESS: Thank you.

8 MS. KENNEDY: Thank you. I would like to
9 call Jeff Zirpoli.

10 JUDGE SLAVIN: Mr. Zirpoli.

11 MS. HENKEL: Does he have a mic?

12 JUDGE SLAVIN: Wait a minute.
13 Mr. Anderson just showed up again. Just a
14 minute.

15 MS. HENKEL: He does not have a mic. I
16 have no way to turn -- to unmute him.

17 JUDGE SLAVIN: Jeff, can you hear us?
18 She's saying you don't have a mic. Nod your
19 head up and down, do you have a microphone or
20 not have a microphone?

21 MS. HENKEL: Is it on? Because this thing
22 is not even --

23 JUDGE SLAVIN: Your microphone is not on.
24 Sometimes if you look at the Zoom screen down at

1 the bottom left, you'll see a microphone symbol
2 and it might have a red slash through it. We
3 still can't see a microphone and we can't hear
4 you. I don't know -- can you hear us? Can you
5 hear me? If you can hear me, would you call
6 815.288.3643, please. I have no idea -- would
7 you please call that phone number.

8 COURT REPORTER: I --

9 JUDGE SLAVIN: Is he asking me for it
10 again?

11 COURT REPORTER: I think so.

12 JUDGE SLAVIN: 815.288.3643. We'll take a
13 short break while you do that. Off the record.

14 (A discussion was held off
15 the record.)

16 JUDGE SLAVIN: You want to raise your
17 right hand, please.

18 (Jeff Zirpoli was duly sworn.)

19 JUDGE SLAVIN: You may inquire,
20 Ms. Kennedy.

21 MS. KENNEDY: Thank you.

22 JEFFERY ZIRPOLI,
23 having been duly sworn, was examined and
24 testified as follows:

DIRECT EXAMINATION

BY MS. KENNEDY:

Q. Can you please state your name for the record.

JUDGE SLAVIN: Hold on. We lost your mug.

THE WITNESS: Do you only see me when I'm speaking?

JUDGE SLAVIN: Okay. I got it.

THE WITNESS: Sorry about that.

Q. (By Ms. Kennedy:) Can you state your name for the record.

A. My name is Jeffrey Zirpoli.

Q. How are you employed?

A. I am the director of ecological services at Shoener Environmental.

Q. And what exactly do you do at Shoener?

A. I oversee all of our ecological work related to threatened and endangered species and other protected natural resources at wind and solar energy centers.

Q. And how long have you been with the company?

A. A little over a year and a half.

Q. And do you have any other work experience in this industry?

A. Yes. I have almost a total of 12 years in

1 wildlife research and consulting, the vast
2 majority of it related to renewable energy
3 development.

4 Q. And can you provide me with a brief summary of
5 your educational background?

6 A. Yes. I have two undergraduate degrees, one in
7 environmental science and one in vertebrate
8 ecology and conservation biology, and I also
9 possess a master's in natural resource
10 management and wildlife ecology.

11 Q. Do you hold any certificates or licenses?

12 A. Yes, I have a couple State collecting permits,
13 one for California, Scientific Collection
14 Permit, and I also have my Illinois Endangered
15 Species Collecting Permit.

16 Q. And are you -- do you have any affiliations
17 with any professional organizations?

18 A. Yes, the Raptor Research Foundation.

19 Q. And have you authored or published any
20 articles?

21 A. Yes, I have published numerous articles, some
22 of them related to wind and also solar
23 development as it relates to wildlife impacts.

24 Q. And so based on what you have told me, is it

1 fair to assume that you have testified at this
2 sort of hearing before?

3 A. I have not.

4 Q. Oh, okay.

5 And you understand that Shoener was
6 retained by Shady Oaks 2 in regard to this Lee
7 County proposed project?

8 A. Yes.

9 Q. And what exactly were you hired to do?

10 A. We were hired to evaluate the site as it
11 related to natural resources and any potential
12 risks that would come from developing the site
13 as it relates to natural resources -- protected
14 natural resources.

15 Q. And so is it your intent tonight to testify in
16 favor of this wind project or to testify to your
17 findings in this area?

18 A. It is our intent to testify to our findings as
19 it relates to the studies we have conducted.

20 Q. And are you familiar with the petition and the
21 proposed project in this matter?

22 A. I am, yes.

23 Q. And after conducting your study -- well, let me
24 back up.

1 How did you conduct your study?

2 A. So I have visited the site myself personally,
3 but the specific avian and bat surveys that I
4 will talk about were conducted by other
5 biologists who do our fieldwork for us. But I
6 also oversee all the reporting and the data
7 analysis that comes out of those field studies.

8 Q. And I understand that you have got a PowerPoint
9 that you would like to go through tonight; is
10 that right?

11 A. That is correct.

12 Q. Please proceed.

13 A. Thank you.

14 THE WITNESS: Can everybody see my screen
15 and me?

16 JUDGE SLAVIN: Well, I was going to tell
17 you, we can't see you. We can see that you have
18 started screen sharing. There you are.

19 THE WITNESS: Do you see me when I --

20 JUDGE SLAVIN: Just hold on. We can see
21 you now, and it says you're still starting your
22 screen sharing.

23 THE WITNESS: Okay. How about now?

24 JUDGE SLAVIN: Okay. Now we got the

1 screen shared, but we don't see you. But you
2 talk for a minute.

3 THE WITNESS: Are you able to hear me when
4 I speak?

5 JUDGE SLAVIN: Yes, very good.

6 THE WITNESS: Or see me?

7 JUDGE SLAVIN: Yup. Very good. Go ahead.

8 THE WITNESS: All right. Great. Thank
9 you.

10 A. (By Mr. Zirpoli:) So I want to thank very
11 much, start off by thanking the Board and the
12 public for allowing me to speak tonight. And,
13 you know, I apologize for the technical
14 difficulties. Obviously we prefer to do all
15 this in person.

16 So we'll start off with a brief
17 introduction of myself, then we'll discuss the
18 agency consultation history, some of the site
19 characterization studies that have been done,
20 the avian surveys and other protected species
21 surveys, and we'll conclude with the summary of
22 the avoidance and conservation measures that the
23 project intends to employ to reduce any
24 potential impact to natural resources, and then

1 I will be available to take any questions.

2 THE WITNESS: Are you seeing my slide
3 progressing?

4 JUDGE SLAVIN: Yes.

5 THE WITNESS: Great.

6 A. (By Mr. Zirpoli:) So as we said before, I am
7 the director of ecological services. I hold a
8 number of degrees in environmental science and
9 wildlife ecology and management.

10 I have conducted pre- and
11 post-construction monitoring and surveys at
12 numerous wind sites in multiple states,
13 including Illinois, throughout my tenure,
14 conducting research related to renewable energy.
15 I have worked on about all the different plants
16 and animals, birds, bats, fish, and mussels that
17 you would happen to come across at a wind site
18 in a variety of places across the country,
19 including a lot in Illinois.

20 So in May 2019, the State Ecological
21 Compliance Assessment Tool, commonly known as
22 the EcoCAT, was utilized to review the project
23 area for a potential impact to protected natural
24 resources. The EcoCAT results suggested that

1 there would be no impacts to State-protected
2 species.

3 We took these EcoCAT results and then
4 contacted the IDNR directly to discuss and
5 confirm the results of the EcoCAT, which
6 suggested that no impacts to State-protected
7 species were expected, and that no further
8 consultation with the IDNR would be required.

9 The IDNR confirmed the accuracy of our
10 EcoCAT results and concurred that no further
11 consultations with the IDNR was required for
12 project development.

13 Additionally, in October of 2009 we held
14 an in-person meeting with the U.S. Fish and
15 Wildlife regional bat and avian biologists to
16 present the project to and discuss completed,
17 ongoing, and upcoming ecological services.

18 To understand the potential impacts that
19 the project might have on local natural
20 resources, we follow the U.S. Fish and Wildlife
21 Wind Energy Guidelines, as well as the stages of
22 the U.S. Fish and Wildlife Eco-Conservation Plan
23 Guidance.

24 We began by conducting a high-level

1 desktop review of all available and relevant
2 resources to describe the habitat, ecological
3 community, and other natural resource-related
4 information at a broad scale at and near the
5 proposed projects.

6 This was followed by the Wind Energy
7 Guideline Tier 2 Site Characterization Study,
8 which includes surveys by ecologists of the
9 project area and the surrounding vicinity. This
10 allows us to map and understand the potential
11 for protected natural resources at a finer
12 scale, and to help us evaluate any potential
13 risks to those resources from project
14 development.

15 Information from the Tier 2 study was
16 evaluated, and a decision was made, based on the
17 Tier 2 data, that the risk of protected natural
18 resources was likely low, but that further
19 studies were required to fully assess the risk
20 and confirm the appropriate siting of this
21 project. We then conducted additional studies
22 as needed, detailed under the Wind Energy
23 Guidelines Tier 3 and Eco-Conservation Planned
24 Guidance Phase 2 Protocols.

1 Based on the National Land Cover Database,
2 the project area, as you all well know, like the
3 surrounding landscape, is mostly cultivated
4 crops, with small areas of development, forests,
5 and wetlands, and most are forests are
6 surrounding the wetland features.

7 Based on the National Wetland Inventory
8 and National Hydrology Dataset, there were 76
9 wetland features, totaling about 140 acres, and
10 61 streams or artificial paths, totaling 42
11 miles within the larger project area, as seen on
12 the screen here.

13 This information was based on publically-
14 available databases and was done within the much
15 larger project area.

16 Formal wetland field delineation studies
17 were conducted in accordance with federal
18 guidelines and were completed for the more
19 refined project area boundary limits of the
20 service.

21 Tier 3 Avian Use Surveys. So we conducted
22 bird use surveys per the Wind Energy Guidelines
23 and those eagle conservation plan guidance, for
24 two years. We began them in May 2018, and they

1 just concluded this past April, 2020.

2 The surveys for eagles and other large
3 birds were one hour in length, and the survey
4 area was an 800-meter radius, per the
5 guidelines. And surveys for smaller birds were
6 five minutes in length, and had a hundred-meter
7 survey radius area.

8 During the first year of surveys, 20
9 observation points were needed and -- because
10 the project area was -- had been larger than it
11 is currently. That resulted in 248 hours of
12 large bird use surveys conducted during the
13 first year of surveys.

14 During the second year of surveys, the
15 project area was reduced, and then we only
16 required -- eight observation points were needed
17 to cover the project area. This resulted in an
18 additional 96 large bird use survey hours across
19 the project.

20 So Tier 3 bird use surveys were conducted,
21 as I said. And I'll summarize the small bird
22 use surveys which were conducted for the first
23 year of surveys only.

24 In general, the cultivated crops of the

1 property area, which make up 93 percent of the
2 project area, only provide limited breeding
3 habitat for some species. And although the
4 project -- some of the project area may serve as
5 a stop-over habitat for migrating birds, this is
6 really only going to be limited to the forest
7 habitat and riparian area when we're talking
8 about migrating song birds.

9 During the first year of bird surveys, we
10 ordered 4,302 observations of 67 species. There
11 were six observations during standard surveys,
12 and four incidental observations made just
13 during travel around the project site of the
14 State-listed upland sandpiper.

15 As you can see, most of the species that
16 were commonly observed are the common species
17 that you would expect to find in areas such as
18 this, and that some of them are not even native
19 species, such as the European starling or the
20 House Sparrow.

21 So the most commonly observed species are
22 the European starling, the Red-winged blackbird,
23 Common Grackle, Lapland longspur, the American
24 robin, Horned lark, Barn swallow, Killdeer, and

1 Mourning dove.

2 I will now summarize the large bird use
3 data for the first year only. The second year
4 data is still being compiled, but I will hint at
5 that as I get a little further on.

6 So during the first year of large bird use
7 survey -- I will speak about eagles specifically
8 later. So this is all large birds, non-eagles
9 -- there were 614 observations of 16 species.

10 There were eight observations made during
11 standard surveys, and five incidental
12 observations just made during travel around the
13 project site of the state endangered northern
14 harrier, and there was one incidental
15 observation of the state-endangered osprey.

16 Otherwise, the most commonly observed
17 species are the species that are often most
18 commonly observed in the habitat from the
19 project site: Canada goose, American crow,
20 turkey vulture, red-tailed hawk, and the
21 American kestrel.

22 Now I am going to summarize the eagle use
23 data for the first year of surveys at the eight
24 observation points that were included in the

1 project area in the slide that was previously
2 shown. As I said before, the second year data
3 is still being compiled and analyzed, but there
4 was similar levels of activity found in the
5 second year.

6 In general, as it relates to eagles, the
7 project area is not suitable for bald eagle
8 foraging or nesting apart from the small
9 riparian corridors or water areas.

10 Furthermore, golden eagles do not nest in
11 Illinois, and there were no golden eagles who
12 were observed during either year of surveys at
13 any time of year. So golden eagles at this site
14 are not really an issue in Illinois, as I said,
15 and were not observed during the over 300 hours
16 of large bird use surveys.

17 We did observe some bald eagles. There
18 were three observations of bald eagles,
19 resulting in 12 eagle flight minutes. So when
20 we record eagle flights, we document the amount
21 of time they are observed for. So we recorded
22 three individuals for a total of 12 minutes
23 within the eight points in the entire project
24 area. These were observed at Points 13, 17, and

1 18, but they were both observed in October and
2 -- they were all observed in October and
3 December, which is the fall migration period for
4 eagles, when we would expect eagle activity to
5 be the highest.

6 We also observed two bald eagles
7 incidentally while traveling around the project
8 site.

9 Here I'll just state, as I noted before,
10 that general eagle use of this project site is
11 relatively low, and this is in accordance with
12 what we would expect here. The lack of nesting
13 habitat, and really there's no features -- and
14 this applies to all birds, not just eagles --
15 but there's no features, either rivers or
16 coastlines or topographic features such as
17 mountains, that we would expect that would lead
18 to a concentration of migrating raptors or other
19 birds in this area.

20 So we don't expect any heavy migration or
21 migration corridors at the project because
22 there's no features that would indicate that
23 would be the case, and our data is suggesting
24 that.

1 So we did also look for eagle and other
2 non-eagle raptor nests within the project area
3 and in the larger area around the project. We
4 conducted these for two seasons, in 2019 and in
5 2020, per the Wind Energy Guideline
6 recommendations.

7 Eagle nest surveys occurred within the
8 project area and within 10 miles of the project
9 area, as shown in the larger black-dotted buffer
10 on the screen.

11 We also looked for non-eagle raptor nests
12 within one mile of the project area and within
13 the project area. For non-eagle raptor nests,
14 we did not find any nests during the 2019
15 survey, but during the 2020 survey, we found
16 four unoccupied nests that were suitably sized
17 for non-eagle raptors. Three of these were
18 within the project area, and one was outside of
19 the project area but within two miles of the
20 site.

21 During both years of surveys, no bald
22 eagle nests were found within 10 miles of the
23 project. We did find one right outside of the
24 10-mile boundary along the north side just

1 outside of the 10-mile buffer.

2 Again, during two years of aerial and
3 ground-based surveys, no bald eagle nests were
4 found within the project area or within 10 miles
5 of the project.

6 As I stated before, the EcoCAT review
7 returned no records of state-listed species or
8 reserves in the vicinity of the project, and no
9 further consultation was required. And I
10 confirmed that with the IDNR.

11 Based on the available data and site-
12 specific survey that we conducted to date, there
13 were no records of federally-threatened or
14 endangered species within the project area. And
15 this is not surprising, as the predominate and
16 cultivated crops in the area are generally
17 unsuitable for threatened and endangered
18 species.

19 Although no federally-listed species have
20 been detected on the site, based on the
21 broad-scale range boundaries of these species,
22 there are some species that have the potential
23 to occur because their ranges do overlap the
24 geographic project area. These would include

1 the Indiana bat, which has the potential to
2 occur; the northern long-eared bat, which has
3 the potential to occur; the Eastern Prairie
4 Fringed Orchid, which only really had limited
5 potential to occur; and same for the Prairie
6 Bush-clover, which also has limited potential to
7 occur in the agricultural land space.

8 When it comes to the threatened and
9 endangered bats, we conducted a mist net survey
10 in August of 2019. This was a search for
11 threatened and endangered bats within the
12 project area. There were no federally or
13 state-listed bats captured during that effort.

14 There is some potential bat habitat on the
15 site, very little, in the form of a small amount
16 of deciduous forest and freshwater forested and
17 emergent wetlands that are on the site. And,
18 again, during the mist net survey that followed
19 federal protocols, no bats, either state-listed
20 or federally-listed, were captured.

21 When it comes to hibernacula, there are no
22 known hibernacula within the project area, and
23 the nearest occupied hibernacula for these bats
24 are over 19 miles south of the project. So we

1 do not expect impacts on hibernacula or
2 hibernating bats as a result of project
3 development.

4 So in summary, the project is very
5 committed to protecting the natural resources
6 and complying with all the applicable
7 regulations, including the State and Federal
8 Endangered Species Act, the Illinois Endangered
9 Species Protection Act, Migratory Bird Treaty
10 Act, and the Bald and Golden Eagle Protection
11 Act.

12 Accordingly, the project will be
13 implementing a number of conservation measures
14 to reduce any impact to natural resources. All
15 turbines will be sited on tilled agricultural
16 land. The project facilities will be sited to
17 avoid any locations of any species of wildlife,
18 fish, or plants protected under Endangered
19 Species Act regulations. We will avoid any
20 local bird and migration passways and areas
21 where birds are highly concentrated.

22 Turbines are going to be located to avoid
23 any known hibernacula, breeding, or
24 maternity/nursing colonies, or migration

1 corridors between these areas. And the turbines
2 are not sited in any areas or features of the
3 landscape known to attract raptors, and
4 potential avian mortality, as I noted earlier.

5 Fragmentation of this habitat, of wildlife
6 habitat, is going to be avoided through the use
7 of land that's already disturbed by building on
8 existing ag land, by using existing roadways to
9 get to those where practical.

10 Continuing on, turbines will be sited at
11 least one mile from any confirmed bald eagle
12 nest. Again, I want to note that there were no
13 bald eagle nests found within the project area
14 or within 10 miles of the project.

15 All collection lines, communication lines,
16 will be buried to reduce any risk -- to
17 eliminate any risk of collision. For any
18 transmission line, they will implement the Avian
19 Power Line Interaction Committee suggested
20 practices to reduce any electrocution risk to
21 birds.

22 Wind turbines are not going to be sited in
23 the wet- -- in any of the wetland features --
24 wetland or stream features.

1 As I have said, we are going to use
2 existing roads and previously-disturbed land as
3 much as possible to reduce any impact on
4 vegetation and to limit any surface disturbance.

5 To reduce impacts to migrating bats,
6 turbines will be feathered below the
7 manufacturer's cut-in speed; meaning, they will
8 not be turning just loosely when the wind is at
9 a very low speed, when the bats are most likely
10 to be flying. The turbine blades will not be
11 spinning until they reach a little bit of a
12 higher speed, and that often has the effect of
13 reducing bat mortality by between 35 and up to
14 close to 60 percent.

15 Additionally, the project will conduct a
16 year of post-construction mortality monitoring
17 to determine if adaptive management conditions
18 are met that are needed to further minimize
19 impact to target species.

20 With that, I just want to thank you for
21 time, and I'm happy to take any questions.

22 JUDGE SLAVIN: Questions. Mr. Boonstra?

23 MR. BOONSTRA: No questions. Thank you.

24 JUDGE SLAVIN: Ms. Duffy?

1 MS. DUFFY: No, thank you.

2 JUDGE SLAVIN: Mr. Forster?

3 MR. FORSTER: No questions.

4 JUDGE SLAVIN: Mr. Burhow?

5 MR. BUHROW: No questions.

6 JUDGE SLAVIN: Mr. Pratt?

7 MR. PRATT: No questions.

8 JUDGE SLAVIN: Mr. Hughes?

9 MR. HUGHES: Yes.

10 EXAMINATION

11 BY MR. HUGHES:

12 Q. The application refers to, and you do at the
13 end of your summary as well, conduct one year of
14 post-construction mortality monitoring.

15 Is there any reason that this wouldn't be
16 on a more regular basis? These turbines are
17 going to be up for many years. Is there any
18 reason not to do a three-year or a five-year
19 ongoing study?

20 A. One year is often standard practice in many
21 parts of the country, and so there is no
22 specific reason why not to, other than one year
23 is one of the most commonly-used metrics, you
24 know, to estimate your mortality after a site is

1 installed.

2 MR. HUGHES: No further questions.

3 JUDGE SLAVIN: Mr. Bothe?

4 MR. BOTHE: No questions.

5 JUDGE SLAVIN: Mr. Meyer?

6 MR. MEYER: No questions.

7 JUDGE SLAVIN: Okay. Interested parties,
8 whether by Zoom or teleconferencing --
9 Mr. Henkel, anybody downstairs yet? They're all
10 gone?

11 MR. HENKEL: No questions.

12 JUDGE SLAVIN: All right. Folks by
13 videoconferencing or teleconferencing -- oh, Ms.
14 McInnis, you're now in the left-hand corner.
15 Let us unmute you.

16 Okay. Go ahead.

17 EXAMINATION

18 BY MS. McINNIS:

19 Q. Okay. Are the rose-breasted Grosbeak or the
20 European ring neck dove of an endangered
21 species?

22 A. They are not.

23 Q. Okay.

24 A. And I don't believe they have been detected,

1 but I'd have to go back to the specific data to
2 pull that up.

3 Q. Oh, they are daily at our bird feeder.

4 Have you asked any local birders of
5 sightings of birds? We do have an active --

6 JUDGE SLAVIN: Now you're making a
7 statement.

8 MS. McINNIS: Sorry.

9 JUDGE SLAVIN: No, it's okay. I'm not
10 mad. Just ask the question. It's a fine
11 question. Have you asked any birders?

12 A. That's a great question. So we did not contact
13 any birders directly, but during the Tier 1 and
14 Tier 2 site evaluations, we closely look at all
15 E-bird records and other birding resources,
16 whether they be local birding forums or boards,
17 to gather any of that information we can from
18 the local birding community.

19 Q. Okay. One final question. If you knew that
20 there was a nesting eagle nest 10 miles to the
21 west, close to West Brooklyn, would there be a
22 danger to that nest and the birds in it?

23 A. No. Ten miles is beyond what is estimated for
24 the risk, and those 10-mile survey areas, the

1 current protocol actually is only to survey out
2 to 2 miles for bald eagles currently. They have
3 done a bunch of telemetry on bald eagles and
4 determined that most birds aren't moving more
5 than a couple miles from their nest sites on any
6 regular basis.

7 So I do not believe there's any risk to a
8 bird 10 miles away. And furthermore, if we were
9 to conduct these surveys now, the survey area
10 would be limited to a 2-mile survey around the
11 project area per current U.S. Fish and Wildlife
12 guidelines.

13 Q. And Compton is 2.6 miles -- oop, statement.
14 Sorry.

15 MS. McINNIS: I guess I'll have to wait
16 for my comments.

17 JUDGE SLAVIN: Does that mean no further
18 questions?

19 MS. McINNIS: No further questions.

20 JUDGE SLAVIN: Other folks by Zoom,
21 whether videoconferencing or teleconferencing,
22 if you would -- if you're videoconferencing,
23 "participant," click "raise hand"; or
24 teleconferencing, star nine in the next ten

1 seconds.

2 All right. Seeing none, thank you.

3 Mr. Zirpoli, thank you, and you are finished.

4 THE WITNESS: Thank you very much.

5 MS. KENNEDY: Judge, at this time we have
6 no further witnesses.

7 JUDGE SLAVIN: All right. Well, that
8 means it's also a perfect time to break. We
9 will recess until tomorrow night at 7 o'clock,
10 here at the Old Lee County Courthouse.

11 Folks that are here by Zoom, whether
12 teleconferencing or videoconferencing, or if
13 you're listening and watching on YouTube, the
14 link will be the same, the meeting ID and
15 password will be the same. Beginning tomorrow
16 night at 7.

17 Thanks, everybody.

18 (The hearing was recessed at
19 9:19 p.m.)

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1 On this 9th day of June, A.D., 2020, I do
2 signify that the foregoing testimony was given
3 before the Lee County Zoning Board of Appeals.
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5
6
7

8 Bruce Forster, Chairman
9

10
11
12 Dee Duffy,
13 Zoning Enforcement Officer
14

15 -----
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