

STATE OF ILLINOIS )  
 )SS  
COUNTY OF LEE )

In the Matter of the Petition  
of

BSW DevCo, LLC, Big Sky Repower  
Lee County, Illinois

Testimony of Witnesses  
Produced, Sworn and  
Examined on this 10th day  
of June, A.D., 2021,  
before the Lee County  
Zoning Board of Appeals

Present:

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

Alice Henkel, Secretary  
Dee Duffy, Zoning Enforcement Officer

Honorable Judge Timothy Slavin, Facilitator

1 APPEARANCES:

2 LEE COUNTY STATE'S ATTORNEY CHARLES BOONSTRA  
3 of the Lee County State's Attorney's Office  
309 South Galena Avenue, Suite 300  
4 Dixon, Illinois 61021

5 Counsel for the County.

6 ATTORNEY DAVID D. STREICKER  
7 of the firm of Polsinelli  
150 North Riverside Plaza, Suite 3000  
8 Chicago, Illinois 60606

9 Counsel for the Applicant.

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1 JUDGE SLAVIN: Alrighty. I'll call out of  
2 recess Lee County Zoning Board of Appeals  
3 hearing on Petition Number 21 P 1563,  
4 BSW DevCo, LLC's, latest petition for a Special  
5 Use Permit to repower an existing WECS  
6 development in portions of East Grove and May  
7 Townships, obviously here in Lee County.

8 For those of you who may be listening to  
9 me on YouTube that have forgotten your Zoom  
10 data, the Zoom meeting ID is 915-3923-9154 and  
11 the password is 209840.

12 On YouTube, if you want to join us, go  
13 ahead and use your browser on your cell phone or  
14 your desktop to go to [www.youtube.com](http://www.youtube.com). In the  
15 search bar, type "Lee County IL," short for  
16 Illinois, "Zoning Board of Appeals." There's no  
17 need to be concerned with upper- or lowercase  
18 letters. Find the session you want to watch,  
19 which presumably is tonight's, June 10th. Click  
20 on it, and whala.

21 If you're having any trouble with any of  
22 those technical things, you can call Ms. Duffy,  
23 your Zoning Officer's, I'll caught it, technical  
24 assistance hotline, 815.973.3449.

In Totidem Verbis, LLC (ITV)  
815.453.2260

In Totidem Verbis, LLC (ITV)

1 All right. I will note that present in  
2 the hearing room this evening are all august  
3 members of the Zoning Board of Appeals:  
4 Messrs. Forster, Buhrow, Bothe, Pratt, Hughes,  
5 and Meyer.

6 The Petitioner's attorney, Mr. Streicker,  
7 is here with, I think, two representatives of  
8 his client. The honorable Dee Duffy is present,  
9 as is her able assistant Alice. The honorable  
10 Charles Boonstra -- Charlie Boonstra is present.  
11 Of course, the court reporter and himself are  
12 present.

13 I think that makes up all the people I see  
14 in the hearing room. That means we have 14  
15 bodies in the hearing room, well below any  
16 Illinois Department of Public Health  
17 restrictions that are applicable up until, I  
18 suppose, midnight tonight.

19 There are no Interested Parties in the  
20 hearing room.

21 Alice tells me that there is one person on  
22 Zoom waiting to testify. There are no  
23 Interested Parties on Zoom. There are no folks  
24 in the ancillary rooms that we sometimes have

1 prepared. The rear jury deliberation room and  
2 downstairs first lobby, there's no one there.

3 That makes the total courthouse attendance  
4 14, with no Interested Parties and one person on  
5 Zoom ready to testify.

6 All right. I think -- my memory fails  
7 sometimes, but I think the last time we left  
8 off, Mr. Streicker, the ball was in your court  
9 and you were presenting evidence, and you may  
10 continue.

11 MR. STREICKER: That's correct, Judge,  
12 thank you, and we are prepared to continue.

13 I have two witnesses this evening. The  
14 first one, Aaron Anderson, is here with us and  
15 ready to testify live.

16 JUDGE SLAVIN: Okay.

17 MR. STREICKER: In-person, excuse me.

18 JUDGE SLAVIN: Live, in-person, yeah, I  
19 guess there's a difference.

20 MR. STREICKER: There is a difference.

21 JUDGE SLAVIN: He is alive, I'll confirm  
22 that.

23 (Aaron Anderson was duly sworn.)

24 JUDGE SLAVIN: Have a seat.

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AARON ANDERSON,

having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. STREICKER:

Q. Mr. Anderson, could you please state your name and spell it for the record.

A. Aaron, A-A-R-O-N, Anderson, A-N-D-E-R-S-O-N.

Q. And, sir, how are you currently employed?

A. I am the director of renewable energy at Burns & McDonnell Engineering Company.

Q. Okay. And what is your business address?

A. 9400 Ward, W-A-R-D, Parkway, Kansas City, Missouri.

Q. Thank you.

And what is the purpose of your testimony here this evening?

A. To discuss the shadow flicker study.

Q. With regard to the Big Sky Wind Repowering; is that correct?

A. Correct, yes.

Q. And have you brought a presentation to present this evening?

A. Yes, I have.

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(Petitioner's Exhibit Number 16  
marked for identification.)

Q. Sir, I'm going to present you with what I have  
marked as Petitioner's Exhibit 16. If you could  
take a look at that.

JUDGE SLAVIN: Actually -- that's okay.  
I'll remark mine. That's fine. 16. No  
problem.

Q. (By Mr. Streicker:) Sir, are you familiar with  
this document?

A. Yes, I am.

Q. Did you personally prepare this presentation?

A. Yes, I did.

Q. Okay. Thank you, Mr. Anderson.

Then I'll turn it over to you to begin  
your presentation for the Board.

A. Very well. Thank you.

So this evening we're going to talk about  
the shadow flicker analysis that was prepared  
for the Big Sky Wind Farm facilities. The  
presentation that I'll give you will walk  
through the methodology of the study, what  
shadow flicker is, why we perform the analysis,  
and ultimately what the results of that analysis



1 was.

2 THE WITNESS: And forgive me, I can't see  
3 it, but are we presenting the presentation?

4 MS. HENKEL: Give me just one minute.

5 JUDGE SLAVIN: On the Zoom, yeah, I think  
6 so.

7 THE WITNESS: Very good.

8 A. I'm going to go to the introduction slide.

9 Quick background on myself. Again, Aaron  
10 Anderson. I have worked in the wind industry  
11 for almost 15 years now, and currently employed,  
12 as I mentioned, as the director of renewable  
13 energy at Burns & McDonnell. Burns & McDonnell  
14 is headquartered in Kansas City. It's a global  
15 engineering, construction and consulting firm.

16 I lead a team of engineering consultants  
17 that perform studies like this and others on  
18 wind farms throughout the country. I personally  
19 have been involved in shadow flicker studies  
20 like this in multiple states, including many,  
21 many times in Illinois and within Lee County.

22 Next slide, the one labeled Shadow Flicker  
23 Overview.

24 So shadow flicker is a relatively simple

1 phenomenon with some complex undertones. Shadow  
2 flicker happens or occurs when wind turbine  
3 blades rotate and pass in front of the sun and  
4 they cast a shadow. Quite simple.

5         However, in order for shadow flicker to  
6 happen, a few things have to be true. It has to  
7 be a sunny day. Without the sun, you will not  
8 have shadows. The turbine has to be in  
9 operation; meaning, it's actually spinning or  
10 rotating. Otherwise, it is not shadow flicker,  
11 it is just shadow. There cannot be any  
12 obstructions between the turbine and whatever it  
13 is casting a shadow on. And by obstruction, I  
14 mean, a home, a silo, barn, a hedge row,  
15 anything between where the shadow is coming from  
16 and what it's being cast upon, because that will  
17 obviously cause the shadow to not go through  
18 that object. And, of course, whatever  
19 receptor -- normally in this context we're  
20 talking about home, where someone lives -- that  
21 receptor has to be in the line of sight for a  
22 shadow. So if the shadow is casting north and  
23 the home is to the south, clearly we cannot have  
24 shadows on the home.

1           As we'll talk about here in a minute,  
2 shadow flicker is very predictable. It's most  
3 common during very specific times of the day and  
4 very specific times of the year. Those in, in  
5 general, early morning and late evening or  
6 during certain fall and spring months. It  
7 doesn't mean that shadow cannot occur at other  
8 times of the year, but just sort of the natural  
9 geometry of how the sun rises and sets in the  
10 seasons that we experience, it's, again, most  
11 prevalent at those typical times of the year.

12           Next slide.

13           Let's talk about the Ordinance  
14 requirements. At a federal level, shadow  
15 flicker, the things that we're talking about  
16 here, is not regulated. Similarly, at a state  
17 level, shadow flicker is not regulated by the  
18 State of Illinois, which is very common. In the  
19 overwhelming majority of states that we go into,  
20 shadow flicker is not regulated at a state  
21 level.

22           At a local level -- so this project is  
23 located within both Bureau and Lee County --  
24 there is no specified limit on the amount of

1 shadow flicker that can occur. And, again,  
2 that's quite typical.

3 What we do see in place substantially more  
4 often than not, that limit is 30 hours per year  
5 of cumulative flicker that occurs at a  
6 residence. So if you add up a few minutes here  
7 and a few minutes there, you add that up over  
8 the course of a year, 30 hours is almost always  
9 the limit we see.

10 So even though there is not a specified  
11 limit in Lee County, we have used 30 hours per  
12 year as what we have characterized as a typical  
13 industry benchmark of what we're measuring  
14 ourselves against. And you'll hear me mention  
15 that 30-hour-per-year number a few times.

16 Next slide.

17 When we model shadow flicker, we use a  
18 program called windPRO. WindPRO is very much  
19 the industry standard for these types of  
20 studies. It looks just like what you can see on  
21 screen, and involves a number of inputs that I'm  
22 going to run you through.

23 But at a fundamental level, what happens  
24 is that the program models the path of the sun

1 every single minute of every single year, and it  
2 determines where a shadow is being cast and if  
3 there's a receptor in that line of sight, and it  
4 aggregates each one of those minutes at each  
5 individual receptor, or home, occupied  
6 residence, and that's how we end up with the  
7 total hours per year that we're talking about.

8 Next slide.

9 When we do the modeling, there are a  
10 number of different parameters and inputs that  
11 go into it, and I'd like to run you through just  
12 a few of these that, in our view, is a very  
13 conservative approach to how much flicker would  
14 actually accumulate. The overwhelming majority  
15 of the time, the conservatism built here is far  
16 higher; meaning, the results are far higher than  
17 what's actually seen in practice.

18 So in terms of what goes into the model,  
19 of course we have to model where the turbines  
20 are at. So we have modeled the same wind  
21 turbine layout consisting of 110 turbines. So  
22 that's 109 of the Vestas V120 and one of the  
23 Vestas V110, with the understanding that one of  
24 those turbines would eventually not be

1 constructed, to be determined at a later date.

2 The result of that would be, by removing a  
3 turbine, results can only improve. It's  
4 possible they could stay the same. So if a  
5 turbine was selected that isn't casting any  
6 shadows on any homes, at worst removing a  
7 turbine causes them to stay the same, at best it  
8 causes the results to go down; i.e., improve.  
9 So, again, conservatism is built into this.

10 In addition to turbines, we model all of  
11 the receptors, all of the homes. There are 273  
12 of them throughout the project boundary that we  
13 have modeled on the map. And we model every one  
14 of those in what is called greenhouse mode,  
15 which is just a modeling term to say every house  
16 is modeled as having windows on every single  
17 side. So whereas your house, much like mine,  
18 probably has a window here and a wall and a  
19 window on the other side, every single home in  
20 this model has windows on its entire perimeter;  
21 meaning, it's susceptible to shadow flicker in  
22 every single direction. Again, it's to take a  
23 conservative approach to how much should  
24 actually be anticipated.

1           Next slide, please.

2           When we model the turbines, we consider,  
3           of course, the dimensions of every machine. So  
4           we model the hub height, or the height to the  
5           center of where the blades are at. For both of  
6           the models we're considering, it's 84 and a half  
7           meters. And we model the rotor diameter, so how  
8           far it is from blade tip to blade tip. That's  
9           120 meters for the bigger machine operating, 110  
10          for the one, the singular V110 machine.

11          We mimic how the turbines operate. So we  
12          take wind data from the site and we tell the  
13          model to actually operate the machine. You'll  
14          remember, one of the very first things that I  
15          mentioned was that shadow flicker cannot occur  
16          if a turbine is not operating. So we model the  
17          turbines in operation using the actual onsite  
18          data.

19          Next slide, please.

20          We also could -- we would have the option  
21          to consider obstacles in the model. Obstacles,  
22          again, would be things like a hedge row, barn,  
23          silo, any number of things between the turbine  
24          and a home that could block a shadow from

1 getting from Point A to Point B.

2 We have considered none in this analysis;  
3 meaning, if a home that is experiencing shadow  
4 flicker in our results is actually surrounded by  
5 trees or a hedge row or anything else tall  
6 enough to block a shadow, the results would  
7 actually be lower at that home because the  
8 shadow would not be allowed to make it that far.

9 And we consider the terrain at the site.  
10 So, of course, wind farms, sometimes you have  
11 high spots, low spots, et cetera. We model  
12 exactly the height that every turbine is going  
13 to be above sea level, so where the actual  
14 ground sits and where the receptors are. So if  
15 a turbine is up high, which often is the case,  
16 it's possible that those shadows can cast even  
17 further because it's up higher in the air. So  
18 we consider that in the analysis.

19 And then the last thing that we consider,  
20 on the next slide, this one, is -- are two  
21 different parameters. One we call flicker  
22 relevance. So how far a shadow can go. It's  
23 probably intuitive to you that a shadow, much  
24 like if you're walking down the street and you



1 look down at your shadow on the sidewalk, can  
2 only go so far. At some point that light  
3 differential that creates the shadow starts to  
4 diffuse, and that difference becomes  
5 imperceptible. The exact same thing happens  
6 here.

7 We very conservatively assume that the  
8 rotor diameter -- so blade tip to blade tip  
9 times ten -- is how far these shadows are going.  
10 In the cases of these turbines, it's almost  
11 1200 meters, which is, let's call that,  
12 somewhere between 3500 and 4,000 feet. That's a  
13 shadow being cast almost three-quarters of a  
14 mile in that case, which, again, if you have  
15 ever looked at one, is quite conservative in  
16 terms of how far it actually goes. But that's  
17 the industry standard, so that's what we use.

18 And then we consider other environmental  
19 parameters, such as the angle of the sun above  
20 the horizon. When the sun very first rises in  
21 the morning and it's, say, a degree above the  
22 horizon, just barely noticeable, there's not  
23 enough light to cast a shadow. So we use  
24 3 degrees, which is just a standard input within

1 the model.

2 Next slide.

3 We take all those inputs and we aggregate  
4 them and we come up with a result. And, again,  
5 that's determined on every minute of every year  
6 and aggregated for all of the receptors, and we  
7 come up with results in both tabular format,  
8 tables, and graphical format. In graphical  
9 format, it looks a lot like what you see on  
10 screen, where it creates this very traditional  
11 butterfly shape. And the reason for that is,  
12 when the sun rises in the morning in the east,  
13 it casts a shadow to the west. So during  
14 certain times of the year, the sun rises more  
15 southeast, so it casts a shadow more northwest,  
16 and the same is true for other parts of the year  
17 as well. So that's when you get these cardinal  
18 directions where the sun -- the shadows get a  
19 little bit longer and the results get a little  
20 bit worse.

21 The point is, the location of the receptor  
22 relative to the turbine matters a lot. Just  
23 because a home is close to a turbine doesn't  
24 necessarily mean the results are bad. It

1 matters where it's at in terms of where the sun  
2 comes up and where the sun goes down.

3 Next slide.

4 We also get graphical results like this  
5 for every single receptor. So this is one  
6 example. We just chose the first receptor at  
7 random. This shows, along the bottom of that  
8 chart you can see up there, every month of the  
9 year and on the Y axis, up and down, it shows  
10 the time of day. So you can see a small blue  
11 blob at the bottom there, and what that  
12 represents is for the turbine that's causing  
13 shadow at Receptor 1 there are -- there is  
14 flicker being caused roughly from, let's call  
15 it, mid-May to mid-July, and roughly from, oh,  
16 6 a.m. to 6:30 during most of those periods.

17 So even if this were a home that were  
18 receiving 20 or 30 hours per year, you can see  
19 it's very isolated to a very specific time of  
20 day, a very predictable time of day and  
21 predictable time of year. It's not happening  
22 all the time.

23 Next slide.

24 Within the report that we prepared and

1 that you guys can find in the binders, you can  
2 see the results for every single, individual  
3 turbine and the exact amount of flicker that's  
4 being modeled. Aggregated, it looks a lot like  
5 this.

6 So in the top table on the screen, if you  
7 consider the entire project, so both Bureau and  
8 Lee County, we considered all 110 of the  
9 turbines, there were 273 receptors.

10 So I'll note, there's actually a typo in  
11 the one you received -- or, actually, I fixed it  
12 on this one. If you have a printout that shows  
13 73 in terms of the number of receptors, that's  
14 273. That's a typo by me.

15 So there were 273 receptors considered  
16 within the project area. 82 of those had no  
17 flicker at all and 42 across the entire project  
18 had 30 hours or more. If we isolate that to Lee  
19 County, 189 of those 273 receptors, so  
20 two-third-ish, are within Lee County, and 22  
21 total receptors have shadow flicker above 30  
22 hours per year. Which, again, is not a mandated  
23 or regulated limit as much as a benchmark to  
24 present how we're doing.

1           Next slide.

2           So we know shadow flicker occurs. There  
3 are things that can be done to mitigate if it  
4 does happen. And, again, I will emphasize that  
5 the results that we are projecting here we  
6 believe are highly conservative, and, if  
7 anything, results are anticipated to be lower at  
8 most, if not all, of the receptors that we  
9 model. But if it does occur, these are just a  
10 sampling of some of the things that can happen  
11 to mitigate the amount of shadow happening.

12           Simple ones, like installing blinds and  
13 curtains for a landowner or putting awnings on  
14 their home to prevent the amount of flicker  
15 getting into their home. Planting trees or  
16 other types of vegetation is very common.  
17 Accounting for obstructions that are already  
18 there. Some of those things I mentioned, like  
19 hedge rows and barns, would, in many cases,  
20 cause the actual amount of flicker to be much  
21 lower than what's being modeled here. Or in  
22 some situations, even regulating the operation  
23 of the turbine so that it operates less or at  
24 different times can cause that amount of flicker

1 to go down.

2 So these are all options on the table that  
3 are considered very much on a case-by-case  
4 basis. But the point is, it is manageable if  
5 there were an issue that could be avoided.

6 Next slide.

7 I thank you all very much for your time  
8 and thank you.

9 JUDGE SLAVIN: All right. Further  
10 questions, Mr. Streicker?

11 MR. STREICKER: Yes, thank you, Judge.

12 Q. (By Mr. Streicker:) Mr. Anderson, thank you  
13 for your presentation.

14 You mentioned to the Board members that  
15 there was a report with regard to shadow flicker  
16 prepared as part of the application; is that  
17 correct?

18 A. Yes.

19 Q. And when you were referring to that report,  
20 were you referring to the Special Use Permit  
21 application that Burns & McDonnell has filed  
22 here in Lee County?

23 A. That's correct.

24 Q. And did you personally work on the preparation

1 of that portion of the application that dealt  
2 with shadow flicker?

3 A. Yes, I did.

4 Q. Okay. And would that portion of the  
5 application be Section 4.3.6?

6 A. Correct.

7 Q. Okay. And in addition to the narrative in that  
8 section of the application, there was also a  
9 detailed report prepared?

10 A. Yes.

11 Q. And would that report be found as part of  
12 Exhibit G --

13 A. That's correct.

14 Q. -- in the application?

15 Okay. And what you provided the Board in  
16 your presentation is a summary of that report?

17 A. That's exactly right.

18 Q. And could you further describe for the Board  
19 what type of detail analysis is within Exhibit G  
20 to the application?

21 A. Sure. So that report would go into detail,  
22 significant detail, and provide substantially  
23 more content in terms of results of what we  
24 provided here. The summation of what I just

1 presented to you is identical. There are no  
2 differences at all. But it provides more detail  
3 on methodology approach and, again, receptor-by-  
4 receptor details of how much flicker is  
5 expected, where it's coming from, the turbines  
6 causing it, et cetera.

7 Q. Okay. And that report was prepared under your  
8 direct supervision?

9 A. That's correct.

10 Q. And I forgot to ask this earlier, Mr. Anderson,  
11 but you're a professional engineer; is that  
12 correct?

13 A. I am a professional engineer.

14 Q. Are you licensed in any states as an engineer?

15 A. Yes, including the -- I'm licensed as a P.E.,  
16 professional engineer, in the state of Illinois.

17 Q. Okay. And do you have any -- can you describe  
18 for the Board what your relevant educational  
19 background is?

20 A. Sure. So I am a -- I have undergraduate  
21 degrees in physics and mechanical engineering.  
22 I have my master's degree in engineering  
23 management.

24 Q. Okay. And I think you mentioned you had a



1 specific amount of -- or a considerable amount  
2 of experience working with wind farm permit  
3 applications; is that correct?

4 A. Correct. I have been doing this -- the  
5 majority of my career, about the last 15 years,  
6 focused primarily on wind farms, and have worked  
7 on hundreds of wind farms across the country.

8 Q. And within your focus on wind farms, have you  
9 specifically focused on shadow flicker?

10 A. Correct. That is one service area I have  
11 specialized in, yes.

12 Q. Mr. Anderson, have you previously testified at  
13 any Special Use or Conditional Use Permit  
14 hearings in Illinois?

15 A. Yes, many times.

16 Q. Okay. And would those be with regard to shadow  
17 flicker reports?

18 A. Yes.

19 Q. Similar to what we talked about tonight?

20 A. Exactly the same.

21 Q. I wanted to ask you a couple follow-up  
22 questions with regard to the inputs to the model  
23 that you used, the windPRO.

24 As far as your terrain data, you indicated

1           that the source for that was the USGS NED; is  
2           that correct?

3   A.    Correct.

4   Q.    And could you describe for the Board -- I  
5           assume that's the United States Geological  
6           Survey?

7   A.    Correct.  So that data comes from the United  
8           States Geological Survey, and NED stands for  
9           National Elevation Dataset.  So it's a  
10          collection of publically available data across  
11          the country.

12  Q.    Okay.  And that would be data that's typically  
13          relied upon by a person in your position --

14  A.    Yes.

15  Q.    -- performing a shadow flicker study?

16  A.    Yes.

17  Q.    You also used the term greenhouse as part of  
18          your presentation, correct?

19  A.    Correct.

20  Q.    And am I correct that to summarize the  
21          greenhouse position would be to assume that  
22          every receptor is contained on a sunny day with  
23          no features beyond terrain, such as barns or  
24          anything else blocking potential shadow flicker

1 to the receptor?

2 A. Greenhouse, specifically, that means that every  
3 home, every receptor, is modeled as a glass box.  
4 Rather than something having a roof or very  
5 concrete -- very discrete, specific windows,  
6 things like that, it's a glass box on all sides.

7 But you're also correct that we did not  
8 consider any sort of other obstacles: trees,  
9 buildings, et cetera.

10 Q. Okay. So I hate to use the term worst case,  
11 but it would be the most conservative approach,  
12 because this receptor would have no shade or fog  
13 or anything else impacting the potential  
14 flicker?

15 A. Correct. Results could only get better.

16 Q. And you would expect results in the real world  
17 to be better; is that correct?

18 A. Yes.

19 MR. STREICKER: Thank you, Judge. That  
20 concludes my direct examination.

21 JUDGE SLAVIN: Very good.

22 How about you, Mr. Boonstra?

23 MR. BOONSTRA: No, Judge. Thank you.

24 JUDGE SLAVIN: Ms. Duffy?

1 MS. DUFFY: Nothing, Judge. Thanks.

2 JUDGE SLAVIN: Mr. Forster?

3 MR. FORSTER: I have one question.

4 EXAMINATION

5 BY MR. FORSTER:

6 Q. On your modeling parameters, you call something  
7 sunshine probability. Is that based on a  
8 percentage of cloudy days versus sunny days, or  
9 what is that based on?

10 A. Good question, and shame on me for skipping  
11 over that in the presentation. That was  
12 unintentional.

13 Sunshine probability is another input to  
14 the model where historical weather data for the  
15 last 30 or more years is aggregated at different  
16 points throughout the country. And this was  
17 from -- I would have to check the report -- a  
18 nearby weather station. It considered all of  
19 the cloudy versus sunny days historically.

20 And those follow that curve that you can  
21 see within the report. So in the month of  
22 January, it says there are this many sunny days.  
23 In the month of February, that many sunny days,  
24 and so on.

1           So we considered that within the model  
2           because assuming every single day would be sunny  
3           is, of course, unrealistic. So we take weather  
4           data from nearby and model it in that way.

5 Q.       Okay. And does that -- has that modeling  
6           changed over time, say, over a number of years?  
7           I'm asking, climate change, does that have  
8           anything to do with that?

9 A.       It's possible. I would suggest that it is  
10          probably more likely that because this is  
11          aggregated over such a great period of time that  
12          the relative recency of that impact would  
13          probably not substantively change this. And  
14          even if it did, I wouldn't expect it to be more  
15          than a negligible difference in percentages.

16                 MR. FORSTER: Okay. Thank you.

17                 THE WITNESS: Sure.

18                 JUDGE SLAVIN: Mr. Buhrow?

19                                 EXAMINATION

20 BY MR. BUHROW:

21 Q.       Mr. Anderson, just one point of interest.

22                 You talked about several factors being  
23                 industry-type standards or this type of thing.  
24                 How many companies, roughly, similar to yours

1 that do this type of work are there in the  
2 United States just roughly?

3 A. Dozens.

4 Q. Okay. There's quite a few then?

5 A. Yes.

6 Q. Okay. When you mentioned those numbers, I kind  
7 of wondered how common that was.

8 A. Yes.

9 MR. BUHROW: Okay. Thank you.

10 JUDGE SLAVIN: Mr. Bothe?

11 MR. BOTHE: No questions.

12 JUDGE SLAVIN: Mr. Pratt?

13 MR. PRATT: Yeah, just a couple things.

14 EXAMINATION

15 BY MR. PRATT:

16 Q. So this is the third time you have run this  
17 study on this project, correct?

18 A. That is correct.

19 Q. So in my notes I have got, when you ran it back  
20 in '19, you came up with, I think, 16.

21 A. Correct. In Lee County, yes.

22 Q. And then in --

23 JUDGE SLAVIN: 16. Let's expand on that.

24 Q. (By Mr. Pratt:) 16 over 30 hours of shadow

1 flicker.

2 A. Yes, I agree.

3 Q. 16 residences.

4 In 2020, the second time, you had 26  
5 residences above 30 hours, and the meters  
6 were -- or the blades were 116 meters.

7 Now they're 120 and you have less. How is  
8 that possible?

9 A. It depends entirely on where the turbines are  
10 at and how many of them are being considered.

11 In terms of methodology and inputs, other  
12 than the turbine model and the turbine  
13 locations, everything else has been quite  
14 literally identical from one study to the next  
15 in terms of all the parameters we talked about,  
16 where the receptors are and how they're  
17 considered, et cetera.

18 So the difference is going to be entirely  
19 from which turbine position we're considering.  
20 So if we consider this one, Point A, currently,  
21 and in the future -- or in a past one we  
22 considered Point B, the results could change.  
23 So it's entirely driven by where the turbines  
24 are at.

1 Q. So the inputs into your computer model are  
2 identical to the previous two runs?

3 A. Completely identical.

4 Q. So the other question, you said you modeled 273  
5 homes in Lee County, 22 over 30 hours, 14 had  
6 none, so that leaves 153 that will receive some  
7 shadow flicker?

8 A. We con- -- one minor correction. We considered  
9 273 cumulative, across both counties. 189 in  
10 Lee County. So 189, there were 14 that had  
11 none, so that would leave -- 189 minus 14 would  
12 be 175 --

13 Q. Right.

14 A. -- that would have some. And if you take 175  
15 minus 22, 153 had some level below 30, yes.

16 Q. Right. So there that's no recourse or no  
17 ability for them residents to do anything?

18 A. There are currently no plans to mitigate any of  
19 those, correct?

20 MR. PRATT: Okay. No other questions.

21 JUDGE SLAVIN: Mr. Hughes?

22 MR. HUGHES: Yes, just a few questions.

23 EXAMINATION

24 BY MR. HUGHES:



1 Q. Several times you mentioned "every year." What  
2 time frame did you -- are you referring to when  
3 you said, We measured every minute of every  
4 year?

5 A. That's a good question. Every year -- the term  
6 "every year" is probably not a fair  
7 representation.

8 It takes every minute of any year -- and  
9 it's not specific to any given year, because we  
10 tell it how often the sun is shining, we tell  
11 it -- we provide wind data over the course of  
12 the year that - when we select the wind data,  
13 for example, we look at multiple years from the  
14 site and we pick the worst case, so that with  
15 the highest wind speed, so that the turbines  
16 operate the most.

17 There is no difference within the model in  
18 terms of -- and these are arbitrary numbers --  
19 2018 versus 2019 versus 2002. It is just a year  
20 with every single one of the minutes modeled  
21 within that given year.

22 Q. Okay. Thank you.

23 You actually eluded to another question I  
24 had. Does the speed of the turbine affect that

1 flicker?

2 A. As in the speed that it's rotating?

3 Q. Yes. I'm sorry.

4 A. Sure.

5 In a very negligible way it can affect the  
6 amount of flicker that's occurring. And by  
7 negligible, I mean after the decimal point.

8 The more substantive impact is simply that  
9 the turbine is rotating. So, for example, most  
10 turbines rotate between roughly 10 and 20 rpm's.  
11 The difference -- if we allowed a turbine to  
12 operate at 10 rpm's for the entire year, and  
13 then we did it with the turbine operating at  
14 20 rpm's the entire year, there would be a very  
15 small difference just because the sun continues  
16 moving during that time. So you would see some  
17 very small deltas.

18 But the results, for all intents and  
19 purposes, would be identical because it's still  
20 operating during that time.

21 Q. Okay. And then one final thing. Of the 22 who  
22 have shadow flicker over 30 hours, how many of  
23 those are participating residents?

24 A. Nine.

1 Q. Nine, okay.

2 MR. HUGHES: Thank you.

3 JUDGE SLAVIN: Mr. Meyer?

4 MR. MEYER: No questions.

5 JUDGE SLAVIN: Okay. Any follow-up,  
6 Mr. Streicker?

7 MR. STREICKER: No, Judge.

8 JUDGE SLAVIN: You may step down. Thank  
9 you.

10 THE WITNESS: Thank you.

11 MR. STREICKER: Mr. Anderson, if I could  
12 get the original exhibit back.

13 THE WITNESS: Sure.

14 MR. STREICKER: Judge, we're ready to  
15 present our second witness.

16 JUDGE SLAVIN: Okay. Let's do it.

17 MR. STREICKER: I'd like to call Dennis  
18 Jimeno, please. He will be testifying via Zoom,  
19 virtually.

20 JUDGE SLAVIN: Try and crane my neck.

21 Mr. Jimeno, do you want to raise your  
22 right hand for me, please.

23 (Dennis Jimeno was duly sworn.)

24 JUDGE SLAVIN: Would you just say "test" a

1 few times?

2 THE WITNESS: Test, test, test.

3 JUDGE SLAVIN: All right.

4 THE WITNESS: Can you hear me okay?

5 JUDGE SLAVIN: Yeah.

6 THE WITNESS: Okay. Great.

7 JUDGE SLAVIN: Yes.

8 MR. STREICKER: Good to go?

9 JUDGE SLAVIN: Yup.

10 THE WITNESS: I'm going to share my  
11 screen.

12 JUDGE SLAVIN: Whoa, whoa, whoa. Let's  
13 answer questions.

14 DENNIS JIMENO,  
15 having been duly sworn, was examined and  
16 testified as follows:

17 DIRECT EXAMINATION

18 BY MR. STREICKER:

19 Q. Let me get us started here, Dennis.

20 Mr. Jimeno, if you could, please state  
21 your name and spell it for the record.

22 A. Sure. My name is Dennis Jimeno, D-E-N-N-I-S,  
23 J-I-M-E-N-O.

24 Q. Okay. And, sir, what's your current business

1 address?

2 A. My current business address is 19700 Janelia  
3 Farm Boulevard, Ashburn, Virginia, 20147.

4 Q. Okay. And by whom are you currently employed?

5 A. Comsearch.

6 Q. And what is your current position?

7 A. I am a telecommunications engineer.

8 Q. Okay.

9 JUDGE SLAVIN: I'm sorry, I just didn't  
10 understand. Something engineer.

11 THE WITNESS: Telecommunications engineer.

12 JUDGE SLAVIN: Oh, sorry. Thank you.

13 THE WITNESS: No problem.

14 Q. (By Mr. Streicker:) Okay. Sir, if you could  
15 please describe for the Board members what your  
16 relevant educational background is?

17 A. Sure. I have a master's of science in  
18 electrical engineering from George Washington  
19 University, and I also have a bachelor of  
20 science in electrical engineering from Virginia  
21 Tech and -- yeah.

22 Q. Okay. Very good.

23 And, sir, as you know, we're here to talk  
24 about the petition for a Special Use to repower

1 the Big Sky Wind Farm filed by the Applicant,  
2 BSW DevCo.

3 Are you familiar with that application,  
4 sir?

5 A. I am.

6 Q. Okay. And did you perform any studies or have  
7 any input for that application?

8 A. Yes.

9 Q. Okay. And could you describe for the Board  
10 members what your input was in the application?  
11 What types of activities did you work on?

12 A. So -- well, I basically supervised the studies  
13 and reviewed them and -- is that what you're  
14 asking?

15 Q. Yeah. And these are the type of studies that  
16 you'll be talking about as your presentation  
17 goes forward, correct?

18 A. Correct.

19 Q. Okay. And, sir, you have brought a  
20 presentation to provide to the Board this  
21 evening; is that correct?

22 A. That's correct.

23 (Petitioner's Exhibit Number 17  
24 marked for identification.)

1 Q. And I have handed out a copy of the PowerPoint  
2 to all the folks that are present here in the  
3 room, and there's also one that's going to be  
4 put up virtually to allow participants who are  
5 linking into this hearing over the web to view  
6 it.

7 But I'm going to mark that presentation as  
8 Petitioner's Exhibit 17, and we're going to put  
9 that up on the web so folks can follow along  
10 with you as you're presenting.

11 A. Sure. Would you mind putting it on the slide  
12 view? Not this view, but the other view? So  
13 instead of seeing the notes on the right, you  
14 just see the slides.

15 JUDGE SLAVIN: I want to be able to watch  
16 you testify, sir. We don't have any spectators  
17 on Zoom, so.

18 THE WITNESS: Okay. That's fine.

19 Q. (By Mr. Streicker:) All right. So at this  
20 point I'm going to turn it over to you, with one  
21 more question.

22 The presentation you're giving here this  
23 evening, was that personally prepared by you?

24 A. Yes, uh-huh.

1 Q. All right. Thank you.

2 If you could, please take the Board  
3 members through your presentation.

4 A. Okay. Sure.

5 So good evening, everyone. Again, my name  
6 is Dennis Jimeno, and I'm going to present the  
7 telecommunications impact results for the Big  
8 Sky Repower Project.

9 So next slide, please.

10 So, again, I work for Comsearch, and  
11 Comsearch is -- just a little bit about the  
12 company. We're -- we have been around for over  
13 40 years, we were established in 1977, and we're  
14 part of a larger company called CommScope, and  
15 we specialize in special management and a lot of  
16 those related services. So some of the services  
17 that we provide include microwave, link design,  
18 we do frequency coordination, RF, or  
19 radiofrequency, planning, interference analysis.

20 And so we basically help our clients to  
21 more efficiently utilize the frequency spectrum.  
22 And we also maintain a database that contains  
23 information on all the licensed telecom networks  
24 throughout the country. We use that in



1 connection with the SEC database when we perform  
2 these studies.

3 Next slide.

4 Again, a little bit about myself. We  
5 talked about this already. I have a master's in  
6 electrical engineering from George Washington  
7 University and a bachelor's in electrical  
8 engineering as well from Virginia Tech. I have  
9 been in the industry for over 25 years. Most of  
10 my experience has been in radiofrequency  
11 planning for various telecommunications  
12 networks; for air, land and sea applications. I  
13 have also done microwave path engineering.

14 And, of course, I have done interference  
15 studies to assess the impact of wind energy  
16 facilities on various telecommunication systems,  
17 including microwave, mobile phone, broadcast  
18 radio, radar and land mobile.

19 So next slide.

20 So tonight I'm going to go over the  
21 results of five telecommunications studies that  
22 we did for the Big Sky Wind Project, starting  
23 with microwave, and then followed by AM/FM  
24 broadcast radio, we also did a study for land

1 mobile and emergency services, mobile phone, and  
2 over-the-air broadcast TV.

3 And we updated these, by the way, just  
4 this past March.

5 Next slide.

6 Okay. So for the microwave paths, over on  
7 the left, I -- what you see here is the project  
8 area for the Big Sky Wind Project. And those  
9 lines that intersect represent the various  
10 microwave paths that we identified. We  
11 identified a total of 14 microwave links within  
12 this project area.

13 And the way we analyze these things is, we  
14 calculate what's known as a Fresnel zone.  
15 Basically what it is, it's a -- if you can  
16 visualize a three-dimensional ellipsoid along  
17 those lines. And so in order to prevent or  
18 avoid any interference to these microwave paths,  
19 we want to make sure that there are no  
20 obstructions that cross these Fresnel zones.

21 And so we identified these 14 paths, and  
22 we also took into consideration the wind  
23 turbines, a total of 111 wind turbines, with  
24 dimensions of 84.5 meters hub height and 120- or

1 110-meter blade diameter.

2 Based on these dimensions and the  
3 locations of these wind turbines, we didn't find  
4 any of them to obstruct the Fresnel zones.

5 Next slide, please.

6 And so the other system that we analyzed  
7 are the AM and FM broadcast radio. So for these  
8 systems, unlike microwave paths, they don't  
9 require line of sight necessarily between the  
10 two points. These are known as broadcast radio.  
11 So they cover a wide area.

12 And so over on the left is a map of,  
13 again, the Big Sky Wind Project area. And the  
14 red dots represent the AM stations around the  
15 project area, and we identified a total of five  
16 within 30 kilometers of the project. And then  
17 on the right, we have the FM radio stations that  
18 we identified around the wind project, and we  
19 found a total of ten within 30 kilometers.

20 And so to analyze these broadcast radio  
21 systems, what we do is, we take -- we define  
22 what's called an exclusion zone. And so any  
23 object, especially large objects that are in  
24 this exclusion zone, could potentially distort

1 the broadcast pattern of the radio stations.

2 And so for AM -- and these exclusion zones are a  
3 function of the type of antenna. So for AM, if  
4 you have a directional antenna, an exclusion  
5 zone is basically the lesser of 10 wavelengths  
6 or 3 kilometers. A wavelength is defined as the  
7 speed of light divided by the frequency of the  
8 signal.

9 And then if it's a nondirectional antenna,  
10 the exclusion zone is equivalent to  
11 1 wavelength.

12 And so these are -- again, the biggest or  
13 the longest distance is 3 kilometers, and the  
14 closest AM station that we found is 20.93  
15 kilometers. So it's well beyond the exclusion  
16 zone.

17 Similarly, for FM we calculated the  
18 exclusion zone based on -- basically based on  
19 the nearfield of the antenna. So that nearfield  
20 is -- we define it based on a formula of  
21  $2D^2$  squared divided by the wave length; D being  
22 the largest dimension of the antenna. Usually  
23 these are in the order of meters.

24 And the nearest FM station that we

1 identified is over 14 kilometers away.

2 So neither of these stations, AM or FM,  
3 are within the exclusion zones, and so we don't  
4 anticipate there being any issues.

5 Next slide, please.

6 The next system is the land mobile and  
7 emergency services. So here we evaluated the  
8 registered frequencies for first responders,  
9 including police, fire and emergency medical  
10 services. We also identified all business and  
11 industrial land mobile radio and commercial  
12 E-911 systems.

13 And they -- the table that you see there  
14 on the right are 27 site-based licenses within  
15 the project area, and you can see that on the  
16 map represented by the red dots. And in  
17 addition to these, we also found area-based  
18 licenses that are scattered throughout the  
19 county and the state, and there are hundreds of  
20 these throughout the entire state.

21 And so -- but what these -- what all these  
22 systems have in common is that these are  
23 designed to operate reliably using two-way  
24 communications in a non-line-of-sight

1 environment. And so that's made possible using  
2 the frequencies that they operate on. And  
3 typically they have multiple base stations that  
4 serve their users, and so you have a system that  
5 can operate in the presence of wind turbines or  
6 buildings. So we don't anticipate there being  
7 an issue with these systems as well.

8 Next slide.

9 Mobile phone is the next system that we  
10 analyzed, and these work the same way. They  
11 operate reliably in a non-line-of-sight  
12 environment. And we identified all the usual --  
13 you know, the common providers, the AT&T,  
14 Verizon, T-Mobile of the world.

15 And you can see that, on the table on the  
16 right, they serve clients throughout Lee and  
17 Bureau County. And, again, these systems all  
18 operate in a non-line-of-sight environment, and  
19 so we don't expect there to be any issues with  
20 respect to the wind turbines.

21 Next slide, please.

22 The last system that we took a look at  
23 involved over-the-air, OTA, broadcast TV. And  
24 this slide here is done to make a distinction

1 between OTA, or over-the-air, broadcast TV and  
2 satellite.

3 What we analyzed here are the systems on  
4 the left. Satellite TV was not considered  
5 because those systems go to your satellites in  
6 outer space and so there shouldn't be any  
7 problem with those systems.

8 So next slide, please.

9 So for over-the-air broadcast TV, we  
10 identified -- within 150 kilometers, we  
11 identified 65 stations that are currently  
12 licensed. And of these, 14 -- 14 are with --  
13 are -- they have coverage contours that  
14 intersect the Big Sky Project area. And then  
15 there are -- in addition to that, there are two  
16 low-powered digital stations as well. So a  
17 total of 16 have their coverage intersecting the  
18 project area.

19 And what we've -- what we found with  
20 regard to OTA TV is that they have been known to  
21 experience interference due to wind turbines due  
22 to signal scattering -- basically that involves  
23 the signals bouncing off the blades -- but with  
24 the advent of digital signal technology, the

1 effects have been significantly reduced.

2 Compared to when we had the analog signals, they  
3 would have experienced much, much more severe  
4 effects due to the wind turbines. But with  
5 digital technology, the digital receivers that  
6 are in use today have undergone significant  
7 improvements to mitigate the effects of signal  
8 scattering.

9 And furthermore, my understanding, is that  
10 these wind turbines already exist and,  
11 therefore, you know, there should not be any  
12 interference that was not already there. But  
13 nevertheless, I was told that Big Sky will  
14 implement a complaint resolution process for  
15 users that experience some level of interference  
16 with their TV due to the wind turbines.

17 And that's it.

18 JUDGE SLAVIN: Follow-up, Mr. Streicker?

19 MR. STREICKER: Yes, Judge. Thank you.

20 Q. (By Mr. Streicker:) Dennis, in follow-up to  
21 some of the points you were just making, is it  
22 fair to say that, based on the results of the  
23 study you conducted, you do not anticipate the  
24 repowering will cause any broadcast TV



1 interference; is that correct?

2 A. No new interference. We don't know if -- we  
3 don't know if there's -- there's already  
4 interference there, but because these -- these  
5 wind turbines already exist. And so because  
6 they already exist, then this repowering would  
7 not introduce any new interference than was  
8 already present.

9 Q. Okay. So if an individual is experiencing  
10 television signal interference, either from the  
11 existing turbines or from the repowered  
12 turbines, are there any mitigation steps that  
13 can be taken to help the problem?

14 A. Yes.

15 Q. Can you describe what those steps are?

16 A. So typically what we recommend is, first of  
17 all, if there is an antenna indoors, to replace  
18 that with an outdoor antenna, preferably  
19 pointing, you know, towards the TV station. And  
20 when you combine that with the -- with the --  
21 you know, with the digital receiver, normally  
22 that would mitigate the interference. If that  
23 still results in interference, another  
24 possibility would be to upgrade the TV itself.

1 Q. Okay. Could cable television also be a  
2 mitigation technique?

3 A. Yes. So cable TV, as well as satellite TV,  
4 should not have any -- should not be impacted by  
5 the wind farm.

6 Q. Okay. I think you mentioned, sir, that there  
7 would be a complaint resolution process put in  
8 place; is that correct? That was your  
9 understanding?

10 A. Correct.

11 Q. So if an individual did submit a complaint with  
12 regard to television interference, what steps  
13 could be taken to figure out if there was a  
14 problem with the reception? And I take it, the  
15 mitigation techniques that you just mentioned  
16 could be employed if it was determined that  
17 the -- either the existing turbine or the  
18 repowering was causing the problem?

19 As in -- what I'm getting at is, is there  
20 a way to eliminate either the turbines or  
21 something else causing the signal interference  
22 problem? Or if it was television, would you  
23 just presume that it was probably the turbines  
24 causing the problem?

1 A. I mean, it could be something else. It doesn't  
2 necessarily have to be the wind turbine. I  
3 mean, signals can bounce off any object.

4 Q. Okay. Such as a barn or a silo?

5 A. Correct.

6 Q. Okay. Other mitigation techniques you just  
7 mentioned would be equally applicable, no matter  
8 how that signal was being interfered with,  
9 correct, with regard to television?

10 A. Right. Right.

11 Q. Sir, I wanted to ask you a couple follow-up  
12 questions. I believe you mentioned all the  
13 reports that you prepared in support of this  
14 application were updated in March; is that  
15 correct?

16 A. That's correct.

17 Q. Okay. And with regard to Lee County  
18 specifically, do you know how many turbine  
19 locations you studied as part of the March  
20 update?

21 A. 111.

22 Q. Turbine locations?

23 A. Uh-huh.

24 Q. Okay. I think that would be for the entire

1 project; is that correct?

2 A. Correct.

3 Q. And what I wanted to know is, specific to Lee  
4 County --

5 JUDGE SLAVIN: Whoa, whoa, whoa. We're  
6 talking on top of each other.

7 Q. (By Mr. Streicker:) Let me withdraw the  
8 question and restate it.

9 Mr. Jimeno, I think you mentioned that you  
10 studied 111 turbine locations as part of your  
11 reports for this project; is that correct?

12 A. That's correct.

13 Q. Okay. And of those 111 locations, do you know  
14 how many you studied in Lee County?

15 A. I believe -- I don't remember the exact number,  
16 but I do know that that 111 included all of the  
17 wind turbines in Lee, as well as Bureau County.

18 Q. Okay. So you studied all 58 turbine locations  
19 in Lee presumably?

20 A. That's correct, yes.

21 Q. And I wanted to ask you one follow-up question  
22 with regard to your microwave study. I think  
23 you mentioned, and it's in one of your  
24 PowerPoint slides, that the current proposed

1 turbine locations do not encroach any of the  
2 microwave exclusion zones; is that correct?

3 A. Will not encroach any of the Fresnel zones,  
4 that's correct.

5 Q. Okay. And does that lead you to conclude that  
6 the repowering will likely not cause any signal  
7 interference issues with regard to microwave  
8 systems?

9 A. That's correct.

10 Q. And, sir, with regard to the results of your AM  
11 and FM broadcast radio survey, I think you  
12 mentioned in the bottom of your slide that  
13 Comsearch had no recommendations or mitigation  
14 techniques that it would suggest or require for  
15 this project; is that correct?

16 A. That's correct, yes.

17 Q. And that would lead you to believe that the  
18 repowering would not cause any AM or FM  
19 broadcast radio interference?

20 A. That's correct.

21 Q. All right. And then lastly, to summarize the  
22 results of your land and mobile emergency  
23 services study, is it fair to say, in summary,  
24 that based on your study you would not

1 anticipate the repowering would cause any issues  
2 with land mobile and emergency services  
3 communications?

4 A. That is correct.

5 Q. And lastly -- I guess I said lastly before, but  
6 I mean it this time.

7 With regard to mobile phone  
8 communications, am I correct to state that the  
9 results of your study would indicate that you do  
10 not anticipate any issues with mobile phone  
11 communications as a result of the repowering?

12 A. Right.

13 MR. STREICKER: Thank you, Judge. That  
14 concludes my direct examination.

15 JUDGE SLAVIN: Okay. Mr. Boonstra, any  
16 questions?

17 MR. BOONSTRA: No questions. Thank you.

18 JUDGE SLAVIN: Ms. Duffy?

19 MS. DUFFY: Not right now.

20 JUDGE SLAVIN: Okay. Mr. Forster?

21 MR. FORSTER: No questions.

22 JUDGE SLAVIN: Mr. Buhrow?

23 MR. BUHROW: No questions.

24 JUDGE SLAVIN: Mr. Bothe?

1 MR. BOTHE: No questions.

2 JUDGE SLAVIN: Mr. Pratt?

3 MR. PRATT: No questions.

4 JUDGE SLAVIN: Mr. Hughes?

5 MR. HUGHES: No questions.

6 JUDGE SLAVIN: And, Mr. Meyer?

7 MR. MEYER: No questions.

8 JUDGE SLAVIN: Thank you, Mr. Jimeno. You  
9 may disappear, step down, disappear, go away,  
10 turn off your Zoom. Thank you.

11 MR. STREICKER: Judge, if I could, if I  
12 could ask for a short break while I just compile  
13 my exhibits?

14 JUDGE SLAVIN: Absolutely. I think it's  
15 -- it's almost exactly 7 o'clock. Let's make it  
16 7:10.

17 (A recess was taken at 7:04 p.m.  
18 and proceedings resumed at  
19 7:18 p.m.)

20 MR. STREICKER: At this point, Judge, I'm  
21 happy to report at this point in the  
22 application, the Applicant rests.

23 JUDGE SLAVIN: Very good.

24 And, Alice, still no one on Zoom?

1 MS. HENKEL: Correct.

2 JUDGE SLAVIN: And gentleman in the salmon  
3 shirt, you're a representative of the  
4 Petitioner?

5 AUDIENCE MEMBER: Yeah.

6 JUDGE SLAVIN: So there are no other  
7 parties to present any evidence, unless you  
8 wanted to, Ms. Duffy?

9 MS. DUFFY: Not at this time.

10 MR. STREICKER: If I may, before evidence  
11 closes, I just formally move to --

12 JUDGE SLAVIN: You may. And they are all  
13 admitted, all your exhibits, 1 through 17.

14 MR. STREICKER: Correct.

15 JUDGE SLAVIN: Okay. And if you're ready,  
16 we'll --

17 MR. STREICKER: I am.

18 JUDGE SLAVIN: -- entertain closing  
19 arguments.

20 MR. STREICKER: Okay. Thanks to all of  
21 you, again, for bearing with us throughout this  
22 process. I hope that, given how much time we  
23 have been able to spend together, a little bit  
24 in 2020 but a lot in 2021, that you have



1 realized, one, how much commitment there is from  
2 the current ownership to follow through and  
3 complete this repowering.

4 And, you know, I, like you, come from an  
5 economic development background, and it's  
6 amazing how long you have to stick with certain  
7 projects and stick through it to get hopefully  
8 the gains for the community that you're hoping  
9 for. And I know all of you are here, first and  
10 foremost, to protect community members and do  
11 what's best for the residents of Lee County.  
12 And I really hope that as you have sat here and  
13 learned about our plans and the project that you  
14 believe, as we do, that this repowering truly is  
15 in the best interest of the Lee County  
16 residents.

17 As I said in my opening, I truly believe  
18 that this one of those rare projects where I  
19 think the benefits really, really do far, far  
20 outweigh the drawbacks. Which, in this case,  
21 given the fact that we're talking about  
22 modernizing a 10-year-old project, really I  
23 think the drawbacks are limited to, you know, a  
24 little bit of extra traffic and construction

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1 congestion on the roads.

2 We have -- and this is a new update, but  
3 as some of you might be aware, the County Board  
4 did approve the Road Use Agreement that we had  
5 negotiated with Dave Anderson, the Lee County  
6 Highway Engineer. It is the plan, I cannot  
7 state it as a fact yet, but that the townships  
8 whose roads we would also be on in both Lee and  
9 Bureau County would sign a very similar  
10 agreement to the -- what I'll call the master  
11 Road Use Agreement that we have entered into  
12 with Lee County.

13 So once you take out what are hopefully  
14 temporary construction impacts and, you know,  
15 those impacts would really primarily be limited  
16 to our landowners, this project is going to have  
17 a significant benefit for Lee County as a whole,  
18 and I think that would primarily be through  
19 increased economic activity related to the  
20 repowering, but also Lee County would be a  
21 taxing district that I think would benefit  
22 greatly from the increased tax revenue the  
23 repowering would bring, and those increased tax  
24 benefits would be, of course, proportional

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1 across all of the taxing districts, with the  
2 schools being the primary beneficiaries, which,  
3 of course, Lee County residents would go to  
4 those schools and benefit from that. So  
5 certainly the increased economic activity I  
6 think is a great betterment to Lee County.

7 But also, when we're talking a little more  
8 closer into the project, we will be taking  
9 10-year-old turbines and replacing those with  
10 Tier 1 models that will be more efficient and I  
11 think, probably for your purposes, quieter at  
12 low speeds -- low wind speeds, which will really  
13 be of a great benefit to those folks that are in  
14 the immediate neighborhood of the turbines.

15 Also, you know, we have had a lot of  
16 opportunity to talk about shadow flicker here in  
17 2021, and one thing that hasn't come out, but,  
18 you know, the project currently, right now, does  
19 not -- given its age, does not have any shadow  
20 flicker limitations placed upon it. As part of  
21 this repowering, we have offered to come to what  
22 you heard Mr. Anderson talk about as the  
23 industry standard of limiting our shadow flicker  
24 to no more than 30 hours per year per receptor.

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1 I think that, in and of itself, will be a  
2 great benefit to the residents of Lee County  
3 that are in and around the wind farm because,  
4 one, it gives them a concrete limit that they  
5 can put against us; and, secondly, given how we  
6 can model and somehow predict shadow flicker, we  
7 can also work with them if there is a problem to  
8 not only limit the flicker but to look at  
9 mitigative actions to further reduce the impacts  
10 of shadow flicker on the project.

11 So I think placing those limitations upon  
12 the project is really another great benefit for  
13 Lee County residents.

14 You know, certainly I'd be remiss to not  
15 address this. Since this is the third time that  
16 we have been before each other and talking about  
17 this project, one thing that I really know  
18 you're concerned about is expending a  
19 considerable amount of the County's time and  
20 your personal time and resources for a project,  
21 you know, that might be somewhat speculative and  
22 perhaps isn't going to happen. Because we have  
23 all spent a lot of time in those cases. As you  
24 know, we have been at this since 2018.

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1           But I really hope that through both Mike  
2           Speerschneider's testimony and, perhaps even  
3           more specifically, Andrew de Pass, who is the  
4           direct owner and representative, that you got a  
5           feel for, one, the absolute commitment to this  
6           repowering. I think you heard from Andrew that  
7           this project was the major utility scale wind  
8           asset in its portfolio and that successfully  
9           completing this repowering was Vitol's number  
10          one priority with regard to its renewable  
11          holdings. So, one, hopefully that emphasizes  
12          the commitment to this repowering.

13                 Secondly, you also heard from Mr. de Pass  
14                 that Vitol has a very significant balance sheet  
15                 strong enough to finance this project off that  
16                 balance sheet, which means it's not contingent  
17                 upon any third-party financing, which, you know,  
18                 given the vagaries of the economy, can at times  
19                 be hard to come by, and that's not a contingency  
20                 that we have to worry about here.

21                 Also, you have probably heard from a  
22                 number of energy projects, whether it's  
23                 renewable or not, that need to get their siting  
24                 or Special Use Permitting approval here in

1 Lee County, but whether or not the project goes  
2 forward may be contingent upon securing a  
3 revenue source for the project, whether it's a  
4 PPA, a renewable energy credit agreement or  
5 otherwise.

6 You heard really specifically from Mike  
7 Speerschneider talk about this project right now  
8 does not have a PPA. It's selling power  
9 directly into the market. Okay. And you heard  
10 from Mr. de Pass that, while they may be seeking  
11 a PPA, it would be merely to even out the highs  
12 and lows of the power pricing, and it would  
13 not -- whether or not the project actually  
14 secures a PPA, the financing is not dependent  
15 upon that. Right now the project is built and  
16 operating and selling power into the market at  
17 the market price and that's working for them.  
18 So at a minimum, they will be able to continue  
19 with that.

20 So Vitol not only has the ability to  
21 finance this, but also we are not looking at a  
22 project or a repowering that's contingent upon a  
23 third party being one to buy the power at a  
24 price that's high enough to sustain the project.

1 You know, that's a huge contingency that has not  
2 been a consideration here.

3 So hopefully when you combine the absolute  
4 passion for this project, the passion to be here  
5 in Lee County, the ability to finance it, and  
6 the ability -- or not having to be concerned  
7 about market forces with regard to off-take, you  
8 know, being a trigger for this repowering, we  
9 really have a project that makes a lot of sense  
10 in a project where the table is absolutely set,  
11 where the granting of this permit is not merely  
12 a step to get to the end but it is one of the  
13 final steps before we get to the end.

14 So hopefully that eases, at least in your  
15 mind, some of the burden of having to spend so  
16 much time on this, is that we are working  
17 towards something that is going to happen. And  
18 we're really happy to be in the unique situation  
19 to be talking about that.

20 And, you know, one of the things that the  
21 ZBA is tasked with is -- here in Lee County --  
22 looking at not only the standard Special Use  
23 Permitting criteria when you're evaluating one  
24 of these applications, but also the Lee County

1 Wind Energy Conversion System Ordinance  
2 criteria.

3 It's interesting, when you look at the  
4 standard SUP criteria in relation to a  
5 repowering project, I think, you know, it's  
6 almost a no-brainer. But I wanted to circle  
7 back to those criteria as I talk to you this  
8 evening, because I think when you think back to  
9 the testimony of the folks you heard from --  
10 again, Mike Speerschneider, the project  
11 developer; Andrew de Pass, the project owner;  
12 Chris Howell, with regards to sound engineering;  
13 Terry VanDeWalle, with regards to the ecology  
14 and the passion that this project plans to put  
15 forth in the environment; and Aaron Anderson  
16 tonight with regard to shadow flicker; along  
17 with Dennis Jimeno -- it really helps crystalize  
18 what we're talking about and how easily it fits  
19 in, hopefully, to the task that's before the  
20 ZBA.

21 So, you know, the first SUP criteria that  
22 you all are tasked with considering is  
23 determining whether or not the application or  
24 the Applicant and the project that the Applicant



1 is presenting will have any adverse impacts on  
2 the neighborhood and the surrounding areas.

3 You know, in this case, we're talking  
4 about a repowering. So we have a neighborhood  
5 that's not only been living in and around the  
6 project for over a decade, but we're in an area  
7 here on the Lee and Bureau County border that  
8 has a lot of significant wind development,  
9 including a project that I was surprised when  
10 you go visit Ohio, Illinois, and you see how  
11 closely intermixed the Green River Project is  
12 with Big Sky, that this is certainly an area  
13 where the residents in and around Ohio are very  
14 familiar with wind projects. And certainly the  
15 repowering, in and of itself, I do not believe  
16 would have any adverse impacts on the  
17 neighborhood at all. And for the reasons I  
18 stated previously, we very much believe it will  
19 be a betterment.

20 And issue -- SUP Criteria 2 is, again,  
21 fairly similar to 1, which is no impact to the  
22 surrounding properties. Again, you know, we're  
23 going to have quieter turbines, shadow flicker  
24 restrictions, and limited construction

1 activities. So for a project that's going to  
2 bring this many benefits, I really think the  
3 impact on the surrounding communities is very  
4 minimal.

5 SUP Criteria 3 is that there be no adverse  
6 impact on traffic conditions. As I mentioned,  
7 we have just entered into a very detailed, I  
8 think it's a 48-page Road Use Agreement, with  
9 Lee County, and there certainly will be some  
10 impact to traffic in and around Ohio as the  
11 project repowering, you know, the construction  
12 activities are taking place. But once those  
13 limited activities are completed, really the  
14 O and M, operations and maintenance, activities  
15 in the area is not going to be any higher than  
16 it is now.

17 So I think that the -- any adverse impact  
18 on local traffic conditions is, one, very  
19 minimal; two, for a defined period of time; and,  
20 three, certainly worthy, I think, for the  
21 residents to go through to have the significant  
22 impacts from the repowering that I believe that  
23 they'll see.

24 SUP Criteria 4 is that there be no impact

1 on public utilities. And, of course, what's  
2 interesting here with this repowering is, we  
3 really don't use any public utilities at all.  
4 There's probably a restroom in the operations  
5 and maintenance building, but that's it. We're  
6 not a water user. We don't utilize a lot of  
7 power, gas, et cetera.

8 And, again, with our increase in property  
9 taxes, hopefully that's going to taxing  
10 districts, such as fire protection or otherwise,  
11 that while they might not be directly utilities,  
12 they are utility-like and can really help the  
13 region maintain its infrastructure. So I think  
14 we're going to be actually a betterment with  
15 regard to that category.

16 SUP Criteria 5 is regional and  
17 environmental considerations. You know, we have  
18 a 10-year-old project. And certainly one of the  
19 witnesses I always look forward to hearing  
20 through the testimony is Terry VanDeWalle. But,  
21 again, I hope that he left you all with the  
22 feeling that we take the regional environment  
23 and the ecology of the area very seriously. We  
24 know that there's two sensitive species here

1 with regards to the Blanding's turtle and the  
2 ornate box turtle.

3 I think I mentioned to some of you, you  
4 know, just in passing that the Chicago Tribune  
5 ran a front page story on endangered species in  
6 Illinois, and the first things it highlighted  
7 were the Blanding's and box turtle, and it  
8 focused on Lee County here.

9 So that obviously caught my attention, and  
10 it's one of the things Terry and I talked about,  
11 and it really reinforced for me how important  
12 the protections that Terry was recommending and  
13 the implementation of those, which we will do,  
14 towards making sure we have a successful  
15 repowering that more than adequately takes into  
16 account regional and environmental  
17 considerations.

18 So, you know, outside of the environmental  
19 ecological protections, whether it's bats,  
20 birds, turtles or otherwise, again, I have  
21 always considered sound to be an important part  
22 of the environment, and with the quieter  
23 turbines, I think that we're going to be  
24 improving the environment over and above what it

1 is now.

2 And, you know, on top of the regional and  
3 environmental considerations, I think we also  
4 hopefully left you with a good feeling for how  
5 important we take safety during both the  
6 construction and operational phases of this  
7 project and the operations that will be put in  
8 place for the folks that we bring on site to  
9 work on the project, but most importantly the  
10 regional residents that live in and around the  
11 project.

12 So when you look at those five SUP  
13 criteria, you'll see just how nicely, I think, a  
14 repowering fits into those. And one of the  
15 things that we spent a lot of time on with Mike  
16 Speerschneider and his testimony was going  
17 through how we believe the repowering fits with  
18 all the wind-specific criteria that Lee County  
19 has put into place.

20 I don't want to bore you or go through all  
21 those criteria again, because I think they're  
22 adequately within Mike's testimony, but one of  
23 the things that I did want to highlight was the  
24 two Variance requests that we had made. One is

1 fairly simple and straightforward, that your  
2 Ordinance has a standard one-year time  
3 limitation to begin construction. And we talked  
4 about this recently, that we would again ask  
5 that for the purposes of the repowering that  
6 that be extended to three years. We're not  
7 anticipating being able to need anywhere near  
8 that time.

9 I think, from what you heard from Mike  
10 Speerschneider and Andy de Pass, that the plan  
11 would be to start the repowering as soon as  
12 possible after securing the appropriate permits  
13 from both Lee and Bureau if they're awarded.  
14 But, again, that is just something we found in  
15 the past to be helpful, to have a little more  
16 flexibility built in so that if there are delays  
17 which do arise, we are not in the position of  
18 having to come back before the Board.

19 But most importantly, we have asked for 11  
20 setback Variances in the application. And the  
21 maps with regard to those Variances are in  
22 Exhibit E, and there's a narrative section in  
23 the application, 4.2.9, that refers specifically  
24 to the Variances that are requested.

1           And our request here for those Variances  
2           is the same as we made in 2019, which is,  
3           considering the difficulties, hardships, and the  
4           harmonious purpose and interest, there are some  
5           locations -- and this is really, again, due to  
6           the unique circumstances we have with the  
7           repowering -- where, as you have heard from a  
8           number of witnesses, clearly we want to be able  
9           to reuse the existing foundations and the  
10          existing towers, but given the age of the  
11          project and updates with the Ordinance, we do  
12          have a number of turbines that are within 350  
13          feet of a property line, which is a technical  
14          issue with the current Ordinance, and this is  
15          what's led us to make these Variance requests.  
16          And these are Turbines 59, 61, 63, 64, 68, 70,  
17          73, 98, 106, 114, and 120.

18                 And I do want to emphasize, what's written  
19                 in the application is that we would be very  
20                 comfortable that if those Variances were granted  
21                 that they be conditioned upon us submitting a  
22                 waiver, showing the landowner awareness of the  
23                 issue and consent to the turbine being repowered  
24                 within 350 feet of his or her property line, and

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1 that we would submit those waivers to, in a  
2 sense, present the Variation to the Zoning  
3 Administrator prior to any building permit being  
4 issued with respect to the turbines I just  
5 named.

6 So hopefully you see this as we do, as a  
7 very fair solution to allow the reuse of the  
8 existing foundations and towers, while still  
9 maintaining compliance with the Ordinance. And  
10 that compliance would be maintained in this case  
11 through the Variance process.

12 As you know, the requirements for a  
13 Variance really require that you talk about the  
14 applicable hardship, which I think Mike went  
15 into in some detail in his testimony. But also,  
16 you know, that it be something that is not the  
17 current owner's making. And, as you know, Vitol  
18 just came in and purchased this project. Again,  
19 we didn't have any specific control over where  
20 the turbine locations are originally, and we  
21 think it's a great thing to repower those, and  
22 we would need the Variations in these instances  
23 to be able to do that.

24 So hopefully you see it the way we do,



1 that the legal requirements for a Variation have  
2 been met through the statements in the  
3 application, as well as the testimony of the  
4 witnesses.

5 And, again, these Variations, if granted,  
6 are going to allow us to not only repower the  
7 project but, in the process of doing so, greatly  
8 reduce the burden that would be on the property  
9 and the landowners of having to do, you know,  
10 really extensive civil work to either dig up the  
11 existing foundation and/or to prepare a new one,  
12 along with the congestion, noise and all of the  
13 other issues that come along with the prolonged  
14 construction activity on the general revenue of  
15 the region. So that is why we have specifically  
16 requested those Variations.

17 But I wanted to really close my comments  
18 and my client's comments in a similar manner to  
19 how we opened those, which is, we really  
20 appreciate Lee County. We want to be a  
21 long-term resident here. We think it's a great  
22 place to invest, we think it's a great place to  
23 live and to operate this project. We wouldn't  
24 be here if we weren't serious about it. And

1 also we know we wouldn't be here without the  
2 time and effort that has been personally  
3 expended by all of you to take time out of your  
4 personal schedules to essentially volunteer to  
5 be here to protect the best interest of the Lee  
6 County residents.

7 Certainly we wouldn't be here without the  
8 exceptional support we get from the Lee County  
9 staff, Dee and Alice and their office; as well  
10 as the State's Attorney's Office, Charlie  
11 Boonstra; Judge Slavin and Callie. So we really  
12 appreciate the joint efforts of all involved to  
13 get us at least to this step.

14 And also, again, I want to thank anybody  
15 that's listening out on Zoom. This project is  
16 meant to be open and for public participation.  
17 And for those Interested Parties out there, I  
18 want to thank you for your participation because  
19 you're a major part of what everybody is doing  
20 here.

21 So, again, thank you very much. Thank you  
22 for your time. I know it's certainly my  
23 client's wish that we bring a great project here  
24 to Lee County. Thank you.

1 JUDGE SLAVIN: Thank you, sir.

2 Alice, still no one on Zoom?

3 MS. HENKEL: Correct.

4 JUDGE SLAVIN: All right. Well, now would  
5 be the opportunity for Interested Parties to  
6 give any public comment, closing statement, but  
7 we have none. So we will close this stage of  
8 the proceedings.

9 The next step is obviously factfinding and  
10 recommendation. We sort of talked a little bit  
11 about it off the record, but just to make sure,  
12 the next schedule -- or the next available  
13 dates, as I try and remember to call them, are  
14 Monday, June 21st, and Tuesday, June 22nd.

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

17 JUDGE SLAVIN: Okay. Well, we have a  
18 quorum on each of the days, and I see no reason  
19 not to forge ahead. So I will recess this  
20 until -- I'm not sure we'll need both nights.  
21 We'll just have to see how it plays out.

22 So I'll see you -- I'll recess until  
23 Monday, June 21st, at 6 o'clock.

24 For those of you not joining us that night

1 -- I guess that's just Craig, we'll see you  
2 on -- well, you'll have to know if we're going  
3 to recess until Tuesday night at 6. I guess  
4 you'll have to get some info -- get some inside  
5 info.

6 Okay. Everybody have a good rest of the  
7 week.

8 MR. STREICKER: It will be 6 p.m., Judge?

9 JUDGE SLAVIN: Yes, 6 p.m. I thought I  
10 said that.

11 MR. STREICKER: I'm sure you did.

12 JUDGE SLAVIN: That's okay. I don't know  
13 if I did or not.

14 Everybody have a good rest of the week.  
15 Stay cool.

16 (The hearing was recessed at  
17 7:41 p.m.)

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On this 10th day of June, A.D., 2021, I do  
signify that the foregoing testimony was given  
before the Lee County Zoning Board of Appeals.

Bruce Forster, Chairman

Dee Duffy,  
Zoning Enforcement Officer

-----  
*Callie S. Bodmer*

Callie S. Bodmer  
Certified Shorthand Reporter  
Registered Professional Reporter  
IL License No. 084-004489  
P.O. Box 381  
Dixon, Illinois 61021