

South Dakota Public Utilities Commission

EL18-026 - In the Matter of the Application by Prevailing Wind Park, LLC for a Permit of a Wind Energy Facility in Bon Homme County, Charles Mix County and Hutchinson County, South Dakota, for the Prevailing Wind Park Project - Evidentiary Hearing

Thursday, October 11, 2018

Room 413, State Capitol, Pierre, SD

Please Print

Name

Representing

Lisa Rothschild

Bon Homme Co

Michael R Sorkopf

Bon Homme Co

DAVID HESSLER

SDPUC STAFF

Sherman Fuerniss

Self

Ray Boshnack

Charles Mix Co.

Scott Crouch

S.Pomer

Gregg Huber

Intervenor

Martha Huber

"

Lori Fuerniss

Kelli Jazone

Self

Mike Basing

Paul Schoenfelder

Lisa Darnoniti

Fredrickson & Byron

Nolla Smith

Fredrickson & Byron

Doug Huh

Int

Kara R

Self

Reed Almond

Schoenfelder / Huber

Jerome Powers

Self

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THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

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IN THE MATTER OF THE APPLICATION
BY PREVAILING WIND PARK, LLC FOR
A PERMIT OF A WIND ENERGY FACILITY
IN BON HOMME COUNTY, CHARLES MIX
COUNTY, AND HUTCHINSON COUNTY,
SOUTH DAKOTA, FOR THE PREVAILING
WIND PARK PROJECT

EL18-026

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Transcript of Hearing
October 11, 2018
8:30 a.m.

Volume III, Pages 644-988

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BEFORE THE PUBLIC UTILITIES COMMISSION,
KRISTIE FIEGEN, CHAIRWOMAN
GARY HANSON, VICE CHAIRMAN
CHRIS NELSON, COMMISSIONER

COMMISSION STAFF
Adam de Hueck
Karen Cremer
Greg Rislov

A P P E A R A N C E S

Mollie Smith and Lisa Agrimonti,
appearing on behalf of Prevailing Wind Park;

Reece Almond,
appearing on behalf of Intervenor Gregg Hubner,
Marsha Hubner, Paul Schoenfelder, and Lisa Schoenfelder;

Sherman Fuerniss,
appearing pro se;

Karen Jenkins,
appearing pro se;

Kelli Pazour,
appearing pro se;

Kristen Edwards and Amanda Reiss,
appearing on behalf of Staff.

Reported By Cheri McComsey Wittler, RPR, CRR
Precision Reporting, 213 S. Main, Onida, South Dakota

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1 The following transcript of proceedings was
2 held in the above-entitled matter at the South Dakota
3 State Capitol Building, 500 East Capitol Avenue, Pierre,
4 South Dakota, on the 11th day of October, 2018,
5 commencing at 8:30 a.m.

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1 MR. DE HUECK: Good morning, everyone. My name
2 is Adam de Hueck. I'm the Hearing Examiner for Docket
3 EL18-026, In the Matter of Prevailing Wind Park, LLC for
4 an Application for a Wind Energy Facility Permit.

5 We are on day three. The Applicant has
6 concluded their direct case in chief. Yesterday we heard
7 from our three lay witness Intervenors, and today we're
8 moving on to Mr. Reece Almond's case in chief. And we
9 will also hear from a Staff witness today.

10 With that, Mr. Almond, you may go ahead and call
11 your first witness.

12 MR. ALMOND: We call Mike Soukup.

13 Mike Soukup,
14 called as a witness, being first duly sworn in the above
15 cause, testified under oath as follows:

16 DIRECT EXAMINATION

17 BY MR. ALMOND:

18 Q. Good morning, Mr. Soukup. Can you introduce
19 yourself to the Commissioners, please.

20 A. Hello. My name is Mike Soukup. I live 7 miles
21 north of Tyndall or about 13 miles east of the wind farm,
22 proposed wind farm.

23 Q. And, Mr. Soukup, are you involved in the Bon Homme
24 County government?

25 A. Yes, I am. To give you a little history, I've been

1 on the Zoning Board since 1998 and I've been Chairman of
2 the County Commission for '17 and '18 and the years of
3 '15 and '16 I was Chairman of the Zoning Board.

4 Q. I missed the dates. How long have you been on the
5 County Commission?

6 A. Eight years. Chairman for the last two years.

7 Q. Thank you.

8 And I understand there's the County Commission
9 board. You referenced the Planning Commission. Is there
10 another entity known as the Board of Adjustment?

11 A. Yeah. They switch into that.

12 Q. Can you just explain the roles of those three
13 separate entities?

14 A. You know, legally I can't quite explain how that
15 goes. We've always done it and just have a system, and
16 it works.

17 Q. Who sits on the Board of Adjustment?

18 A. Well, it would be the Commissioners.

19 Q. The County Commissioners sit on the Board --

20 A. Yeah.

21 Q. -- of Adjustment?

22 A. I hope I answered that right, but we've done it for
23 eight years.

24 Q. So you have the County Commissioners, and you have
25 the Zoning Board?

1 A. The same five people. We have five individuals on
2 the Zoning Board, and usually one on the Zoning Board is
3 a County Commissioner. And then that guy is also on the
4 County Commission Board of five. One Commissioner for
5 each district.

6 Q. Now which of those -- you have the County Commission
7 Board, and you have the Zoning Board. Which of those
8 acts as the Board of Adjustment?

9 A. The Commissioners.

10 Q. Commissioners. County Commission.

11 Then are you familiar with this wind farm project
12 that's at dispute or being discussed in this proceeding?

13 A. Yes, I am.

14 Q. How close do you live to that project area?

15 A. Oh, I suppose 12, 13 miles. My great-grandfather's
16 homestead is in the middle of that wind farm.

17 Q. And have you or any members of your family received
18 any sort of financial benefit from this project?

19 A. No.

20 Q. And --

21 A. Probably about a third cousin over would be in that
22 handprint -- footprint of the wind farm.

23 Q. And have you or any -- or have you signed any sort
24 of agreements related to this project?

25 A. No. No.

1 Q. Okay. In front of you is Exhibit I-14. It should
2 be open to Exhibit I-14 in the binder. Are you familiar
3 with that document?

4 A. Looks good.

5 Q. The one in the binder. Exhibit I-14. There should
6 be a sticker down at the bottom --

7 A. Oh, there it is. I was reading that --

8 Q. Sorry. Can you tell us what Exhibit I-14 is?

9 A. Well, I guess it's definitions of what the proposed
10 deals are.

11 Q. Is Exhibit I-14 the Bon Homme County Zoning
12 Ordinances?

13 A. Is what now?

14 Q. Is Exhibit I-14 the Bon Homme County Zoning
15 Ordinances?

16 A. To the best of my knowledge, I would say yes.

17 Q. If you look at the top of page 1, can you tell us
18 when these zoning ordinances were adopted originally?

19 A. Well, it says -- you mean what the date is on the
20 top? Bon Homme County adopted on 4-13 of '99.

21 Q. To your knowledge, is that when the Bon Homme County
22 Zoning Ordinances that are in front of you were adopted?

23 A. That was a long time ago. I would say yes. Like I
24 said, I've been involved since 1997. It's been a long,
25 drawn out --

1 Q. Why don't you flip to Article 17 of those Zoning
2 Ordinances for me.

3 A. Where is that at then? Okay. Exhibition [sic] 17.

4 Q. No. Within the Zoning Ordinances, within Exhibit
5 I-14, if you could flip to Article 17 of your Zoning
6 Ordinances.

7 A. I don't know what page I'm supposed to go to -- part
8 of these?

9 Q. It's page 57, I believe.

10 MR. MUSHITZ: What page?

11 MR. ALMOND: 57.

12 A. Okay.

13 Q. Have you located Article 17 of the ordinances?

14 A. Yeah. I'm fairly nervous sitting up here.

15 Q. That's fine. Take your time. I don't want you to
16 be nervous.

17 Can you tell the Commissioners what Article 17 is?

18 A. Well, I don't know how to really explain it. I
19 guess I read through it before when we adopted it. It's
20 just improvements on our zoning issues, yes.

21 Q. And what does Article 17 relate to specifically?

22 A. The wind farms.

23 Q. And do you recall when Article 17 was adopted?

24 A. Well, according to my records, it was on that
25 Tuesday, October 20 of 2015.

1 Q. Sometime in 2015?

2 A. Yeah. Because we had a Commission meeting in the
3 morning, and then we came back that evening.

4 Q. And I'm not interested in exact dates. We'll just
5 say 2015. Is that fair?

6 And if I'm looking at the dates you gave me
7 previously, you were on both the Planning Commission --
8 or the Zoning Board and the County Commission at that
9 time?

10 A. At that time, yes. I was not the Chairman of the
11 Commission, but I was on the Zoning Board. And a
12 Commissioner.

13 Q. And just generally when ordinances are adopted,
14 what's the general process that gets played out?

15 A. I guess we heard input from both sides, and that's
16 how we adopted it, with advice from the public.

17 Q. And how was the idea to adopt Article 17 first
18 brought to the county?

19 A. Well, that was several years ago. I think after we
20 did that first wind farm some individuals had come
21 forward that we should try to make something -- an
22 improvement on that so that's what became of that
23 Article 17.

24 Q. And the first wind farm, are you referring to the
25 Beethoven Wind Farm?

1 A. Correct.

2 Q. And you said some individuals came forward to make
3 improvements on something. What --

4 A. Oh, I would say a handful. About every time we
5 always had a handful either in favor or against.

6 Q. And in terms of the improvements that were looking
7 to be made, can you just give a flavor of what those
8 improvements were?

9 A. Oh.

10 Q. Not the ones that were actually made but just what
11 people were looking for.

12 A. Yeah. That's kind of what we did on Article 17. At
13 that time, with our advice everything seemed to be up to
14 par.

15 Q. Prior to the adoption of Article 17 did Bon Homme
16 County have an article of their ordinances dedicated
17 exclusively to wind energy systems?

18 A. It is hard for me to answer that question exactly.
19 You know, we've always talked about it, but I can't
20 say -- you know, it's always been on the back burner, the
21 wind farm, for many years.

22 Q. And in --

23 A. I've got to apologize. I didn't brief up on that
24 history from, you know, way back.

25 Q. And in the adoption of Article 17 I assume you

1 didn't pull out a computer and just start typing
2 Article 17 from scratch, did you?

3 A. No. It probably took a few months, I'm sure.

4 Q. Rather than starting from scratch, did the county
5 utilize the Draft Model Ordinance that was on the PUC's
6 website?

7 A. We did a lot of our stuff with District III. So I
8 guess -- I'm just a farmer. I didn't go to college. But
9 we kind of acted on -- you know, asked them for advice
10 and helped guide us -- guidance us.

11 Q. Well, why don't we compare the Draft Model Ordinance
12 to Article 17 to see if we can conclude that that's kind
13 of the document that the county used from scratch. Okay?

14 A. Okay.

15 MS. AGRIMONTI: Objection. The witness has
16 testified he doesn't know. And if there's a comparison
17 between the ordinances, I believe Mr. Almond can make
18 that argument in his brief.

19 MR. DE HUECK: I'm going to let Mr. Almond make
20 this comparison.

21 Q. So also in front of you is what's been marked as
22 Exhibit I-23.

23 A. Okay. Two separate sheets?

24 Q. Are you on Exhibit I-23?

25 A. Yeah. 2018.

1 Q. Can you compare Section 17 -- okay. So I want you
2 to put Exhibit I-14 and Exhibit I-23 side by side. And
3 I'd like you to compare Section 1701 of the zoning
4 ordinance to the PURPA section of the PUC ordinance. And
5 you don't need to read it out loud, but read it to
6 yourself.

7 So what I'd like you to do is compare Section 1701
8 of Article 17 with the PURPA section of the Draft Model
9 Ordinance. Just compare the language of each.

10 (Witness examines documents.)

11 A. Okay. I read them both.

12 Q. Now go to Section 1703 of Article 17 and compare
13 that to Section 2 of the model ordinance.

14 A. Now what do you want to know?

15 Q. I'd like you now to compare Section 1703 of
16 Article 17 to Section 2 of the Draft Model Ordinance.

17 (Witness examines documents.)

18 A. Yes.

19 Q. Would you agree with me that the language of both
20 Article 17 and the Draft Model Ordinance is substantially
21 the same?

22 A. Yes.

23 Q. So for Article 17 why don't you flip down -- I'll
24 help you.

25 A. Okay.

1 Q. -- to Section 1723 of Article 17.

2 A. Ain't there a few pages?

3 Q. In comparing Section 23 of Article 17 -- first what
4 is Section 1723 of Article 17? What's the title of it?

5 A. On the setbacks?

6 Q. Section 1723. Setbacks?

7 A. Yeah.

8 Q. Now go ahead and compare Section 1723 titled
9 Setbacks with page 6 of the Draft Model Ordinance.

10 A. Okay.

11 Q. Where it talks about setbacks.

12 (Witness examines documents.)

13 A. Okay. I read it, that Section 1723.

14 Q. Do you think Section 1723 matches the language from
15 the Draft Model Ordinance regarding setbacks?

16 A. Unless I made a mistake when I read it, I think it's
17 the same.

18 Q. That's what I thought when I read them too. So I
19 don't think you made a mistake.

20 A. Yeah. I read sentence by sentence but I'm very
21 nervous and I could easily make a mistake up there.

22 Q. No. And I get that.

23 I think that's the point. It's the same language;
24 right?

25 A. Looks the same to me. I just read it.

1 Q. And we could continue this process, but for the sake
2 of time, while you were considering Article 17 and what
3 to adopt it, did you know something that's the state
4 standard? Was there a state standard?

5 A. You know, back that many years ago I remember that
6 word, "state standard," but I cannot sit here and say
7 that I remember.

8 Q. I mean, did you refer to the state standard during
9 these meetings?

10 A. I'm pretty sure we did.

11 Q. And what was the state standard that you were
12 referring to? Was it the Draft Model Ordinance there?

13 A. I would say yes.

14 Q. Okay.

15 A. That was three years ago. And then in that summer
16 of 2015 my dad died so we were in and out of the hospital
17 quite a bit.

18 Q. And it makes sense.

19 A. Yeah.

20 Q. If the PUC has a Draft Model Ordinance, it would
21 make sense that a county would start with that when
22 drafting the zoning ordinance; right?

23 A. Right.

24 Q. I think you need to --

25 A. As far as my opinion, we did everything up to par.

1 I can't say that we -- we can't make a mistake because
2 everybody watches us.

3 Q. Okay. So we can set aside --

4 MR. ALMOND: Well, at this time I'd like to move
5 for the admission of Exhibit I-24 [sic].

6 MR. DE HUECK: Absent any objection, I'm going
7 to go ahead and admit it.

8 MS. EDWARDS: Is that the Draft Model Ordinance?

9 MR. DE HUECK: Yeah.

10 MS. REISS: Staff would object just based on the
11 fact that no appropriate foundation was laid. The County
12 Commissioner never said that he reviewed it. He just
13 reviewed the language and answered questions as to
14 whether it matched or not.

15 MR. DE HUECK: Anything from the Applicant?

16 MS. AGRIMONTI: I'd join in the objection.

17 MR. ALMOND: Would you like a response from me?

18 MR. DE HUECK: Go ahead.

19 MR. ALMOND: I believe his testimony was that he
20 just relied on the state standard, which was this PUC
21 model ordinance.

22 MR. DE HUECK: With that, I'm going to go ahead
23 and admit it.

24 Q. You can set aside the model ordinance now, and we're
25 going to change topics. Okay?

1 A. Okay.

2 Q. Earlier when deciding whether or not to -- or in
3 adopting Article 17 you mentioned you heard from the
4 public and took in public input.

5 Who were some of the more active participants in the
6 public input process?

7 MS. AGRIMONTI: Objection. I'd like to have a
8 standing objection to this investigation into how a
9 zoning ordinance was adopted.

10 I understand the Commission's ruling and I won't
11 continue to interpose objections but I would like it to
12 be maintained.

13 MR. DE HUECK: So noted.

14 MS. AGRIMONTI: Thank you.

15 Q. Who were involved -- who were the more active public
16 participants in that public input process?

17 A. Mainly Mr. Hubner, who I've known forever. And his
18 wife.

19 Q. Anyone else?

20 A. Mr. Van Gerpen from Avon.

21 Q. Anyone else from the public that was involved in the
22 public input process?

23 A. Those would be the main two to three.

24 Q. Was anyone on behalf of the wind industry involved
25 in the public input process?

1 A. Yes. Mr. Roland Jorgenson [sic] was there, and a
2 couple of landowners that will eventually have windmills
3 were at the meeting.

4 Q. Do you know the names of those landowners?

5 A. Well, I would say through the summer -- Mr. Bowdler
6 and I don't know who else to say on the -- I guess just
7 supporters of the wind farm.

8 Q. And you mentioned Mr. Roland Jurgens. Who is he?

9 A. I guess he's the project manager of the wind farm.

10 Q. You say the "wind farm." Which wind farm are you
11 referring to?

12 A. Actually he was involved with both of them. I'm
13 pretty sure he was on the -- with the first wind farm,
14 the Beethoven Wind Farm.

15 Q. When you say both of them, are you referring to
16 Beethoven and --

17 A. Right.

18 Q. -- this wind farm?

19 MS. AGRIMONTI: Objection. Vague. I would note
20 that we have various entities that have owned -- or two
21 entities that have owned the project that was before the
22 Commission, and I'd just like the record to be clear what
23 developer was being discussed in 2015 versus the
24 Applicant in this proceeding.

25 MR. DE HUECK: Does Mr. Almond need to rephrase

1 that then?

2 MR. ALMOND: I think to the extent Ms. Agrimonti
3 wants to clear up the record, she can do so on
4 cross-examination.

5 MS. AGRIMONTI: I can do it that way. It seems
6 to me we'd have a clearer record if we know what
7 developer we're talking about when questions are being
8 asked.

9 MR. DE HUECK: Yes.

10 So, Mr. Almond, please refer to the correct
11 developer while asking questions.

12 But before I go any further, Mr. Soukup, could
13 you please scoot your microphone a little closer to your
14 mouth. Because you end up turning sideways and get a
15 ways away. And you can move that around if you want to
16 continue to sit sideways. It's absolutely fine.

17 Thank you.

18 Q. Again, so who is Mr. Roland Jurgens?

19 A. One of the -- the wind developer for this last wind
20 farm.

21 Q. When you say "this wind farm," which one are you
22 referring to?

23 A. The one we're talking about today.

24 Q. And did he hold himself out to the county as
25 overseeing all development activities for the project?

1 A. Well, when he would come to our meetings he would
2 tell us the future plans of what they wanted to do.

3 Q. Okay.

4 A. Briefed us on what was coming in the future.

5 Q. And Mr. Jurgens was involved in the public input
6 process, as we've discussed.

7 A. Yes.

8 Q. Who's Eric Elsberry?

9 A. He's our zoning administrator. I suppose he's been
10 there the last three years. Our other guy retired so we
11 hired him and put him in there. And he does a very good
12 job.

13 Q. And as the zoning administrator, do members of the
14 public submit input and comments to Mr. Elsberry?

15 A. Yes, they do. And if there's any questions, he
16 usually calls District III for some advice because
17 there's a wide variety of knowledge you need to know.

18 Q. I'm going to ask you to turn to Exhibit I-24 for me,
19 please. It's in the binder under the tab I-24.

20 A. With them yellow tags? There's 23, and there's 25.
21 Right there? I-24. Okay.

22 Q. And is Exhibit I-24 an e-mail from Roland Jurgens to
23 the zoning administrator, Eric Elsberry?

24 A. Yes, it is. I'm reading it right now. "Hi, Eric."

25 Q. And this e-mail was sent in October of 2015, around

1 the same time the county was looking to adopt Article 17;
2 right?

3 A. Yes. I would say the Commissioner meeting was a
4 week before that. And then according to what we looked
5 on our records, we started acting on the first meeting of
6 November, which would be November 3 of 2015.

7 Q. I want to take -- take your time and familiarize
8 yourself with that e-mail, please.

9 MS. AGRIMONTI: I object. This document, to the
10 extent the witness is just being asked to review a
11 document, no foundation has been laid for it. I would
12 request that foundation be laid before we investigate and
13 ask questions about this document.

14 MR. ALMOND: Ms. Agrimonti, I believe you
15 stipulated to the foundation of this document.

16 MS. AGRIMONTI: I stipulated to the document
17 being an e-mail from Mr. Jurgens to Mr. Elsberry. The
18 witness has not -- stated he's never seen this document
19 before.

20 It's also a document from a prior applicant with
21 this PUC than Prevailing Winds so it's not relevant. But
22 I don't believe you've laid the foundation that this
23 witness can speak to the document.

24 MR. DE HUECK: Continue reviewing the document.
25 I'm going to allow Mr. Almond to ask his

1 questions just based on this e-mail.

2 I'm assuming, yes, this gentleman cannot speak
3 to the conversation that took place in this e-mail, but
4 maybe there's some information within that he --
5 Mr. Almond's got some sort of line of questioning that
6 will make sense.

7 (Witness examines documents.)

8 A. Okay. I've read it.

9 Q. As part of the public input process Mr. Roland
10 Jurgens suggested to the county that a 35 dB
11 nonparticipant noise restraint is absolutely the best way
12 to protect nonparticipants?

13 MS. AGRIMONTI: Objection. He's just asking the
14 witness to state what is in the document. The document
15 speaks for itself.

16 MR. DE HUECK: Yeah. But I'm going to let the
17 factual basis for these questions just merely go to the
18 weight of what this witness responds and gives to the
19 Commission. And we'll go from there.

20 Q. Would you like the question repeated?

21 A. What do you really want to know now?

22 MR. ALMOND: Cheri, can you ask the question
23 again.

24 (Reporter reads back the question.)

25 MS. AGRIMONTI: Further objection of hearsay.

1 MR. DE HUECK: Well, and I'm just going to
2 advise, Mr. Almond, you're basically testifying, and
3 you're leading your direct examination. So let's try to
4 avoid leading questions and leave them more open-ended.

5 Q. Did Mr. Jurgens propose a noise limitation to be
6 placed on nonparticipants as part of the public input
7 process?

8 A. I can't answer that. I can't remember. That was
9 three years ago.

10 Q. Looking at exhibit -- what's been marked as
11 Exhibit I-24, go to the fifth paragraph for me. Follow
12 along as I read it out loud.

13 MS. AGRIMONTI: Objection. The witness has not
14 seen this document except for today. He has not laid any
15 foundation that the document in front of him influenced
16 his decision or that he was even aware of it.

17 To have Mr. Almond read into the record what
18 isn't otherwise admissible is improper, it's not
19 relevant, and the foundation has not been laid.

20 MR. ALMOND: May I respond?

21 MR. DE HUECK: You may.

22 MR. ALMOND: We've heard this witness who is the
23 County Commissioner also sitting on the Zoning Board.
24 We've heard that the Zoning Board and the County
25 Commission receives public input in whether or not to

1 adopt Zoning Ordinances. We've heard as part of that
2 public input process people submit e-mails to
3 Mr. Eric Elsberry, the zoning administrator for the
4 county.

5 This is an e-mail from Mr. Jurgens to
6 Eric Elsberry, the zoning administrator clearly providing
7 public input into the process of the adoption of Article
8 17. As a County Commissioner and the board of -- a
9 member of the Planning Board he's capable to speak to
10 those -- public input that is submitted into the process.

11 MS. AGRIMONTI: The witness has not seen the
12 document --

13 MR. DE HUECK: I got this.

14 So Mr. Elsberry should be on the stand because
15 it's clear from his statement and from observing him he's
16 never seen this. He's completely unfamiliar with this
17 document. So I am not going to let you read it into the
18 record.

19 I think you could formulate your questions
20 without even having this e-mail in front of us right
21 now.

22 MR. ALMOND: Well, I asked the question of
23 whether or not Mr. Jurgens submitted public input, and
24 I'm now attempting -- to the county, and I'm now
25 attempting to impeach the witness.

1 MR. DE HUECK: He's never seen this public
2 input. But Mr. Elsberry probably has. So I think --

3 MR. ALMOND: Very clear. Just so we're very
4 clear on this record, I'm going to move to admit
5 Exhibit I-24. And, as I'm understanding it, I'm not
6 allowed to use Exhibit I-24 either for admission or for
7 impeachment purposes with this witness.

8 MR. DE HUECK: Can the parties help me out. Did
9 we have this one?

10 MR. ALMOND: No. It's not admitted.

11 MR. DE HUECK: Not admitted.

12 MS. AGRIMONTI: It's not admitted. And the
13 Applicant does agree that it is a document from
14 Mr. Roland Jurgens to Eric Elsberry so that that
15 foundation --

16 I'm not suggesting that the document isn't what
17 it is. But it is hearsay, and there's no foundation for
18 this witness to opine on it.

19 MR. DE HUECK: In agreement. It's not admitted
20 at this point in time.

21 MR. ALMOND: And, just to be clear, I cannot use
22 this document for impeachment purposes with this witness?

23 MR. DE HUECK: I have not seen you try to do
24 that yet.

25 Q. Did the county receive public input from Mr. Roland

1 Jurgens suggesting a 35 dBA limit for nonparticipants?

2 A. To my knowledge, I cannot remember that. It was
3 three years ago.

4 Q. Looking at Exhibit I -- what's been marked as
5 Exhibit I-24 in front of you, read along as I read for
6 you.

7 "The 45 dB participant, 35 dB nonparticipant noise
8 restraint is absolutely the best way to protect
9 nonparticipants."

10 Did I read that correctly?

11 A. You're on the page of this I-24?

12 Q. Yes. It's the fifth paragraph.

13 A. Read that again for me.

14 Q. "The 45 dB participant, 35 dB nonparticipant noise
15 restraint is absolutely the best way to protect
16 nonparticipants."

17 Did I read that correctly?

18 A. That's what's wrote in the book.

19 Q. What was that?

20 A. That's what is written here.

21 Q. Okay. What noise limitation did the county
22 ultimately adopt for nonparticipants?

23 A. I'd have to go through the book, and you'd have to
24 show me what page. When we did that three years ago we
25 did it.

1 Q. Do you frequently look to your Zoning Ordinances?

2 A. Well, I haven't been on the board for a couple of
3 years and that -- we had read through, and this is all --
4 you know, we deal with many things, gravel to machinery
5 to personnel and whatever.

6 We go through that book. And I guess I'll
7 apologize. I did not read through this zoning book
8 before I came here today.

9 I carried it in my briefcase for years. Got it --
10 but our big concern now is the hog barns. You know, you
11 ask me questions about hog barns and setbacks, and I can
12 answer them.

13 Q. Well, let's look to Article 17 and find the noise
14 setback for nonparticipants. Can you turn to Article 17
15 of your Zoning Ordinances for me?

16 A. What page is that on?

17 Q. It starts on page 57.

18 A. Okay. I'm on page 57, Article 17. What do you want
19 to know?

20 Q. I want to know what the county's noise restriction
21 is for nonparticipating residences of a wind energy
22 system, a large wind energy system?

23 A. Well, I know it's in here, but I'm not going to be
24 able to tell you right offhand where that paragraph is.
25 Because we did study that three years ago.

1 Q. And I'll help you out. It's Section 1741.

2 A. Okay. "Noise level produced by" --

3 (Witness examines document.)

4 A. Okay. Now what do you want to know here?

5 Q. Yeah. What is the noise limitation placed on large
6 wind energy systems for nonparticipating residences?

7 A. I guess I will admit the truth. This is a little
8 above my head. You know, we went through this three
9 years ago, and according to the zoning administrator and
10 everything, other counties, it worked.

11 Q. Looking specifically at the first line of
12 Section 1741 it says, "Noise level produced by the large
13 wind energy system shall not exceed 45 dBA average
14 A-weighted sound pressure at the perimeter of occupied
15 residences."

16 What does that 45 dBA average A-weighted sound
17 pressure mean?

18 A. Well, they monitor that and not supposed to go over
19 it; right? Is my understanding.

20 Q. And the 45 dBA average A-weighted sound pressure, I
21 understand you're saying that they monitor it and they
22 can't go over it but what is it?

23 A. Well, it's the sound from the windmills.

24 Q. And it says, "average A-weighted." How is it
25 averaged?

1 A. I cannot answer that. That is over my intelligence.

2 Q. Is there a certain time period over which it's
3 averaged that you're aware of?

4 A. No.

5 Q. And that same Section 1741 deals with shadow
6 flicker. Do you see that?

7 A. Yes, I do. To the bottom. I read that.

8 Q. Why did the county think it needed to regulate
9 shadow flicker?

10 A. I guess with advice from other counties and other
11 wind farms, there has been issues with shadow flicker.
12 So according to District III and whatever, they
13 understand that. That's why it was put in there.

14 Q. And what are the issues? You said there had been
15 issues.

16 A. That shadow flicker. You know, I personally
17 don't -- I do understand it, but I don't. I mean, I know
18 what it is, and that's why it was put in there, to the
19 best of my knowledge.

20 Q. You said there had been other issues. Do you know
21 what those other issues are?

22 A. No.

23 Q. Okay.

24 A. But when we -- from some county or whatever, they
25 said that -- you know, we kind of relied on everybody

1 else's advice is how we acted on that, other --

2 Q. In adopting the ordinances, did the county ever
3 consider the concepts of infrasound or low frequency
4 noise?

5 A. Oh, I'm sure that was brought up. About everything
6 you've talked about has been brought up in them three
7 years prior a little bit.

8 Q. And in anywhere in those Article 17 of your
9 ordinances does the county place any sort of limitations
10 or restrictions on infrasound or low frequency noise?

11 A. I did not read up on that. I cannot answer that.

12 Q. Well, you have Article 17 in front of you so feel
13 free to -- if you can find --

14 MS. AGRIMONTI: Objection. Argumentative.

15 MR. ALMOND: I'm attempting to refresh the
16 witness's recollection of his Zoning Ordinances.

17 MS. AGRIMONTI: I think it's an unfair test to
18 ask him to read the entire ordinance and answer the
19 question. It's either in the ordinance or it's not.

20 MR. DE HUECK: I agree. And he gave the answer
21 he's unaware.

22 A. I guess we adopted this three years ago, and at that
23 time we started up we thought everything was up to par at
24 that time three years ago.

25 I've flipped through it here and there. You know,

1 we've heard about this many times and flipped through,
2 whatever. Should be good. And you're asking me these
3 in-depth questions, and they are over my intelligence.

4 Q. At some point was it communicated to the county that
5 the PUC model ordinance should not be used as a
6 resource?

7 A. I honestly can't recall that.

8 MR. ALMOND: I don't have anymore questions for
9 you, Mr. Soukup. Thank you for coming in.

10 THE WITNESS: Okay. But I do recall the night
11 at Avon when it was 100 degrees, and your speaker system
12 did not work. Remember that? And I sat there for three
13 hours.

14 MR. DE HUECK: Mr. Soukup, you're not quite done
15 yet. What I have to do now is to tender you for
16 cross-examination. Which means that now we let the
17 Applicant ask you questions. And then I'll turn it over
18 to these other Intervenors in room and then we'll go to
19 Staff and then the Commission will have an opportunity to
20 ask you some questions as well.

21 So, with that, Prevailing Winds, would you like
22 to cross-examine this witness?

23 MS. AGRIMONTI: I have no questions. I thank
24 you for coming in today.

25 MR. DE HUECK: Mr. Fuerniss, do you have any

1 cross-examination?

2 CROSS-EXAMINATION

3 BY MR. FUERNISS:

4 Q. Mr. Soukup, I don't think you're giving yourself
5 enough credit when you say this is over your
6 intelligence.

7 Don't you think perhaps you just haven't looked into
8 this lately, that it's not fresh you're mind?

9 A. I will apologize. You know, I should have brought
10 that -- in fact, I borrowed my zoning book to one of the
11 other Commissioners to read through it two weeks ago.
12 And I should have brought that book along. This morning
13 I was waiting in the hall. I could have read it about
14 twice and refreshed my memory. You know, this was all
15 stuff from three years ago.

16 I remember that October 20 night meeting. And there
17 was quite a few people spoke that night. I'm sure Gregg
18 was there that night. I'm sitting here. You know, I
19 know everybody here with the wind farm, and I drive right
20 by Karen's farm on my way here and -- you know, cut
21 through your neighborhood, I should say, and --

22 Q. And maybe this came out, Reece got this out, I don't
23 know, but do you remember any specifics that the public
24 was asking for, as far as putting into the ordinance for
25 the wind farm?

1 Do you remember any specific requests that were made
2 that it should have this or it should have that?

3 A. You know, I guess I'm very nervous, but as I sit
4 here I remember Karen speaking in Tyndall at least three
5 different times; right? And you was in Tyndall once or
6 twice.

7 Q. But do you remember what was specifically being
8 asked for?

9 A. Three years ago? The main specific thing was you
10 guys just wanted to stop it.

11 Q. But you don't recall --

12 A. No.

13 Q. -- by what means or what specific regulations or
14 anything like that that were being asked for?

15 A. You know, I remember taking notes that night you
16 guys all talked in Tyndall. I said who was in favor, say
17 your name. Karen, yes and -- or no. And I kept track of
18 that because I sat right next to the Chairman that night.

19 And, you know, that meeting was two and a half hours
20 long. I guess there was a lot of things that was asked
21 for. I don't really remember anything specifically.

22 MR. FUERNISS: Okay. Thank you.

23 MR. DE HUECK: Ms. Jenkins.

24 MS. JENKINS: No questions.

25 MR. DE HUECK: Ms. Pazour.

1 MS. PAZOUR: No questions.

2 MR. DE HUECK: Staff.

3 MS. REISS: Thank you. Just briefly.

4 CROSS-EXAMINATION

5 BY MS. REISS:

6 Q. Thank you for being here, Commissioner. I just have
7 a couple of quick questions for you. Prior to today, did
8 anyone help you prepare your testimony for today?

9 A. No. I met with the state's attorney two days ago
10 and she said when to be here and I said what room and
11 that was it. And if I would have been prepared, I would
12 have brought that book and read it instead of sitting
13 here looking like an idiot.

14 Q. Great.

15 And in response to some of Mr. Almond's questions,
16 you responded that the Commission looked towards counties
17 and other entities for Zoning Ordinances. Do you
18 remember that?

19 A. In that area -- we had paid attention to what some
20 of the other counties up north had done.

21 Q. Uh-huh.

22 A. And, like I said, that was three and a half years
23 ago.

24 Q. Yeah.

25 A. Almost four. So we did give it a lot of thought,

1 and at that time everything we did in that book we
2 thought we was up to par, and District III thought it was
3 up to par. Everything -- we did not want to make any
4 mistakes.

5 Q. Sure.

6 In your experience as a County Commissioner -- I
7 believe you said 17 years? How many years was it?

8 A. Zoning is 21. Commissioner 8.

9 Q. 21 years?

10 A. Yeah.

11 Q. So in your experience on the Zoning Board is it
12 abnormal for the county to look towards other resources,
13 counties?

14 A. Oh, yeah. We're issuing with these hog barns right
15 now, which is a big gray area trying to figure out
16 what -- and no county can figure out the correct answer,
17 setbacks and smell and whatever.

18 Q. So just to clarify, it's a normal practice for the
19 county to look to other entities, or it's not normal?

20 A. Yeah. I would call other commissioners. Other
21 commissioners call me all the time about something.

22 Q. Sure. And I guess my last question is after looking
23 at other resources, did the county independently review
24 the information in the ordinance before passage?

25 A. I think I'm sure our Chairman had called some other

1 counties, and we just thought everything we did was up to
2 par.

3 MS. REISS: Okay. No further questions.

4 MR. DE HUECK: That will bring us to Commission
5 questions. And I'll go down to Chairman Fiegen and see
6 if she has any questions for you.

7 CHAIRWOMAN FIEGEN: I don't have any questions.
8 And thank you for coming to your State Capitol and
9 leaving your farm for a little bit. We are praying for
10 better weather every single day.

11 THE WITNESS: Next week.

12 CHAIRWOMAN FIEGEN: Thank you.

13 THE WITNESS: Next week.

14 MR. DE HUECK: Commissioner Hanson.

15 COMMISSIONER HANSON: No, thank you.

16 MR. DE HUECK: Commissioner Nelson.

17 COMMISSIONER NELSON: Thanks for being part of
18 the process. No questions.

19 MR. DE HUECK: Mr. Almond, do you have any
20 redirect?

21 MR. ALMOND: No.

22 MR. DE HUECK: With that, you may step down.
23 Thank you for testifying.

24 THE WITNESS: Thank you. And you earned your
25 money that night at Avon. That was a tough one. Between

1 the heat and the speaker problem.

2 (The witness is excused.)

3 MR. DE HUECK: Mr. Almond, you may call your
4 next witness.

5 MR. ALMOND: Call Keith Mushitz.

6 Keith Mushitz,
7 called as a witness, being first duly sworn in the above
8 cause, testified under oath as follows:

9 DIRECT EXAMINATION

10 BY MR. ALMOND.

11 Q. Will you introduce yourself to the Commission,
12 please.

13 A. I'm Keith Mushitz. Geddes, South Dakota. Chairman
14 of Charles Mix County.

15 Q. You're Chairman of Charles Mix County Commission?

16 A. Charles Mix County Commission, yes.

17 Q. And does Charles Mix County have any Zoning
18 Ordinances?

19 A. It does not.

20 Q. Are you aware of the project that's being considered
21 as part of this proceeding?

22 A. For Prevailing Winds, yes.

23 Q. And when did you first learn about this project?

24 A. Six months ago, roughly.

25 Q. And how did you come to learn of the project?

1 A. They petitioned the county, let us know that they
2 had an Application out. But beings how we're not zoned,
3 they're really not required to do a lot.

4 They did let us know what some of the tax base would
5 be from the project. Wanted to meet with the highway
6 superintendents for road agreements.

7 Q. You said they petitioned the county? Is that what
8 you said?

9 A. No.

10 Q. Okay. Maybe I misheard you.

11 A. No.

12 Q. They just reached out to the county, let them know
13 about the project?

14 A. Right. There would be haul road agreements to be
15 considered and things like that.

16 Q. And in response of learning of this project, what
17 did the county do?

18 A. We're not zoned. We really didn't do nothing,
19 other -- after there was some protests, we looked into
20 zoning, but that's not going to work in Charles Mix
21 County.

22 Q. And you say after some protest. Tell me about that.

23 A. Your clients were not in favor of wind power or the
24 placement of it. Whatever.

25 Q. When you say "your clients" who are you referring

1 to?

2 A. This row of gentlemen and Mr. Fuerniss (indicating).

3 Q. Can you say their names, and can you get a little
4 more closer to the microphone?

5 A. Mr. Sherman Fuerniss, I know he spoke before the
6 Commission before. And Mr. Hubner. And I'm not real
7 good with names so I don't know the rest of them by
8 name.

9 Q. And when did the members of the public protest about
10 this project?

11 A. When it was prevented -- when it was presented by
12 Prevailing Winds, I guess.

13 Q. And you said there was some consideration of zoning.
14 Tell us about that.

15 A. Some people thought we should do some emergency
16 zoning, but after more so meeting on other matters, not
17 necessarily wind matters, zoning is just not going to --

18 We had zoning once, and it got voted out. It's not
19 a good fit for Charles Mix County. There's 40,000 acres
20 that we have no control over.

21 Q. Did the County Commission start the process of
22 implementing the ordinance zoning?

23 A. We looked into it. We never ever read any
24 ordinances. We did have District III draw an ordinance
25 up, but we never acted on anything.

1 Q. And when you said you looked into it, is that what
2 you meant by looking into it, is you had District III --

3 A. We actually had a draft written up. Yes, sir.

4 Q. And did you do anything else to look into it?

5 A. Don't understand.

6 Q. Well, did you hold any public hearings or any public
7 meetings about?

8 A. Yes.

9 Q. Adopting emergency Zoning Ordinances?

10 A. Yes, we did.

11 Q. Tell us about those meetings.

12 A. Well, we had people that were wanting to have the
13 wind project and we had people that were not in favor of
14 the wind power and we just let them air it out.

15 Q. And approximately how many meetings took place
16 considering the adoption of emergency Zoning Ordinances?

17 A. One special meeting that was just for public comment
18 and then one of our Commission meetings had pretty much a
19 full house but it wasn't designated as just a wind power
20 meeting. Those two for sure.

21 A little later on we had just strictly a zoning
22 meeting, which did end up getting wind power comments.

23 Q. And you said ultimately the emergency zoning never
24 went forward. Did any type of zoning get adopted in
25 Charles Mix County?

1 A. It has not.

2 Q. Is Charles Mix County currently considering adopting
3 zoning regulations?

4 A. We -- I don't believe the matter will be brought up
5 again.

6 Q. So for the time being, there's not going to be any
7 zoning in Charles Mix County in the near future?

8 A. I highly doubt it, sir.

9 Q. Did the County Commission make any sort of
10 agreements or affirmations about this project?

11 A. The county signed a document with Prevailing Winds
12 as to where they would have -- how much they would use
13 for setbacks. I'm sure you've looked at the document.
14 We accepted that document, yes.

15 Q. And if you turn to Exhibit 1-22 for me in that
16 binder in front of you.

17 A. I-22.

18 I-22 or just Exhibit 22?

19 Q. Looking at page 3 of Exhibit 1-22, the Affidavit of
20 Peter Pawlowski, do you see that?

21 A. Yes, sir.

22 Q. And is that that agreement you were just referring
23 to?

24 MS. AGRIMONTI: Objection. Mischaracterizes the
25 document.

1 MR. DE HUECK: Go ahead, Reece.

2 Q. What is that document?

3 A. That is the document that we approved.

4 Q. So this is the document that Charles Mix County
5 approved for this project?

6 A. Yes, sir.

7 Q. When was the first time you seen this document?

8 A. At one of the meetings in the -- one of the public
9 meetings that we had in the evening. I don't know the
10 date.

11 Q. Yeah. And did you -- at some point the County
12 Commission approved this document.

13 A. Correct. At the end of the meeting.

14 Q. At the end of the meeting.

15 Have you ever seen this document prior to that
16 meeting?

17 A. I think I've heard that the document was around.
18 Had I read it? No, sir.

19 Q. Okay. And from the county's perspective, what does
20 it mean to approve this document?

21 A. Well, it was Prevailing Wind said that they would go
22 with these setbacks and distances when they put their
23 project up within Charles Mix County. That looked
24 acceptable to us.

25 Q. And what information did the county rely on to --

1 A. We looked --

2 Q. To form the conclusion that it looked acceptable?

3 A. We looked at other county zoning -- wind power
4 Zoning Ordinances. This has greater distance than some
5 for setbacks, less than others. It's between, you know,
6 the most severe and the most lenient. The county did not
7 have the resources to do their own independent studies.

8 Q. And which counties did you look to?

9 A. I think we had pretty much a list of every county in
10 the state that has zoning on wind power.

11 Q. And give some examples of the --

12 A. Farther distance was two to three miles, and the
13 least distance I believe was 1,000 feet.

14 Q. Okay. Aside from just looking at other county
15 Zoning Ordinances, did the county rely on anything else
16 in deciding to approve of this document?

17 A. No. Not really, sir.

18 Q. Okay. And if you go to the noise reference on
19 page 2 of the Affidavit, page 4 of Exhibit 1-22, do you
20 see the section that says, "Noise"?

21 A. Page 4? Attachment 2 --

22 Q. We're on the same exhibit?

23 A. Yes, sir.

24 Q. And then the last page of that exhibit.

25 In looking at the last page of Exhibit 1-22, can you

1 locate the noise?

2 A. Yes, sir.

3 Q. And it says, "The noise from the wind turbines will
4 not exceed 43 dBA at any existing nonparticipating
5 residence."

6 Can you give us anymore information on what that
7 means?

8 A. That is the sound emitted by the turbines,
9 43 decibels, 45 decibels.

10 Q. And is this the -- strike that.

11 From the county's perspective, is there any
12 additional information that the Commission should be
13 aware of as it relates to noise?

14 A. No, sir. This was in a lot of the other Zoning
15 Ordinances as a standard.

16 Q. So as you read that noise limitation, what happens
17 if -- if the noise from the wind turbines goes over
18 43 dBA?

19 A. As to what happens?

20 Q. Would they be in essentially violation of this
21 approved limitation?

22 A. I would assume so, yes.

23 MR. ALMOND: Okay. No further questions.

24 MR. DE HUECK: Cross-examination, Ms. Agrimonti.

25 MS. AGRIMONTI: Yes. Thank you. Very limited.

CROSS-EXAMINATION

BY MS. AGRIMONTI:

Q. Thank you for attending today.

You referenced public meetings where various individuals came and spoke about the possibility of a zoning change or adoption of zoning.

Do you recall that?

A. Yes.

Q. And did you listen to everyone who wanted to speak about their concerns with respect to wind turbines?

A. As much time as we had, yeah. One meeting would have went on all night long, I think, if we didn't close it down.

Q. And you considered all those comments in determining whether to move forward with emergency zoning?

A. Yes.

Q. I-22 we've been talking about the exhibit of -- that Mr. Almond was asking you questions about.

You agree that that is a document that binds only Prevailing Wind Park; isn't that correct?

A. Correct.

Q. Didn't obligate the county in any way?

A. Correct.

MS. AGRIMONTI: I have no further questions.

MR. DE HUECK: Mr. Fuerniss.

CROSS-EXAMINATION

BY MR. FUERNISS:

Q. Good morning, Keith.

A. Good morning.

Q. A little bit of housekeeping here. You stated that you think I'm a client of Mr. Almond's; is that correct?

A. I guess I don't know that for sure. I know you're not -- do not want wind towers around your property.

Q. Well, would it surprise you to know that he is not my attorney and neither Karen's nor Kelli's?

A. I apologize for making that assumption.

Q. Just to be clear, there's not an attorney in this room that's within my pay grade.

Were you on the County Commissioners when the Beethoven project was built?

A. Yes, I was.

Q. Was there any kind of similar Affidavit or any kind of agreements at that time to do that project?

A. When that project came in there was no -- very little objection to it. I mean, we never had no public meetings or nobody wanted one.

Q. Do you know how --

A. We did not sign nothing on that project.

Q. Yeah. The county didn't have --

A. No.

1 Q. -- any kind of agreement or statements?

2 A. You're correct.

3 Q. Okay.

4 So would you have any idea of how that project got
5 placed within the bounds of Charles Mix County? Have
6 you -- I've got to ask one question at a time; right?

7 Do you have any idea how it came about that it was
8 put where it is?

9 A. No. I really don't. I suppose it's where they
10 could generate the most wind from, I'm assuming.

11 Q. And have you been up there and looked at those
12 turbines that are in Charles Mix County?

13 A. Up close, or from my place that's 40 miles away?

14 Q. Up close. I mean, driven by, driven through.

15 A. Just off of the highway going to Tripp. 18.

16 Q. Okay. So that would put you some three miles, at
17 least, probably from --

18 A. Or 46. I've never drove to any of the towers.

19 Q. Okay. And do you recall at both the -- I think when
20 you say public input meetings you're mostly talking about
21 the regular commissioner meetings for the most part?

22 You guys did have a couple of special meetings
23 during the summer, but for the most part these were
24 regularly scheduled commissioner meetings?

25 A. Correct.

1 Q. Okay. Do you remember particulars or what specifics
2 in regards to regulations that the people were asking for
3 in a potential zoning ordinance? Some of the numbers
4 that were mentioned?

5 A. They varied quite a bit, yes, sir.

6 Q. But do you remember what some of them were?

7 A. Yes. I think I heard a three-quarter-of-a-mile
8 setback. I've heard mile setback. I've heard half-mile
9 setback. Depends whether you was for or against the
10 project.

11 Q. Do you remember a particular county zoning ordinance
12 that we referenced?

13 A. No. I do know that one ordinance -- I don't know
14 the exact county. One of them had very far setbacks. I
15 do remember that part.

16 Q. You're referring --

17 A. I don't know which county it was for sure.

18 Q. You're probably referring to the Walworth County
19 ordinance, which has a two-mile setback?

20 A. Could be. I don't know, Sherman. I don't know.

21 Q. Well, that was one that was --

22 A. Uh-huh.

23 Q. Thank you, Keith.

24 MR. DE HUECK: Ms. Jenkins, any questions?
25

CROSS-EXAMINATION

BY MS. JENKINS:

Q. Sir, do you remember me attending one of your regular meetings?

A. Yes, I do.

Q. Okay. And do you remember what my concerns were?

A. It was health concerns, I believe, with the wind power.

Q. Okay.

MS. JENKINS: Thank you.

MR. DE HUECK: Ms. Pazour.

CROSS-EXAMINATION

BY MS. PAZOUR:

Q. Good morning, Keith.

A. Good morning.

Q. Do you remember me being at the meetings?

A. Yes, I do. And your daughter.

Q. Do you remember me giving you literature?

A. Yes. As far as the health concerns again on wind towers, yes.

MS. PAZOUR: Okay. Thank you.

MR. DE HUECK: Commission questions.

Commissioner Hanson.

Staff.

MS. REISS: Thank you.

CROSS-EXAMINATION

BY MS. REISS:

Q. Good morning, Mr. Mushitz?

A. Correct.

Q. I just have a couple of questions for you.

If you could turn your attention to Exhibit 1-22,
and that would be the Affidavit of the Peter Pawlowski.
You mentioned in response to Mr. Almond's questions that
the first time you saw this Affidavit was at the
commission meeting; is that correct?

A. Yes, ma'am.

Q. Did you speak to Mr. Pawlowski at any time before
this Affidavit was presented at the commission meeting?

Let me clarify. Did you speak to him about the
terms of this Affidavit?

A. No.

Q. Okay. You mentioned I believe in response to
Mr. Fuerniss's question that the Beethoven project did
not have a similar Affidavit; is that correct?

A. Correct.

Q. Are these affidavits normal practice for Charles Mix
County?

A. This is only the two wind projects that ever come
in. So what is normal?

Q. All right. But there's not another type of project

1 that would utilize an Affidavit like this?

2 A. No.

3 Q. Okay.

4 MS. REISS: Okay. No further questions.

5 MR. DE HUECK: Commissioner Hanson.

6 COMMISSIONER HANSON: Thank you. Good morning,
7 Mr. Mushitz -- or Commissioner, I should say.

8 THE WITNESS: Either way.

9 COMMISSIONER HANSON: Mr. Chairman, were you
10 subpoenaed to come here today?

11 THE WITNESS: Yes, sir.

12 COMMISSIONER HANSON: You spoke -- as you were
13 going through the process you said that there were 40,000
14 acres that you had no control over in the county.

15 And I'm assuming that's reservation property; is
16 that correct?

17 THE WITNESS: Trust lands.

18 COMMISSIONER HANSON: Trust lands. Okay.

19 And, of course, you don't have authority over
20 municipalities either, do you?

21 THE WITNESS: No, sir.

22 COMMISSIONER HANSON: Okay. I think that's all
23 I have. I appreciate your testimony.

24 Thank you.

25 MR. DE HUECK: Commissioner Nelson.

1 COMMISSIONER NELSON: Thanks for being part of
2 the process. No questions.

3 MR. DE HUECK: Chair Fiegen.

4 CHAIRWOMAN FIEGEN: Thank you.

5 MR. DE HUECK: Any redirect?

6 MR. ALMOND: Briefly.

7 REDIRECT EXAMINATION

8 BY MR. ALMOND:

9 Q. You were asked about the public input process, the
10 meetings. Was there a meeting, a County Commission
11 meeting, in which you and Mr. Peter Pawlowski left the
12 meeting to go out in the hallway and have a private
13 conversation?

14 A. Yes, sir.

15 Q. Tell us about that private conversation.

16 A. Within the meeting, maps had been showed of a
17 setback map. And, of course, I was over here,
18 Mr. Pawlowski was over there. There was so much comment
19 going on. I wanted a question clarified.

20 We stepped out. I asked him how many towers would
21 be affected with a 2,000-foot setback. And the lines
22 were real close on paper. He thought two and possibly
23 three would be affected the way they were presented on
24 the paper at that time.

25 We came back in the meeting, and I told the meeting

1 that that's what we had discussed outside the door.

2 Q. Was there any other discussion out in the hallway?

3 A. No, sir. I wanted that question clarified.

4 Q. Aside from that particular meeting, have you had any
5 other conversations with Mr. Pawlowski or anyone else
6 outside of a public meeting?

7 A. No, sir.

8 MR. ALMOND: Okay. Nothing further.

9 THE WITNESS: I was invited to a site and didn't
10 even go so --

11 MR. ALMOND: No further questions.

12 MR. DE HUECK: Recross, Prevailing Winds.

13 MS. AGRIMONTI: No questions.

14 MR. DE HUECK: Mr. Fuerniss?

15 RECROSS-EXAMINATION

16 BY MR. FUERNISS:

17 Q. Commissioner Hanson brought up the trust lands in
18 Charles Mix County.

19 How does that affect property taxes in Charles Mix
20 County?

21 A. There is no taxes on trust land.

22 Q. So there's 40,000 acres, give or take, that the
23 county receives no income from.

24 Did the Commission just for funsies figure out what
25 the projected tax payments to Charles Mix County might

1 come out to, say, per acre or something like that for
2 Charles Mix County, taking into consideration all those
3 trust lands that aren't taxed?

4 MS. AGRIMONTI: Objection.

5 THE WITNESS: This is not even relevant to this.
6 We're on a whole new ground.

7 MR. FUERNISS: Okay. I'll withdraw the question
8 it if that's the proper thing to do.

9 Thank you.

10 MR. DE HUECK: Ms. Jenkins?

11 MS. JENKINS: No questions.

12 MR. DE HUECK: Ms. Pazour.

13 MS. PAZOUR: I have a question, but I would
14 like to ask Ms. Edwards because I'm not sure on how to
15 ask it.

16 MS. EDWARDS: Can we take 30 seconds? I can't
17 give legal advice, but I can see what you want to know
18 from me.

19 MR. DE HUECK: Yep. Go ahead.

20 (A short recess is taken.)

21 MR. DE HUECK: Ms. Pazour, go ahead.

22 RECROSS-EXAMINATION

23 BY MS. PAZOUR:

24 Q. Did you have any public meetings outside of the
25 Commission -- Commissioners meetings with Prevailing

1 Winds?

2 A. No. I stepped out of that meeting with Mr. Peter
3 Pawlowski, but no other meetings, other than public
4 meetings.

5 Q. Like in the beginning of August?

6 A. I did not.

7 MS. PAZOUR: Okay.

8 MR. DE HUECK: With that, Mr. Mushitz.

9 THE WITNESS: Mushitz.

10 MR. DE HUECK: Mushitz. Thank you for your
11 testimony, and you may step down.

12 (The witness is excused.)

13 MR. DE HUECK: We will move on to Staff's
14 witness. He was scheduled today so that's why we're
15 breaking the order for Mr. Almond at this time allowing
16 Staff's witness to take the stand.

17 MS. EDWARDS: Staff calls David Hessler.

18 David Hessler,
19 called as a witness, being first duly sworn in the above
20 cause, testified under oath as follows:

21 DIRECT EXAMINATION

22 BY MS. EDWARDS:

23 Q. Mr. Hessler, welcome back to South Dakota. Will you
24 please introduce yourself for the record.

25 A. Yeah. My name is David Hessler. I'm an acoustical

1 consultant with Hessler Associates, and I've been asked
2 by the Public Utilities Staff to provide impartial
3 technical advice on noise for this project.

4 Q. Did you submit prefiled testimony in this docket?

5 A. Yes, I did.

6 Q. Have you testified before this Commission before?

7 A. Two previous times.

8 Q. Have you reviewed the other testimony submitted by
9 other witnesses in this docket?

10 A. Yes, I have.

11 Q. Both direct and rebuttal?

12 A. Yes.

13 Q. Have you also reviewed all responses to data
14 requests?

15 A. I believe I've read most of them, if not all of
16 them.

17 Q. Did you rely upon that information when formulating
18 your opinion?

19 A. Yes.

20 Q. Are you familiar with the testimony of Mr. Howell,
21 Chris Howell?

22 A. Yes. Mr. Chris Howell, the -- he's the acoustical
23 engineer for the project.

24 Q. Would you agree that it is -- based upon his
25 testimony yesterday, would you agree that it is either

1 inappropriate or impossible to assess the potential noise
2 impact on the -- strike that.

3 What is your over all assessment of the positions
4 and arguments advanced by Mr. Howell in his testimony?

5 A. Well, I think what you were getting at there for a
6 minute was the first point, which is he contends that
7 it's impossible to predict or assess the public reaction
8 to a project, and so their study focused entirely on
9 simply demonstrating whether the project was going to
10 meet the 45 dBA Bon Homme County noise limit.

11 But they did no work or -- evaluating what the
12 predicted sound levels meant or looked into any kind of
13 low frequency issues. None of that. So I was critical
14 of the -- of Mr. Howell's work in that regard.

15 Q. Now just now when you stated "their study" are you
16 referring to that of the Applicant?

17 A. Yeah. The Applicant's noise study, which was
18 prepared by Mr. Howell.

19 Q. Are you familiar with a Mr. Steven Cooper?

20 A. Yes.

21 Q. And who is Steven Cooper?

22 A. He's an acoustical engineer out of Australia who
23 with relevance here has recently done some experiments
24 that I find very convincing that demonstrate that people
25 with certain sensitivities are affected by extremely low

1 frequency pulsations from wind turbines.

2 He did a blind study where he recorded sound at a
3 wind farm in Australia and then replicated that sound in
4 a laboratory setting, and people with known
5 sensitivities, people that lived on the site that were
6 bothered by it, could tell when this completely inaudible
7 sound was played with 100 percent accuracy; whereas, a
8 group of other people didn't hear anything.

9 Q. So then is it your testimony that certain people
10 would be more sensitive than others?

11 A. I believe some people do have a sensitivity to the
12 pulsations produced by all wind turbines really, every
13 model, every size. It's just the nature of the thing
14 that it produces a pulse around just under 1 hertz, which
15 is extremely low and well below the capability of any
16 conventional sound instrument to measure.

17 Q. If you had -- based upon your training and
18 experience, if you had to guess, without anybody talking
19 what's the noise level in this room today?

20 A. I would say with the fan going it's maybe 40 dBA.
21 In fact, I have a sound level meter on my phone if you --
22 can I?

23 Q. I'll take your word for it.

24 A. Okay. All right.

25 Q. Are you familiar with Mr. Howell's Rebuttal

1 Testimony as it relates to the testimony of Mr. Richard
2 James?

3 A. Yes, I am. And I have to say I agree with
4 Mr. Howell on his comments there, that -- in most
5 instances counter to what Mr. James was putting forward.

6 Q. How about Mr. Howell's testimony as it rebutted that
7 of Mr. Jerry Punch?

8 A. I actually did agree with Mr. Howell there because
9 what he was talking about was Dr. Punch was recommending
10 that the noise limit for the project should be expressed
11 in terms of an LMax statistical noise level.

12 That sounds good. That makes sense on paper. But
13 that's coming from someone that's never measured a wind
14 project.

15 If we were to put a sound monitor at the site today
16 when there's no project, the Lmax would go over 40, 45,
17 or even 50 a thousand times a day. Every dog bark, plane
18 flying, everything would cause an exceedance of that
19 level.

20 So it's not practical to use that to actually
21 measure a complete project.

22 Q. Have you read the Direct and Rebuttal Testimony of
23 Intervenor witness Professor Alves-Pereira?

24 A. Yes.

25 Q. And what is your opinion of that?

1 A. Well, her area is physiology and that sort of thing.
2 It's out of my area, but I would -- there was another
3 witness, Mark Hopkins, I believe, who reviewed her
4 testimony. And he's a physiologist and answered her
5 point by point, and I had to agree. I found his
6 testimony very compelling.

7 Q. Would you be referring to Dr. Mark Roberts?

8 A. Mark Roberts. Thank you. I drew a blank there for
9 a moment.

10 Q. What statistical descriptor would you associate with
11 the 40 dBA noise limit?

12 A. If there were to be a 40 dBA limit on this project
13 or any other project, the only practical descriptor would
14 be a long-term average measured over a period of days or
15 weeks.

16 And the reason for that is that the sound of the
17 project varies with wind and atmospheric conditions so a
18 short measurement of 10 minutes wouldn't tell you
19 anything. The project might not even be operating.

20 So what we found from many years of experience
21 testing completed projects is that you have to monitor
22 for usually two weeks and then try to determine what the
23 project alone level is exclusive of the background level.
24 The background level's very significant in these
25 projects. It's as high as the project many times.

1 For example, in our assessments we'll usually
2 monitor for about two weeks prior to any construction,
3 and what we find is that the sound level is directly --
4 directly correlates to the wind speed. And so when it's
5 windy the sound level's 45, 50 dBA before anything's
6 built.

7 So when the project comes in you have to be careful
8 not just to accept the level that's measured as being
9 completely from the project. A lot of times that's only
10 one component of it. So the difficulty is separating the
11 two, and that's why a long-term measurement campaign is
12 needed, supplemented by monitors that are miles from the
13 project recording the simultaneous background level.
14 It's not an easy thing to do.

15 Q. Ballpark number, how many wind farms have you
16 evaluated?

17 A. Well, one of the Intervenor data requests was
18 exactly that question so I had to go back and look.
19 We've measured 15 newly operational projects all over the
20 country, one in Jamaica, and what we have done in all of
21 those cases is performed these two or three-week surveys
22 with background monitors. And it's not easy, but you can
23 tease out what the project level is doing on a long-term
24 average basis.

25 Now one point I'd like to make about that is when we

1 do these tests the methodology is kind of up to me
2 because it's never prescribed anywhere. So what I like
3 to do is we ask the project who has called or complained
4 or who's upset about this project in any way, and we're
5 going to monitor at their houses.

6 Now that -- in every case I can think of that's a
7 number between zero and three. Usually there's about
8 maybe two people. And most of these projects cover
9 25 square miles. They involve hundreds of houses. But
10 that's what we find.

11 So we measure at those locations, and then I pick
12 five to seven other locations that are on the sound map
13 the locations of the houses that are receiving the
14 maximum sound level, and so we set up instruments at all
15 of those locations.

16 In doing that, we can talk to all of those people.
17 So I've heard the grievances of people that don't like
18 it, and then I've also talked to the people at all these
19 other houses that are receiving sound levels of 46 and
20 47 dBA and most people just say it's -- it's nothing.
21 You hear it. Nothing.

22 So my impression after 15 wind projects of seeing
23 that same thing repeated is that there's going to be some
24 people very upset. It's going to be a small number.
25 There's a few projects that everybody to my knowledge is

1 fine with. But most people aren't that bothered. And
2 that's kind of the facts on the ground.

3 Q. What is your overall recommendation, having heard
4 the testimony and read all of the filings?

5 A. Well, the project was designed to the county 45
6 limit and is meeting that. I think the highest predicted
7 level at anyone's house right now is 41.9.

8 Now there's been an extraordinary pushback from
9 folks that don't want this project so -- you know,
10 normally we recommend 45 independent of what the county
11 says. Now we think 45 is a fair limit for most projects
12 just based on our experience and seeing how many
13 complaints there are and what the levels are at those
14 houses.

15 But, at the same time, we've recommended for many
16 years that every project should shoot for an ideal design
17 goal of 40. That would serve to much better protect the
18 community against complaints and annoyance.

19 Now here, because almost all the houses are already
20 below 40, it seems to me that it's -- wouldn't be
21 inconceivable to modify the project slightly so that --
22 so as to achieve the 40 here. I think there's 11 houses
23 that are over right now, and many of those are just over
24 by a tenth or two-tenths of a dB, which isn't
25 significant. So I would like to see the project shoot

1 for this 40.

2 Q. Were you present in the room this morning for all of
3 the testimony?

4 A. This morning, yes.

5 Q. Did you hear the back and forth about whether there
6 may or may not have been a suggestion for a 35 dBA at
7 some point?

8 A. Yes. I did see that, and I did see a copy of that
9 e-mail the day before yesterday, basically stating that
10 the wind turbine developer at that time, that fellow,
11 Roland Jurgens, I think, said the 35 was a great idea and
12 that would protect everyone.

13 Well, that's true. 35's extremely quiet and no one
14 would be bothered but I'm not sure he knew what he was
15 advocating for because the setbacks to achieve that would
16 be huge and most of the projects I'm familiar with just
17 wouldn't be viable with that kind of a limit.

18 Q. When you say "huge," what are -- what are you
19 talking, generally speaking?

20 A. Did I say huge?

21 They would be on the order of a mile and a half or
22 something like that.

23 Q. Okay.

24 A. And most projects are not that sparsely populated
25 that that's doable.

1 Q. Okay.

2 A. And I would further add I talked about the
3 background level a few minutes ago. When the wind is
4 blowing, and the wind has to blow for the project to
5 operate, the background level is fairly high. It's
6 between 40 and 50. So to design to 35 would be --
7 there's really no need for that.

8 The background level's going to cover up the project
9 at that kind of a level. All you're going to hear is the
10 wind blowing in the trees. There's kind of a bottom
11 limit to how quiet you need to make it, and, generally
12 speaking, we find that's around 40. Once you go below
13 that, there's diminishing returns. You're not getting
14 any further improvement really.

15 Q. Okay. I'm going to draw your attention to
16 Exhibit A33, which I'll provide for you.

17 Mr. Hessler, are you familiar with that exhibit?
18 Take a minute to look at it.

19 (Witness examines document.)

20 A. Well, it's the first time I've seen it. Let me just
21 look at it for a sec.

22 (Witness examines document.)

23 A. Okay. Yeah. 45 dBA.

24 Q. Can you identify what the title of that exhibit is
25 for the record?

1 A. The Applicant's proposed conditions.

2 Q. Is that an exhibit that you -- or a proposal that
3 you weighed in on or had any input on prior to today?

4 A. I haven't seen this exact document, but I understood
5 from the beginning that the Applicant had committed to
6 meeting Bon Homme County 45 noise limit, not only in that
7 county but the other two counties in which the project
8 was sited.

9 MS. EDWARDS: Thank you. No further questions.
10 I will tender him for cross.

11 MR. DE HUECK: We're going to take a recess at
12 this point for our court reporter. Let's come back at
13 10:30.

14 (A short recess is taken.)

15 MR. DE HUECK: We're back in session.

16 Mr. Hessler is on the stand and now subject to
17 cross-examination. And you're still under oath,
18 Mr. Hessler.

19 Prevailing Winds, you may proceed.

20 MS. SMITH: Thank you.

21 CROSS-EXAMINATION

22 BY MS. SMITH:

23 Q. Good morning, Mr. Hessler.

24 A. Good morning.

25 Q. As I understood your written testimony, you did not

1 take issue with the noise modeling methodology and
2 assumptions that were used by Burns & McDonnell in
3 preparing their analysis for the project; is that
4 correct?

5 A. That's correct. They used the same assumptions and
6 even modeling software that I used.

7 Q. Okay. Thank you. And you also agreed that the
8 modeling showed compliance with the Bon Homme County
9 requirement of 45 dBA?

10 A. That's correct.

11 Q. You mentioned a criticism of not taking into account
12 community perception. Is that accurate?

13 A. That's correct.

14 Q. And community perception would be a subjective
15 analysis; is that true?

16 A. In general, yes. But it is possible to make a
17 judgment as to how impacted people are likely to be.

18 For example, when we do impact assessments, and
19 we've done probably over 70, we do a thorough background
20 study for a matter of weeks and correlate the sound level
21 to wind speed measured at the top of the met towers to
22 get the wind speed at the turbine height and then predict
23 the project level under identical wind conditions. And
24 it's the differential between what's there now and what's
25 going to be there at the project that really determines

1 the possible impact.

2 Q. And you indicated that ambient noise levels vary
3 from 40 to 50 typically when the wind is blowing in your
4 Direct Testimony just now; correct?

5 A. That's right. And the background studies that we
6 do, we find that just about in every site the background
7 level ranges from 20 to 50, purely a function of wind
8 speed. So when wind is blowing there's a significant
9 background noise that's often overlooked by a lot of
10 people that are opposed to wind turbines.

11 They think the background is 30 dBA or 25 dBA. But
12 that's when it's calm and the project is not operating so
13 it's not relevant.

14 Q. And as far as community perception when you're
15 talking about your ideal limits, the concept is to avoid
16 complaints; correct?

17 A. That's correct.

18 Q. Is it true in your testimony that you noted that
19 there isn't really a regulatory sound level that would
20 satisfy everyone?

21 A. Yeah. That's correct. You can never sit back and
22 be comfortable and everybody be all right with a wind
23 project.

24 Q. So someone may complain regardless of how low the
25 level is that is set; is that correct?

1 A. I have seen instances of that.

2 Q. In this case you stated in your testimony, and I
3 believe you restated here, that 45 dBA is an appropriate,
4 reasonably fair noise limit for wind projects at
5 nonparticipating residences; is that accurate?

6 A. Yeah. We consider that a reasonable limit under
7 normal circumstances. When there's not a lot of
8 opposition.

9 Now here I would lean more towards our ideal
10 recommendation of 40.

11 Q. And that's just simply based on complaints that have
12 been lodged in advance of the project being constructed?

13 A. Those numbers come from our experience at completed
14 projects. Like I briefly described, we measure at the
15 complainant locations and a number of other locations so
16 we know what the sound level is at the people that are
17 complaining. And that's why we say it's -- the situation
18 is generally okay up to 45. Not ideal. But below 40 we
19 see very few complaints.

20 Q. When you -- in your own testimony, your written
21 testimony, you indicate that a lot of fear and resistance
22 to wind projects is created during the development phase
23 by -- largely attributable to highly biased, even scary
24 anti-wind websites.

25 Do you remember that testimony?

1 A. Oh, yeah. That's absolutely true. All you have to
2 do is Google wind turbine noise, and it's horrific.

3 Q. And you noted that once those projects are
4 operational and you also testified here today that most
5 of those fears are found to be unfounded.

6 Is that accurate?

7 A. That has been my experience, yes.

8 Q. What's been proposed on Exhibit A33 -- and do you
9 still have that in front of you? It's that one sheet --

10 A. Yes, I do.

11 Q. -- of the Applicant's proposed conditions?

12 A. Yes.

13 Q. You indicated you had seen similar language before.
14 Is that accurate?

15 A. I had seen in the noise study where it summarized
16 what the applicable regulations were, which was the 45 in
17 Bon Homme County and then the voluntary agreement to that
18 in the other two counties.

19 Q. You also testified on behalf of the Staff in the
20 Crocker Wind Farm docket and the Dakota Range Wind farm
21 dockets; is that right?

22 A. That's correct.

23 Q. And in those matters there was a condition agreed to
24 among Staff at 45 dBA for nonparticipating residences; is
25 that true?

1 A. That's correct. And I think on one of them the area
2 was so sparsely populated that I think all the predicted
3 levels were below 40 to begin with so the 45 limit was
4 largely irrelevant.

5 Q. And on this case it would be reasonable for the
6 Commission to impose a limit of 45. That would be a
7 reasonable and fair limit in this case as well, would it
8 not?

9 A. In what I would call normal circumstances it's a
10 reasonable and fair limit, but where there's quite a bit
11 of opposition, as there obviously is here, I think
12 further consideration should be given to that.

13 Q. Was there not opposition in the last two dockets?

14 A. Not to the extent of this case.

15 Q. And you're basing that on simply numbers? Are you
16 aware of the number of Intervenorors, I guess I should ask?

17 A. I'm basing it on the amount of time it took me to
18 read all the Intervenor submittals.

19 Q. So it's based on anticipatory complaints for the
20 project?

21 A. Yes.

22 Q. With respect to the potential for health effects,
23 you referenced an article regarding -- or by
24 Steven Cooper; is that correct?

25 A. Correct.

1 Q. And it talked about the potential for a small
2 minority of people to be susceptible to vertigo and
3 nausea symptoms due to wind projects; is that true?

4 A. That's correct.

5 Q. And are you basing your statements regarding
6 potential health effects solely on that article?

7 A. That article I found to really put me over the --
8 I've read a lot of articles and attended a lot of
9 conferences where this issue has been discussed, but I
10 find that to be pretty unequivocal, that experiment that
11 he recently did.

12 So to me it's very clear that some people are
13 susceptible and are very adversely affected, but it's a
14 very small minority.

15 Q. You're not making a medical judgment here? You're
16 not speaking as a medical practitioner regarding that
17 topic; is that true?

18 A. No, not at all. I'm -- in my mind I'm thinking of
19 the Shirley Wind Project in Wisconsin that I went to, and
20 we did a study there to try to figure out what was
21 driving the complaints there, the nausea and the ill
22 feeling complaints.

23 And we went to the houses of those people. We
24 talked to them. We took measurements. They weren't
25 making it up. And so something's going on.

1 And what we found in that study was that you could
2 detect the wind turbine blade passing frequency, which
3 is, as I mentioned, around 1 hertz but the magnitude of
4 it is incredibly small and it's really hard to believe
5 that that has any effect but I'm convinced from Cooper's
6 work that that's what it is.

7 Q. So just to make it clear, you're convinced based
8 solely on Cooper's work that that's the --

9 A. I think he finally made the link. Or demonstrated
10 the link.

11 MS. SMITH: I don't have any further questions.

12 MR. DE HUECK: Mr. Almond.

13 CROSS-EXAMINATION

14 BY MR. ALMOND:

15 Q. Just following up on that last question, what did
16 Cooper demonstrate the link between?

17 A. That the extremely low frequency pulsations produced
18 by wind turbines can be -- they're completely
19 inaudible -- can be perceived by people who have a
20 sensitivity to it but not by everybody.

21 Q. And you believe that study gives credence to the
22 complaints of the Shirley Wind individuals and their
23 complaints of -- I guess I'll let you say the complaints
24 because you're the one that was there but --

25 A. Yeah.

1 Q. What were the complaints?

2 A. That they just felt some funny feeling and had a
3 little dizziness and vertigo and just couldn't take it
4 and had to leave their houses. They couldn't get relief
5 until they left the project area.

6 And but out of the 15 projects we've gone and
7 measured that's the only one where that complaint, that
8 specific kind of complaint, was made. At all the rest of
9 them it was simply the audible noise, thumping noise.
10 You could hear it at night. It was bothering me, that
11 kind of thing. There was no health complaints at any
12 other site.

13 Q. And did you listen to Mr. Fuerniss's testimony in
14 this matter?

15 A. I have not heard -- I believe I read the written
16 testimony. Is that what you're referring to?

17 Q. Are you aware of the physical symptoms and the
18 complaints that Mr. Fuerniss has been -- has been feeling
19 the last 18 months? Have you read anything about that or
20 heard him testify about that?

21 A. No. That's news to me.

22 Q. You stated that you believe that the number of
23 individuals affected by this inaudible infrasound is
24 quite small, and that's based off of the fact that you've
25 studied -- what's that based off of?

1 A. It's based partially off of the sites that I've been
2 to and talked to everyone, but more than that, it's
3 there's 90,000 megawatts of wind power in this country
4 right now. That's over 50,000 turbines. And the only --
5 and we're still talking about Shirley, which was from six
6 or seven years ago.

7 If this problem were common at all, it would be in
8 the forefront of every project's Application and would
9 really be a totally disruptive issue.

10 Q. So if I'm understanding -- maybe I'll just ask you.
11 Are you aware of any literature or research that
12 discusses people making the same types of complaints as
13 those made in Shirley in other wind farms around the
14 world?

15 A. Yeah. I'm only familiar with a handful of sites. I
16 think Falmouth in Massachusetts. I'm having a hard
17 time -- I'm thinking there's just a couple.

18 Q. Just so we know about the complaints that were
19 taking place in Shirley and that you're saying aren't a
20 national or worldwide significant number of, what are
21 those complaints specifically?

22 A. Well, as I mentioned, they described it as just kind
23 of a dizziness, a mild nausea, and it was particularly --
24 one woman said right here in this corner of the kitchen
25 in that chair it's real bad. So I sat there the whole

1 night, but I couldn't hear anything at all. I couldn't
2 measure anything. But, you know, she wasn't just saying
3 that. She must have just had a sensitivity to it.

4 Q. Are you aware of any studies that have actually
5 measured the number of people that have that sensitivity
6 to infrasound?

7 A. No. That would be good to know, but, no, I don't
8 know of any organized or scientific counting.

9 Q. And given this missing link that was found by
10 Mr. Cooper, do you anticipate those types of studies will
11 start being performed in the near future?

12 A. I think work will continue along those lines because
13 it's a big issue. And up until that work the discussions
14 mainly centered around theories about the inner ear
15 and -- but nothing that was demonstrable.

16 But now I've found that work to be excellent, and,
17 yeah, I would expect it to continue.

18 Q. And to date aren't most studies talking about wind
19 farms and adverse effects, aren't they typically talking
20 about annoyance?

21 A. Well, there's really two things going on. There's
22 audible noise around the mid-frequencies, 500 hertz, a
23 thousand hertz. That's just the sound of the blades
24 squishing, and it sounds like a -- like a washing
25 machine, kind of.

1 And then there's low frequency, and that's
2 completely at the bottom end of the frequency spectrum.
3 It's a totally separate issue.

4 Q. Yeah. As far as your opinion that you don't believe
5 many people are affected by the infrasound and the
6 sensitivities to it, would you agree that that -- the
7 population hasn't really been studied -- or the wind
8 farms haven't been studied to actually determine what
9 percentage of people are affected by infrasound?

10 A. Well, I think when they are affected it's -- it
11 becomes known. And the fact that it does not appear to
12 be a problem at 95 percent of operating projects tells me
13 it must be rare.

14 Q. So you're saying you have knowledge that 95 percent
15 of projects these complaints of nausea, dizziness,
16 vertigo haven't taken place, or you just haven't heard of
17 it?

18 A. I haven't heard of it.

19 Q. Okay. And in the academic literature about adverse
20 effects caused by wind turbines, isn't what people are
21 asked about annoyance and they aren't specifically asked
22 about nausea, dizziness? I mean, large studies determine
23 population amounts and --

24 Do you understand the question I'm asking?

25 A. It sounds like you're maybe talking about the Health

1 Canada Study. It was a large study about the Canadian
2 Health Department.

3 Q. Well, most of the studies I guess I have read --
4 and, again, correct me if I'm wrong -- is that when they
5 go out and study and survey the population they ask them
6 basically are you annoyed by the project.

7 Would you agree that that's how most studies are
8 created or the method most studies that are analyzed for
9 the purposes of the peer review stuff?

10 A. I would say that was the case some years ago when
11 some of the studies in Sweden were -- survey kind of
12 studies. That's the way their questions were posed.

13 It wasn't until later that this infrasound issue
14 started emerging.

15 Q. Right. So if people responded they were annoyed,
16 they may have been annoyed because of nausea, dizziness,
17 whatever, or they may have been annoyed because they just
18 didn't like it; right?

19 MS. SMITH: Objection. Calls for speculation.

20 MR. DE HUECK: Can you rephrase?

21 MR. ALMOND: Yeah.

22 Q. Based off your review of the studies that have been
23 performed and how they've been conducted, isn't it true
24 that when they've asked whether or not an individual's
25 been annoyed, there's no distinction about where the

1 annoyance comes from, whether it's nausea, dizziness,
2 vertigo, or just they don't like the project?

3 A. Yeah. I guess I would agree with that.

4 Q. Can you get Exhibit A33 back in front of you.

5 A. Okay.

6 Q. And that's the Applicant Proposed Condition --
7 specifically Proposed Condition No. 27. And I want to
8 talk to you a little bit about the measurement of this
9 condition. And it's over a two-week period; right?

10 A. That's how long we normally measure for because then
11 we're assured of getting periods of high wind, calm wind,
12 different atmospheric conditions.

13 Q. Have some of your colleagues suggested a method, an
14 on/off compliance test?

15 A. I don't know about colleagues, but we do that
16 ourselves.

17 Q. What's an on/off compliance test?

18 A. When the wind is blowing and the project is
19 operating at or near capacity, in many cases we'll get to
20 the test location and then radio in for them to turn off
21 all the turbines and then take measurements of what's
22 happening without the project.

23 And I will add it is amazing that it sounds the
24 same.

25 Q. Would you agree that that would maybe be a better

1 way to measure compliance with a 45 or a 40 or whatever
2 noise standard?

3 A. To my mind it's a more -- it's a simpler, more
4 unequivocal way of doing it. The problem is that a lot
5 of projects aren't happy about turning off the turbines.

6 Q. But it's for a short amount of time to get the
7 measurements; right?

8 A. Yeah. I know. That's what I tell them.

9 Q. Earlier you were testifying about how the background
10 noise, specifically noise caused by the wind, often masks
11 the noise created from the turbines.

12 Do you recall that testimony?

13 A. Yes. That's what I was just alluding to on these on
14 and off tests. When you arrive at the site it sounds
15 tremendously loud. I'm thinking of one case in
16 particular. And they turned off all the turbines. The
17 level was the same. It sounded exactly the same. It was
18 just the trees around the house blowing.

19 Q. And in terms of complaints from those individuals
20 living around projects regarding wind turbine noise, in
21 your experience have you found most often the complaints
22 come at night?

23 A. Yeah. Yeah. It's --

24 Q. Rather than --

25 A. It's audible at night and I can hear it and it's

1 bothering me and never heard anything about a daytime
2 issue.

3 Q. And is there a reason we would expect more
4 complaints to happen at night?

5 A. Well, people are trying to sleep and want it to be
6 quiet.

7 Q. What about the atmospheric conditions that
8 frequently exist at night? Can that lead or is that
9 perhaps an explanation for why we see more complaints at
10 night?

11 MS. SMITH: Objection. Vague. I don't know
12 what he means by atmospheric conditions that frequently
13 occur at night.

14 MR. DE HUECK: Either do I, but maybe
15 Mr. Hessler does.

16 A. Yeah. Yeah. At night sometimes there's temperature
17 inversions and things that enhance or allow sound to
18 propagate more easily. But it's not every night.
19 Sometimes that happens.

20 But, no. I don't think that's the reason. It's
21 just at night people have the expectation of quiet. If
22 they have the windows open and they hear -- it sounds
23 like a washing machine going, they don't like it.

24 Q. What are stable atmospheric conditions?

25 A. That's when it's cold or above the surface warmer --

1 excuse me. I always get this mixed up. It's hot above
2 and cold below.

3 Q. And in stable atmospheric conditions is the wind
4 typically stronger the higher you go up?

5 A. No. Actually to get truly stable conditions you
6 need very low wind speeds to stratify the atmosphere
7 thermally. But in stable conditions it's warmer above so
8 that the speed of sound is faster so it refracts the
9 sound waves so they travel more easily.

10 But in windy conditions that kind of atmosphere can
11 exist, and windy conditions are when turbines run.

12 Q. Is it common for the atmospheric conditions to exist
13 where it's calm at ground level but there are strong
14 enough winds at the height of a turbine that the wind
15 turbine's still operational?

16 MS. EDWARDS: I'm going to object simply because
17 we did not proffer him as a meteorological expert.

18 MR. DE HUECK: I'm going to overrule your
19 objection, allow you to answer.

20 A. That does happen, but I wouldn't call it common. I
21 think it happens seasonally, more commonly than other
22 times, but it's not an every day or every week
23 occurrence, I don't think.

24 Q. And in a given year how frequently?

25 A. It depends on the site and everything else.

1 Q. And under that scenario the sound around a residence
2 would be -- the sound created from the wind at least
3 would be relatively quiet or nonexistent because the wind
4 wouldn't be blowing at ground level; right?

5 A. Yeah. That scenario is brought up in every project.
6 That happens occasionally, but I wouldn't base the entire
7 design on that or anything.

8 Q. And during these very quiet ground levels and if --

9 MR. ALMOND: Well, you can strike that, Cheri.

10 Q. If you have a rural community like we have here in
11 this project and if those conditions exist, what would
12 you expect would be the largest generator of noise?

13 A. It would depend on how far away you're observing the
14 turbines. If you're very far away, the turbine sound
15 signal's so weak that it doesn't make any difference. If
16 you're very close at a 1,000-foot setback, then you'd
17 notice. You'd notice it more strongly.

18 Q. And at what distance would you be able to start
19 noticing the turbines?

20 A. I can't say.

21 Q. Can you give us a rough distance?

22 A. Are you asking when they first become fairly audible
23 over the background as you approach a project, for
24 instance?

25 Q. Yes.

1 A. I'm going to say -- it's hard to put a specific
2 number on. When we do operational surveys we put
3 monitors that are a minimum of two miles away from the
4 nearest turbine to get the background noise, and that's
5 what we get. There's no turbine influence at that level.

6 And so maybe a mile. You might be able to discern
7 the project under certain conditions.

8 Q. In changing gears here, during your testimony
9 earlier you said that one-and-a-half-mile setbacks
10 basically -- generally make projects not viable.

11 Do you recall that testimony?

12 A. Yes. Yes.

13 Q. Have you analyzed this project to determine whether
14 or not a mile and a half setback is viable for the
15 project?

16 A. No.

17 Q. Okay. And have you seen any evidence in the record
18 that suggested that if anyone tried to implement a
19 mile-and-a-half setback to this project?

20 A. No.

21 Q. So just as a general notion, mile-and-a-half
22 setbacks aren't typically that viable?

23 A. Yeah. Most project sites are fairly densely
24 populated, and there's just not that much room between
25 houses.

1 Q. Do you think it would be more viable if you were to
2 separate a mile-and-a-half setback or distinguish a
3 mile-and-a-half setback for nonparticipants versus
4 participants?

5 A. I would like to see that. In fact, I thought about
6 advocating for that here, but that would create a
7 precedent for all future projects. All you have to do is
8 be an Intervenor, and you can get all kinds of elbow room
9 so it's not really a practical suggestion.

10 Q. But you thought about advocating for a
11 mile-and-a-half setback?

12 A. Two-mile.

13 Q. You thought about advocating for a two-mile setback
14 for --

15 A. For Intervenors. But that's not a practical
16 suggestion.

17 Q. Well, if there was a waiver system that allowed
18 nonparticipants to waive the setback requirement, what
19 would be impractical about it?

20 A. Yeah. I'm not sure I follow the question. But what
21 I was suggesting was that for those that were clearly
22 unhappy with this project, I thought it was a good idea
23 if the project -- if we could appeal to the project to
24 try to increase -- to maximize those setback distances
25 for those individuals that -- but on further reflection,

1 you can't give special treatment to certain people. It's
2 just -- it would set such a precedent that it would
3 happen in every future project.

4 Q. But a situation in which a two-mile setback with
5 waivers existed wouldn't give preferential treatment to
6 certain people, would it?

7 A. I'm not sure I follow the waiver aspect of that
8 question. What waiver?

9 Q. Well, if an individual can waive that setback, for
10 example. In this project I don't know if you're that
11 familiar with it, but certain individuals have waived
12 setback requirements.

13 Have you seen that?

14 A. Not here, but I know of that.

15 Q. You're aware of the wind industry there are
16 agreements where individuals waive setback requirements?

17 A. Yeah.

18 MS. EDWARDS: Objection. This is outside the
19 scope of his direct. He didn't testify about setbacks.

20 MR. DE HUECK: Sustained.

21 MR. ALMOND: In his direct this witness has
22 testified about proposed regulations. He's given
23 opinions on some distances, setback distances, et cetera.

24 I think talking to him about setback distances
25 in this hearing and setback distances with other

1 projects, especially given that he's testified at other
2 projects are what he's using as support -- partially as
3 support for some of his opinions, is fair game to talk
4 with him about his experience with those setbacks.

5 MR. DE HUECK: Which I think you've done, and
6 now we've moved into some sort of abstract personal
7 feeling regarding outside the scope of Direct Testimony.

8 Q. In your past experience looking at wind projects,
9 are you aware of -- are you aware of good neighbor
10 agreements?

11 Do you know what that term is?

12 MS. SMITH: Objection. This is also outside the
13 scope of his testimony.

14 MR. DE HUECK: Correct.

15 Q. With the Applicant's medical experts there was a lot
16 of discussion about that Massachusetts study. Are you
17 familiar with the Massachusetts study?

18 A. Which Massachusetts study?

19 Q. Talking about health effects of wind turbines, the
20 Massachusetts government got a panel together to study
21 wind turbines.

22 Are you familiar with that Massachusetts study?

23 MS. SMITH: Objection. This is outside the
24 scope of his testimony as well. He's not testifying as a
25 health expert.

1 MR. ALMOND: I'm merely asking if he's familiar
2 with the study.

3 MR. DE HUECK: Are you familiar with the study?

4 THE WITNESS: Somewhat.

5 Q. And we heard from Dr. Roberts and Dr. Ellenbogen in
6 that study the Massachusetts government got everyone
7 together and studied wind farms, and the purpose of which
8 was to see what regulations should be put in place.

9 My question to you, because nobody else has been
10 able to answer it, is what is Massachusetts's regulations
11 as far as noise limits on wind farms?

12 A. The Massachusetts noise -- state noise limit is to
13 measure the background L90 statistical. That's the near
14 minimum background level. And then the project can be
15 10 above that.

16 So it starts at a very low level, and then they have
17 a big adder. It's unusual.

18 Q. So whatever the L90 level is, the project can go 10
19 above that?

20 A. That's right.

21 Q. How far does the type of infrasound and low
22 frequency noise that Steven Cooper was studying travel?

23 A. That's a good question. It travels very far.
24 Miles.

25 Q. Miles?

1 A. Yeah.

2 Q. Again, shifting gears, going back to this Shirley
3 project that you've studied, what was the regulatory
4 limit in that Shirley project?

5 A. I don't recall. And the reason is it was irrelevant
6 to the problems there. They were merely about the low
7 frequency content, which isn't represented or captured in
8 any way by the A-weighted limit.

9 Q. If I were to give you the report that was generated
10 from that project, would that help refresh your
11 recollection?

12 A. As to what the A-weighted limit was?

13 Q. Yeah.

14 A. I think it's in the report. I don't know if it was
15 mentioned.

16 Q. After conducting your study in Shirley did you give
17 a recommendation? What was the body that was overlooking
18 the Shirley project, the governmental body?

19 A. The Wisconsin Public Service Commission. By the
20 way, that study was -- the whole impetus of that study
21 was from my recommendation to study it during a hearing
22 for another wind project.

23 They planned to use the same turbines, and people
24 from the Shirley site were at this hearing saying, you
25 know, look at our site. You know, watch out, and don't

1 let this happen again.

2 So I said, well, it sounds like, you know, we need
3 to investigate what's going on at Shirley. So that was
4 the impetus for the study and that it was, I think,
5 funded by the Public Service Commission.

6 And it was a very unique test in that it was done
7 cooperatively by four different acoustical consulting
8 firms, some with kind of known opposition views.

9 Q. So just so I understand correctly, the Wisconsin
10 Public Service Commission was considering whether or not
11 to approve a wind farm project. And before it was doing
12 that -- before it would do that you recommended that we
13 should go study this other project?

14 A. That's right. And what I expected to find was that
15 the low frequency signal was extremely strong at that
16 site or something odd was happening there. But the
17 signal was detected but at incredibly low amplitude.

18 Q. I just handed you a document titled The Cooperative
19 Measurement Survey and Analysis of Low Frequency Sound
20 and Infrasound at the Shirley Wind Farm in Brown County,
21 Wisconsin.

22 Is this the report that was generated following the
23 study of the Shirley Wind Farm we've been talking about?

24 A. I think this was the final version. There was a lot
25 of drafts.

1 Q. And if you turn to page 8, please.

2 A. Okay.

3 Q. What ultimately did you recommend to the Wisconsin
4 Public Service Commission in terms of a noise limit?

5 A. I don't really remember recommending much of
6 anything. We couldn't really determine what was going on
7 at that site.

8 Q. Do you see the third paragraph where it says,
9 "Hessler Associates recommends approval of the
10 Application if the following noise condition is placed on
11 approval"?

12 A. Okay. Oh, that's right. Yeah. We -- this number
13 comes from talking with Paul Schomer, who was one of the
14 other guys there.

15 Yeah. It's 39 and a half is the number in here,
16 which is essentially 40 or the 40 limit that we've been
17 recommending all along as an ideal goal.

18 Q. I want you to flip to page 9. Is that your
19 signature there on the bottom?

20 A. Halfway down, yes.

21 MR. ALMOND: At this time I'd like to offer and
22 move for the admission of Exhibit I-36, the document
23 entitled Cooperative Measurement Survey and Analysis of
24 Low Frequency and Infrasound at the Shirley Wind Farm in
25 Brown County.

1 MR. DE HUECK: Any objection?

2 MS. SMITH: No objection.

3 MS. EDWARDS: No objection.

4 MR. DE HUECK: And I have no objection other
5 than I think maybe next time hand a copy to me. That
6 would be good.

7 MR. ALMOND: Very sorry.

8 MR. DE HUECK: No. It's okay.

9 So I-36, is that what you said?

10 MR. ALMOND: Yeah.

11 MR. DE HUECK: Will be admitted. Thank you.

12 Q. Let's step away from the Shirley project.

13 I want to talk a little bit about what you started
14 with Ms. Edwards talking about in terms of the community
15 response to a project.

16 Do you remember that part of your testimony?

17 A. Yes.

18 Q. And there are ways in which to gauge how a
19 community's going to respond to a project when it comes
20 to noise and how that noise is going to affect the
21 community; right?

22 A. I believe so, yeah.

23 Q. And are those -- and do the ANSI standards talk
24 about what calculations should be done to gauge community
25 response to a project?

1 A. There is an ANSI standard that addresses that, but
2 it wasn't written with wind turbines in mind. It was
3 picturing some coal plant or a gas turbine or something,
4 which is a much simpler situation.

5 Our approach is, as I went through before, was to do
6 an initial survey, find out what the background is going
7 to be at the wind speeds required to operate the project,
8 and then see how the predictions under those same wind
9 speeds compare. And depending on that differential, you
10 can get an idea of whether it's going to be very audible
11 or inaudible.

12 Q. Has that type of study been conducted for this
13 project?

14 A. No. No. That's completely missing from the
15 Applicant's noise study.

16 Q. And you would like to see that type of study in
17 order to gauge the community's response to a project;
18 correct?

19 A. I think it's the duty of the engineer to do that. I
20 don't know why it keeps getting left out of these. This
21 is the third one in a row.

22 Q. And without doing that, do you think we're able to
23 gauge whether or not this project's going to injure the
24 social condition of those living in it?

25 MS. SMITH: Objection. Calls for a legal

1 conclusion.

2 MR. ALMOND: It's a question.

3 MR. DE HUECK: Well, you're basically asking it
4 will comply with that regulation.

5 MR. ALMOND: And experts are capable of
6 testifying to that.

7 MS. SMITH: He's not a legal expert. He's here
8 to talk about sound studies in his analysis that he's
9 conducted.

10 MR. ALMOND: It's an ultimate conclusion
11 opinion. Experts are offered to provide ultimate
12 conclusions, ultimate opinions. That's what I'm asking
13 him to do.

14 MR. DE HUECK: But not as to whether or not they
15 will be in compliance with a particular law.

16 MR. ALMOND: I have not asked him about a law.
17 I've asked him a question.

18 MR. DE HUECK: It sounds like it.

19 Ask again, Reece. Or maybe --

20 MR. ALMOND: Cheri, can you just repeat the
21 question so we can hear what I asked again.

22 (Reporter reads back the last question.)

23 MR. DE HUECK: So asking if it will comply with
24 the law.

25 Can you --

1 MR. ALMOND: I have not referenced the law. I'm
2 not asking if it complies with the law. I'm asking that
3 question.

4 MS. EDWARDS: I guess I would just object as
5 vague and ask maybe the inquirer to be more clear on the
6 social condition.

7 MS. SMITH: And I'm going to object because it
8 is --

9 MR. ALMOND: I'll rephrase the question.

10 MS. SMITH: May I object?

11 It's basically stating 49-41B-22.1 -- or 2.
12 Excuse me. And so he's basically asking him to opine on
13 the statute compliance.

14 MR. DE HUECK: Yes. So let's sustain the
15 objection.

16 Ask another question.

17 Q. How the community responds to a project deals with
18 the social well-being of the community; right?

19 MS. SMITH: Objection. That's not why he was
20 brought here to testify, on the social feelings of the
21 community.

22 MR. ALMOND: He's been testifying about
23 community response. I'm just trying to figure out why
24 we're curious about the community response and why it's
25 important to look at that.

1 He's offered opinions that this Applicant should
2 have done that. I'm curious as to why.

3 MR. DE HUECK: Just go ahead and answer this
4 one.

5 A. Well, when I do an assessment I think the purpose of
6 it is to assess what's going to happen, not just to find
7 out if it's going to be in compliance with some
8 regulatory limit. That's one paragraph from our 26-page
9 report normally.

10 No. I think you want to model the project, see what
11 the sound levels are going to be at people's houses. And
12 I always say I think -- I think there's going to be a
13 problem or I think it's a low probability of complaints,
14 a high probability. Whatever it is goes into my report.

15 My clients aren't often happy with my reports, but
16 that's the purpose of an assessment.

17 Q. All right. Shifting gears again, you've reviewed
18 the modeled limits provided by Burns & McDonnell;
19 correct? Mr. Howell?

20 A. Yeah. I looked at the -- at the noise prediction,
21 the sound contour map, yes.

22 Q. Yeah. That was a poorly asked question.

23 A. I knew what you were talking about.

24 Q. The predicted sound measurements.

25 A. Yeah.

1 Q. Would you agree that the modeled levels can have
2 spikes in the order of 15 to 20 dBA above the model
3 levels?

4 A. Yes.

5 Q. So if you're looking at a modeled level of 35, you
6 could experience spikes up to 55 dBA?

7 A. Well, not 20, but -- yeah. Wind turbine noise is
8 highly variable. And depending on, you know, the wind's
9 not blowing in a nice laminar manner, it's turbulent, it
10 changes all the time.

11 That's why in every test you can only test over a
12 long-term average. You can't capture every exceedance.

13 Q. Well, the on/off condition test we don't need to
14 measure over a long period of time; correct?

15 A. No. No. Most of the time the noise is fairly
16 steady, but it does -- it certainly does vary over time.

17 Q. Have you written a paper on recommended noise level
18 design goals for wind turbines?

19 A. Yes.

20 Q. And what was the purpose of that paper?

21 A. To recommend noise design goals, which namely are 45
22 under most normal circumstances and an ideal target of
23 40.

24 Q. And you didn't attach that paper to your testimony,
25 did you?

1 A. No. I don't think so.

2 (Exhibit 37 is marked for identification.)

3 Q. I'm going to hand you what has been marked as
4 Exhibit I-37. What is exhibit -- what is -- I just
5 handed you what has been marked Exhibit I-37. What is
6 that?

7 A. You know, it's an article that I wrote in
8 collaboration with my dad who's also in the company in
9 2010 that was published in the Noise Control Engineering
10 Journal, January 2011.

11 MR. ALMOND: At this point I'd like to move for
12 the admission of Exhibit I-37.

13 MS. EDWARDS: No objection from Staff.

14 MR. DE HUECK: Any objection?

15 MS. SMITH: No objection.

16 MR. DE HUECK: It will be admitted as I-37.

17 Q. Can you turn to page 97 of that paper for me. What
18 is that Table 1 at the top of that page?

19 A. It's titled Typical Worldwide Wind Turbine Noise
20 Limits.

21 Q. And it looks like the different jurisdictions are
22 all outside the United States in that table. Would you
23 agree?

24 A. They are, yes.

25 Q. And if you flip back to the previous page, it

1 states, "Wind turbine development in European countries
2 and in other parts of the world has been proceeding for
3 some time now while widespread development has only
4 really started in the U.S. within the last five years or
5 so."

6 Do you see that language?

7 A. Yes. Uh-huh.

8 Q. So would you agree that it would be appropriate to
9 look to other jurisdictions and European and other
10 countries to see what's going on when it comes to wind
11 regulations?

12 A. Yeah. That's why we did that, this paper.

13 Q. Precisely.

14 And looking at Table 1 for one example, for example,
15 at the very top is Alberta, Canada. It says, "Criteria
16 values, 50D/40N."

17 What does that mean, the 50D/40N?

18 A. 50 during the day, and 40 at night.

19 Q. And the D and N, is that what it means for the
20 entire list of --

21 A. Yeah.

22 Q. Are you aware of any regulations on this project
23 that deal with infrasound or low frequency noise?

24 A. No. There are none on this project or any other
25 project I can think of.

1 MR. ALMOND: Thank you, Mr. Hessler. I don't
2 have any other questions for you.

3 THE WITNESS: All right. Thank you.

4 MR. DE HUECK: Mr. Fuerniss.

5 CROSS-EXAMINATION

6 BY MR. FUERNISS:

7 Q. Hello, Mr. Hessler. You and I have one thing in
8 common. At least we both have had the privilege to work
9 with our fathers in the business.

10 That's kind of a neat thing, don't you think?

11 A. I think it's great.

12 Q. I just have one question. This goes way back
13 earlier in your testimony. You talk about some people
14 being much more sensitive than others.

15 Does that sensitivity -- can that increase with
16 prolonged exposure, or do you have a level of sensitivity
17 and that's it or --

18 A. I'm not sure that's really known or understood. I
19 think I've seen papers speculating or thinking that maybe
20 the more exposure the more sensitivity would develop.
21 But I don't know myself.

22 MR. FUERNISS: Thank you.

23 THE WITNESS: Sure.

24 MR. DE HUECK: Ms. Jenkins.

25 MS. JENKINS: Yes. I have some questions.

CROSS-EXAMINATION

BY MS. JENKINS:

Q. Yes. I have some questions. On your Direct Testimony, your prefiled, I was looking at your resume, and at the very end of that section is -- you talked about a project in Maine? Freedom, Maine?

A. Was it Clinton, Maine?

Q. Freedom.

A. Freedom.

Q. It was called the Beaver Ridge Wind Project. Maybe let's find the exhibit. It's Exhibit DMH-1 in his --

MR. ALMOND: S3.

MS. EDWARDS: S3.

A. Okay. All right. It's pretty bad when I have to be reminded of my own resume.

Yeah. Yeah. I remember that project. That was in the town of Clinton, Maine, I believe.

Q. Can you just tell a little bit about what your -- it looks like you appeared before the Maine State Government of Energy and Utilities Committee. It says, "A peer review of operational sound testing by others."

A. Oh, yeah. I remember that one now.

Yeah. I was engaged by the state, very similar to this case, to look at somebody else's Application, the noise study for an Application for this wind project, and

1 give my opinion on it.

2 Q. And do you remember any specifics like the size of
3 the project?

4 A. I think it was fairly small. All I remember was the
5 panel. It looked like a bunch of sea captains up there
6 in Maine.

7 Q. Can I refresh your memory?

8 A. Please do. The whole project is kind of vague to me
9 now.

10 Q. Okay. I believe it was three turbines?

11 A. Yeah.

12 Q. By Patriot Renewables?

13 A. Okay.

14 Q. Maybe they built it and sold it. I'm not sure.
15 Starting to sound familiar?

16 A. Go on.

17 Q. Well, my understanding is that there were four
18 different -- I believe it was four, might have been
19 three, different residences that were experiencing either
20 health concern or not being able to sleep on their top
21 floor.

22 And so a sound study was done there, and that must
23 be this study that you peer reviewed?

24 A. What I recall is it was a noise study prepared for
25 the permitting application, and I just reviewed it and

1 commented on its shortcomings or good parts. That's all
2 I remember about it really.

3 Q. Okay. The project was built in 2008, and the
4 study -- your peer review was in 2013.

5 A. Okay.

6 Q. Still nothing?

7 A. Yeah. That just goes to show how many wind turbine
8 projects I've been mixed up in.

9 Q. Okay.

10 A. Yeah. I'm not recalling the situation you're
11 talking about with people having problem -- I don't
12 remember anything about that.

13 Q. Okay. The reason it came up was -- when I saw you
14 were going to testify, I was looking for your most recent
15 note on your resume, and that was in 2014. And so I
16 researched it a little bit.

17 A. Yeah.

18 Q. And the reason I bring it up now is that you said
19 that it was just a handful of people that are having
20 health concerns. And in this -- in my research I just
21 went to the --

22 MS. SMITH: I'm going to object. At this point
23 it sounds like Ms. Jenkins is testifying. Unfortunately,
24 I think we have to interrupt.

25 MR. DE HUECK: Yeah. Go ahead, Staff.

1 MS. EDWARDS: I guess since it's my witness, I
2 should probably attempt to weigh in.

3 Because we are a neutral party, I attempt to
4 afford a great deal of latitude. I would say this is
5 impeachment but going down that track going a little too
6 far.

7 MR. DE HUECK: So, Ms. Jenkins, it is as if
8 you're introducing your own testimony as to what you
9 think happened out in Maine into the record now so we
10 want to avoid that.

11 Additionally, the witness has basically told you
12 he's got no clue and doesn't look very successful in
13 remembering it.

14 Q. Okay. So I'll just summarize that, that you earlier
15 said that you have witnessed only a handful of people
16 with health effects, complaints, out of all the projects
17 in the United States --

18 A. Yeah.

19 Q. -- and you don't remember this project, your latest
20 one that you reviewed. I'm sorry. I'm not trying to be
21 unkind. I'm just trying to --

22 A. No. You have every right. I'm so sorry I can't
23 remember that project.

24 Q. Okay.

25 A. It was a very small project, and I think I just

1 looked over someone's work and testified for 10 minutes
2 on it. I never went to the site or anything. I don't
3 know too much about it really.

4 Q. So to do a sound study or to peer review a sound
5 study you don't need to see the site or know the
6 complaints or anything?

7 A. I'm fairly certain that this study had nothing to do
8 with the complaints. I don't remember anything about
9 that. I would remember that. If there was problems,
10 somebody went out, did a survey, tried to understand the
11 problems. That doesn't ring any bells at all to me.

12 Yeah. I'd have to pull out the file for this
13 project, and I just don't remember it.

14 MR. DE HUECK: Ms. Jenkins, do you actually have
15 a copy of what it is you're referring to?

16 MS. JENKINS: Well, I could go to the website
17 where the -- where the people in the community were
18 attempting to get their sound levels up to the state
19 level.

20 MR. DE HUECK: Okay. I think we have just a bit
21 of confusion going on. I'm not sure. But I think we
22 should just move on.

23 MS. JENKINS: Okay. Let me just make sure
24 there's nothing else I can ask.

25 MR. DE HUECK: Go ahead.

1 (Pause.)

2 Q. Okay. I think my last question would be, just to
3 understand the process, if you do a sound study, you
4 don't necessarily -- or peer review a sound study, you
5 don't necessarily have to go to the project site?

6 A. No. Like in this case there wasn't a whole lot of
7 need to go to the site.

8 Q. And can you tell me how you can deduce that if you
9 don't remember the project?

10 A. Well, the noise study is supposed to explain and
11 show you what the site is like. Like in our reports we
12 put a site description. We have maps. We show what's
13 going on at the site, where the houses are, where the
14 turbines are. You know, it's supposed to explain it to
15 the degree where you don't have to go out there and find
16 out for yourself.

17 Now this report was very vague on that. The sound
18 contour map was printed on a white paper. There was no
19 map. I couldn't tell where the houses were, whose house
20 was which, so it was a shortcoming of the study.

21 Q. Okay. And you don't remember testifying before the
22 board or at that hearing -- before the Maine State
23 Government Energy, Utilities, and Technology Committee on
24 behalf of Patriot Renewables and the Beaver Ridge Wind
25 Project in 2014?

1 A. Yeah. I remember being there and I remember what
2 the room looked like but I forgot what the substance of
3 the testimony was about.

4 Q. Okay. So you don't really remember the case?

5 A. I don't remember the case. It was --

6 MS. JENKINS: Okay. Thank you.

7 MR. DE HUECK: Ms. Pazour.

8 MS. PAZOUR: No.

9 MR. DE HUECK: That will bring us over here to
10 Commission questions. I'm down here with Commissioner
11 Nelson.

12 I have a quick question if that's okay.

13 Help me understand this because the Cooper
14 study's got me thinking. And I think I recall you saying
15 that often -- whether on or off, the wind turbines, the
16 sound can be the same just due to the wind itself.

17 So a noisy night, you could turn off the
18 turbines, and you're still going to be at, say, 45 dBA
19 just based on the wind itself. And the turbines don't
20 run unless it's windy; correct?

21 THE WITNESS: That's absolutely correct. It was
22 surprising even to me.

23 MR. DE HUECK: Yeah. That is. So does wind
24 itself carry these sound we can't hear? Infrasonds?

25 THE WITNESS: They're not carried on the wind.

1 They just radiate out from the source.

2 MR. DE HUECK: So could the wind itself be the
3 source of infrasound?

4 THE WITNESS: No. For example, in the Shirley
5 study we used very specialized instrumentation to be able
6 to detect the blade passing frequency. And that's every
7 time a blade goes by the tower, of the three blades, so
8 that the frequency of that is about .7 to 1 hertz. And
9 that was detectable.

10 And I think it's the repeated pulsations of
11 that, those waves going out, that some people are
12 sensitive to. It's like on a boat, you know, and
13 seasick. Just kind of that low rocking. I think it's
14 related to that.

15 MR. DE HUECK: I understand that it could be
16 related to that. But so does the wind -- let's say we
17 remove the turbines, and we still have -- it's a windy
18 night. And could infrasounds from the wind --

19 THE WITNESS: No. No. It takes this specific
20 source to generate it. No. Wind noise is very
21 broadband.

22 MR. DE HUECK: Okay. Thank you.

23 THE WITNESS: Okay.

24 COMMISSIONER NELSON: Thank you, Mr. Hessler,
25 for being here to help us sort this out.

1 THE WITNESS: Always a pleasure.

2 COMMISSIONER NELSON: Looking at your Direct
3 Testimony on page 8, there was a question about -- I
4 think Mr. Fuerniss had recommended that sound levels be
5 measured using C-weighted sound levels, and you said, no,
6 no, no, that that would be inappropriate.

7 So my ultimate question is how is infrasound
8 measured? What is the scale? What is the
9 instrumentation? Have you done it? Help me understand
10 all of that.

11 THE WITNESS: Yeah. No. That's a very good
12 question.

13 You know, it's extremely difficult to even
14 detect. That's why there's no practical way to put a
15 regulatory limit on it. C-weighting only goes down to
16 10 hertz, and this is happening at less than 1 hertz. So
17 it's off the chart. So C-weighting is not going to
18 capture it or do anything.

19 How it is measured is to use very specialized
20 low frequency microphones that can measure down to less
21 than 1 hertz and very specialized instrumentation. It's
22 also complicated by the fact that whenever you try to
23 measure sound in windy conditions the wind blowing over
24 the microphone creates a false signal, and that happens
25 in the low end of the frequency spectrum.

1 So it's very easy for any kind of measurement
2 to get completely covered up by nonrelated,
3 self-generated noise. Very difficult to measure. So
4 there's no way I could think of to place a regulation or
5 a limit on it.

6 COMMISSIONER NELSON: So we've heard reference
7 to dB(G). Is that the measurement that is used for
8 infrasound?

9 THE WITNESS: It can be. That's essentially not
10 putting any weighting on the frequency spectrum, not
11 subtracting some number. But it's very, very difficult
12 in practical terms to even detect.

13 In that Shirley study we had to measure in the
14 middle of the night, inside the houses, out of any wind.
15 And even then it was hard to pick up.

16 COMMISSIONER NELSON: And so you have attempted
17 to measure it. Is that --

18 THE WITNESS: Oh, yes.

19 COMMISSIONER NELSON: Do I take it from your
20 testimony that using the Shirley example that you weren't
21 comfortable that you accurately captured what was going
22 on?

23 THE WITNESS: Yeah. You could see a little
24 blip, but it was so small that we said how is this a
25 problem? It's orders and orders of magnitude below the

1 threshold of human perception. But evidently it's the --
2 the frequency of the pulses that go out apparently have
3 an effect.

4 COMMISSIONER NELSON: Within the last week I saw
5 a presentation on the folks that are trying to capture
6 neutrinos, and when I read through this I, for some
7 reason, thought of that. And we're trying to capture
8 something that's apparently very difficult.

9 THE WITNESS: Yeah. It is.

10 COMMISSIONER NELSON: Did you read through
11 Dr. Roberts's Rebuttal Testimony?

12 THE WITNESS: I did read through it, yes.

13 COMMISSIONER NELSON: Could you pull out
14 Exhibit A5-1, which is Exhibit 1 attached to his Rebuttal
15 Testimony.

16 Yes. A5-1.

17 And if you could go to page 10.

18 THE WITNESS: Okay.

19 COMMISSIONER NELSON: In the lower left corner
20 there's a bullet point, and this is talking about the
21 results of some work that was done in Germany. And that
22 bullet point says, "At a distance of 700 meters from the
23 wind turbines it was observed by means of measurements
24 when the turbine was switched on the measured infrasound
25 level did not increase or only increased to a limited

1 extent." And then it says, "Infrasound was generated
2 mainly by the wind and not by the turbines."

3 There's two things here that contradict what you
4 have said already today. And I'm trying to sort this
5 out. I mean, at some point infrasound has to dissipate.
6 This study seems to indicate that by 700 meters it has
7 dissipated. I heard you testify today that infrasound
8 travels for "miles."

9 So that's my first question.

10 THE WITNESS: Okay.

11 COMMISSIONER NELSON: Help me understand how far
12 this travels.

13 THE WITNESS: Well, it can travel for long
14 distances. Not always. The conditions have to favor it
15 and so on.

16 COMMISSIONER NELSON: So help me -- unpack that.

17 THE WITNESS: Yeah. Well, I can see in the
18 picture here, in the lower left picture titled C, they've
19 got a black dome sitting on the ground on a white circle.

20 Do you see that?

21 COMMISSIONER NELSON: Yes.

22 THE WITNESS: That is a method that we use to
23 measure wind turbines outdoors where the microphone is
24 laying horizontally on this reflective surface, and then
25 this huge wind screen is put over it.

1 Now that only works to a certain extent, and it
2 does not allow measurements down at 1 hertz. That's all
3 covered -- even with this setup the measurements are
4 blown away by wind self-generated wind noise. Because
5 I've used this exact equipment before.

6 That's why they say all they measured was wind.
7 Because you really can't pick it up. But no. I think it
8 can travel 700 meters or more under other circumstances.

9 Let me see. At Shirley one of the houses was
10 very far from any turbines. Miles away. We did measure
11 inside of that house out of the wind to avoid this
12 contamination. I don't think we were able to detect
13 anything at that house, though.

14 COMMISSIONER NELSON: So I'm --

15 THE WITNESS: That doesn't --

16 COMMISSIONER NELSON: -- going to press you a
17 little harder because this is terribly important to me.

18 So somewhere between 700 meters and your quote,
19 "miles," this dissipates. So help me understand what's
20 going to determine how far it goes and what causes it to
21 dissipate, and how can we quantify that?

22 THE WITNESS: It travels a long distance. I
23 can't put a number on it for you. These are the kind of
24 frequencies that -- like elephants communicate with each
25 other over huge distances, if you've ever heard about

1 that. This is as low as it gets in terms of frequency.

2 So in theory it takes a very long time. Now how
3 far, I don't know. Can't help you.

4 COMMISSIONER NELSON: Well, ultimately, I have
5 to make a decision here based upon how far this could
6 travel and how far it's going to affect folks, if it
7 affects folks. I mean, that's a whole nother question.

8 THE WITNESS: Right.

9 COMMISSIONER NELSON: I'm trying to just figure
10 out how far does it actually go.

11 THE WITNESS: I wish I could give you a figure
12 on that. I know it would be useful to you.

13 COMMISSIONER NELSON: Okay. Thank you for that.

14 Shifting gears just a little bit. Can a sound
15 be heard without that sound changing the ambient dBA
16 level?

17 THE WITNESS: Yes. If the sound has a
18 distinctive character to it, then you can identify and
19 pick it out even though the magnitude of it, whether it's
20 on or off, may be about the same.

21 COMMISSIONER NELSON: Like a wind turbine.

22 THE WITNESS: Yeah. Which has a -- that washing
23 machine sound. Yeah.

24 COMMISSIONER NELSON: So we had -- well,
25 Ms. Jenkins, Intervenor, testified yesterday, again

1 contrary to what I heard from you this morning, that her
2 house is three miles away from a wind turbine, and inside
3 of her house she can hear the wind turbine three miles
4 away.

5 THE WITNESS: That's surprising to me.

6 COMMISSIONER NELSON: Okay. So we'll set that
7 aside. But it would be -- let's say you're outside. It
8 may be possible to actually hear a wind turbine because
9 of the unique sound, even though it doesn't raise the dBA
10 level. Is that accurate?

11 THE WITNESS: Right. If you're able to identify
12 that distinctive sound and you know what you're listening
13 for and so on.

14 COMMISSIONER NELSON: Just so I'm clear,
15 changing again, you've recommended for this project an
16 ideal design goal of 40 dBA, and that would be measured
17 over the two-week period that the Applicant has proposed;
18 is that correct?

19 THE WITNESS: Right. I don't know of any other
20 way to do it.

21 COMMISSIONER NELSON: You talked earlier about
22 the fact that that might impact 11 different receptors
23 based on their sound study. I just quickly looked at
24 their revised sound study, and it looks like it would
25 only impact two of the nonparticipants.

1 Did you separate out participants and
2 nonparticipants as you looked at that?

3 THE WITNESS: At least in my copy it doesn't
4 distinguish between who was who.

5 COMMISSIONER NELSON: And were you looking at
6 the revised -- the latest sound study?

7 THE WITNESS: Yes. I saw one Intervenor house
8 identified in the table in the back, but that's the only
9 one. And that's what I was looking for when I wrote my
10 Direct Testimony. I wanted to know what the levels were
11 at the Intervenor's house, but I couldn't tell which
12 house was which.

13 COMMISSIONER NELSON: I think -- I hate to let
14 you go, but I think that's all -- only because what I
15 really want to know I haven't found out, but that's all
16 the questions I've got.

17 Thank you.

18 THE WITNESS: You're welcome. Sorry I couldn't
19 help you with that one.

20 MR. DE HUECK: Chair Fiegen. No questions.

21 Commissioner Hanson, any questions?

22 COMMISSIONER HANSON: Yes, I do.

23 Good almost afternoon, Mr. Hessler. You came
24 out swinging in your remarks at the beginning. At least
25 on page 3 you faulted the Applicant for the graphical

1 presentation, called it fairly primitive, and said you
2 can't even distinguish -- identify where the specific
3 residents are.

4 You faulted the study for focusing entirely on
5 the noise limit of 45 dBA rather than assessing,
6 addressing in any way. So you said, Focusing entirely on
7 the dBA and not assessing or addressing in any way the
8 other aspects, potentially low frequency and sound
9 emissions. And I appreciate the questions that
10 Commissioner Nelson asked in regard to that and the
11 others.

12 I'm curious. You said -- I also appreciate the
13 way you tried to be fair. I think that you placed a lot
14 of weight on the other side of the scale as well, almost
15 to the point to which you seemed to favor wind farms and
16 wanted to support them and so I -- I'm trying to figure
17 out where that scale lands but --

18 You said you sat in a home I believe it was in
19 Wisconsin, was it, and listened -- sat there all night
20 or -- I don't know if it was all night --

21 THE WITNESS: Hours.

22 COMMISSIONER HANSON: And that the husband could
23 not hear it, you could not hear it, but the wife could
24 hear it.

25 THE WITNESS: That's right.

1 COMMISSIONER HANSON: I don't want to sound
2 misogynistic here, but isn't it somewhat typical
3 especially on a farm that work with machinery -- even
4 though wives work beside their husbands on farms and
5 such, is that men typically lose their hearing a little
6 bit before women do?

7 THE WITNESS: Well, this wasn't audible sound
8 from the project. It was just a sensitivity to a feeling
9 of low pressure, low frequency pulsations. Nobody could
10 hear anything. Everybody admitted that. It was the
11 sensing of it.

12 COMMISSIONER HANSON: Interesting.

13 My wife is 220 miles away, and she can hear my
14 thoughts right now.

15 THE WITNESS: I know. Mine too.

16 COMMISSIONER HANSON: She'll call me up and tell
17 me I'm wrong without --

18 Are you familiar with kids in school who carry
19 phones and they have the frequency dialed so that people
20 over 40 or 50 years old cannot hear the frequency but
21 they can?

22 THE WITNESS: I did hear about that.

23 COMMISSIONER HANSON: And that's fairly typical.
24 So kids would be more sensitive, would one assume, than
25 adults would to the challenges that low frequency would

1 have from wind turbines? I mean, that's just one premise
2 but --

3 THE WITNESS: Well, it's -- the phone thing is
4 ultrasound. It's very high frequency sound, and that is
5 usually the first thing to go as people age. So that's
6 why there's a built-in advantage there to that whole
7 concept.

8 But we're talking about the other end of the
9 frequency spectrum, and that typically does not decay
10 with age.

11 COMMISSIONER HANSON: Interesting. So higher
12 frequency, have you studied that from wind turbines,
13 from --

14 THE WITNESS: No. There's no high frequency.

15 COMMISSIONER HANSON: There's no high frequency.

16 THE WITNESS: No. Most of the noise, the
17 churning sound, is about 500 hertz to 1,000 hertz.
18 That's in the middle of the audible frequency range.
19 Above that there's no significant noise.

20 COMMISSIONER HANSON: Interesting. Appreciate
21 that.

22 You spoke also at adverse health effects such as
23 sleep disturbance and vertigo, which really can be
24 crippling to people from the standpoint of going through
25 their lives.

1 THE WITNESS: Yeah.

2 COMMISSIONER HANSON: What about children with
3 ADHD? Have you studied any of that or familiar at all
4 with those effects?

5 THE WITNESS: No. I don't know about that, but
6 I wouldn't be surprised.

7 COMMISSIONER HANSON: You wouldn't be surprised
8 what?

9 THE WITNESS: If they were sensitive to it or
10 affected by it.

11 COMMISSIONER HANSON: You state about the very
12 small minority of the people and that it is extremely
13 rare, small handful of sites, quite rare, et cetera.
14 Again, very small. And yet it's very real. At least you
15 express that it's very real.

16 So in balancing that are we to assume that for
17 the greater good some people are going to suffer?

18 THE WITNESS: Yeah. That's -- that's up to you
19 guys. Yeah.

20 Well, just to reiterate, you know, if this
21 commonly happened, it would be all over the news. It
22 would be well understood, and everyone would know that a
23 new wind project was going to cause this.

24 But that's not the case. It's only occurred at
25 certain specific sites out of many, many, many projects.

1 So based on that alone, I'm concluding that it must be a
2 rare sensitivity.

3 COMMISSIONER HANSON: Commissioner Nelson would
4 love to sit and chat with you an extended period of time.
5 Enjoy the conversation and what we're learning here.

6 For folks who have lived out in the country for
7 a long, long time and just simply enjoy the -- enjoy the
8 sound of the wind going through the trees, granted
9 turbines may be at a similar volume but of a different
10 pitch and so they hear it instead of the -- it starts to
11 irritate them.

12 For those folks who live out in the country I'm
13 going to assume they would be far more susceptible to
14 hearing noises and problems and being discomforted by
15 them than folks who live in the city.

16 THE WITNESS: Well, every wind project that I
17 can think of that we worked on has been in a rural area.

18 COMMISSIONER HANSON: Right.

19 THE WITNESS: Probably very similar to this.

20 COMMISSIONER HANSON: So is my assumption
21 correct that folks who live out in the country are going
22 to be bothered more by noise -- by a new introduction of
23 a new noise than folks in the city, for instance?

24 THE WITNESS: Oh, yeah. Definitely.

25 COMMISSIONER HANSON: I grew up three houses

1 away from a railroad track, and I can sleep through the
2 horns and a thunderstorm and everything else, but a clock
3 ticking on the wall or a water dripping really bothers
4 the heck out of me.

5 So with that type of a challenge, I can go move
6 that clock. I can fix the water faucet. Do we suggest
7 earplugs for the folks out in the country?

8 THE WITNESS: No. And, as I mentioned, there's
9 always -- I can't -- there might have been one or two
10 that there were no reported complaints. But there's
11 always a few people that are bothered, and they're really
12 bothered. Really bothered.

13 COMMISSIONER HANSON: In your experience, do
14 most of the people who are bothered at first adapt to it?

15 We're talking about the people who are really
16 bothered. Do they ever adjust to it, or do they -- as
17 you suggested, some people move?

18 THE WITNESS: I think people end up getting used
19 to it like your railroad, but I don't know. I've never
20 done any follow-up study to see if people are still upset
21 about it years later. I don't know.

22 COMMISSIONER HANSON: All right. Thank you very
23 much for your testimony. Appreciate it. And enjoyed it.
24 Thank you.

25 THE WITNESS: Okay.

1 COMMISSIONER NELSON: And an additional
2 question. If I'm standing a mile away from an operating
3 wind turbine, I can hear the whoosh, and I know what it
4 is. I know where the whoosh is coming from.

5 If you're measuring infrasound or attempting to
6 measure infrasound, how can you tell the origin of it?
7 Or can you?

8 THE WITNESS: Well, this infrasound has a
9 distinctive frequency signature. It would be a .7 hertz,
10 which corresponds to the -- how often the blades go by
11 the tower. So you would look -- you would see it in the
12 industry.

13 COMMISSIONER NELSON: Thank you.

14 THE WITNESS: Yeah.

15 MR. DE HUECK: Well, I think -- Reece, how long
16 is your -- well, okay. Do you have -- how long would
17 your redirect be? How long -- a while? Should we break
18 for lunch?

19 Okay. It's 12:07. 1:30 we come back?

20 MR. ALMOND: As we discussed earlier this
21 morning, we were hoping to have the telephonic witnesses
22 start right after lunch so we can get them set up during
23 the lunch break. If we don't want to finish, I get that
24 we can take a break but --

25 MR. DE HUECK: Well, okay. That will work.

1 MR. ALMOND: I don't have very much.

2 MR. DE HUECK: Okay. Let's go ahead and do some
3 redirect and recross.

4 MS. EDWARDS: All right.

5 REDIRECT EXAMINATION

6 BY MS. EDWARDS:

7 Q. Mr. Hessler, you stated there is a lot of opposition
8 to this project. Was that based off of your knowledge of
9 other projects you've worked on?

10 A. Yeah. I would say there was a high level of
11 apprehension about this project just by the sheer volume
12 of all the testimony and Intervenor witnesses and so on
13 compared to other projects.

14 Q. You also stated once this morning that Mr. Cooper
15 had finally demonstrated a link. Did you have reason to
16 believe prior to that study that link was already there,
17 or was this all new to you?

18 A. Prior to that study I thought something was
19 happening but wasn't entirely convinced what was going
20 on, and that study kind of put me to the other side where
21 it's pretty clear that those pulsations can be perceived
22 by certain people.

23 I mean, I thought that before, but there was never
24 any evidence, although there's been many, many studies
25 and papers about it.

1 Q. So with that in mind and with your testimony in
2 response to Commissioner questions that it's a fairly
3 small number of people, would you -- in the project that
4 you've worked on have you seen it just -- people be
5 irreparably split in the community and just fight in the
6 streets forever or --

7 A. Yeah. It is very divisive, yeah. Almost all
8 projects, especially before they're built. At this stage
9 there's a lot of dread and apprehension about it. That's
10 mostly attributed to -- attributable to the internet
11 sites.

12 Q. In response to Ms. Jenkins's questions about that
13 study in I believe it was Maine?

14 A. Yeah.

15 Q. There was some confusion about what your role was.
16 Could there have been another sound expert that was
17 involved that would answer what she was getting at and
18 that was outside of your role?

19 A. Well, what I do know about that is it was somebody
20 else's work that I was asked to look at. I didn't do the
21 study or anything. I just was commenting on it.

22 Q. Do you recall based upon the noise assessments you
23 reviewed what the max dBA was at a receptor?

24 A. You mean what was the highest predicted on any other
25 project?

1 Q. This project.

2 A. On this project. Okay.

3 Right now I believe it's 41.9, which I would call
4 42.

5 Q. Would you expect 42 dBA would, in your experience,
6 cause people to change their daily lives and behavior?

7 A. Hard to say. That's a pretty low level getting down
8 towards the ideal point of 40. But there's still a
9 possibility of complaints. In between 40 and 45 there's
10 a definite possibility of complaints.

11 MS. EDWARDS: Thank you very much. I have no
12 further questions.

13 MR. DE HUECK: Recross, Prevailing Winds?

14 MS. SMITH: No, I don't have any. Thank you.

15 MR. DE HUECK: Mr. Almond.

16 MR. ALMOND: Briefly.

17 RE CROSS-EXAMINATION

18 BY MR. ALMOND:

19 Q. I think you were talking with Commissioner Hanson
20 about the number of complaints with the physical symptoms
21 of nausea, dizziness, et cetera that you talked about
22 Shirley or attributed to this infrasound, that there are
23 wind farms all around the country, you've studied 15 of
24 them or maybe more but you haven't heard many
25 complaints.

1 Wouldn't you expect that the number of complaints
2 might be skewed if there are confidentiality provisions
3 and certain contractual provisions that would prevent
4 people from living around turbines from making such
5 complaints?

6 MS. SMITH: Objection. This is outside the
7 scope of his testimony.

8 MR. DE HUECK: I agree.

9 A. I would say that I've seen cases --

10 MR. DE HUECK: Dr. Hessler, I'm sorry. Don't
11 answer the question.

12 THE WITNESS: Okay.

13 Q. Your opinion on the quantity of people affected by
14 infrasound is based off of those -- is based off
15 complaints that people have made; correct?

16 A. It is based off of our experience at Shirley and our
17 experience at all other projects where we did not hear
18 about that, and the fact that I have -- I'm not aware of
19 any other projects where that was an issue, out of 50,000
20 wind turbines out there in this country.

21 Q. Are you aware of your other projects whether or not
22 anyone was prohibited from making complaints?

23 A. I don't know, but my understanding is that
24 participants --

25 MS. SMITH: Objection. This is speculation.

1 THE WITNESS: Yeah. Yeah. I would agree with
2 that.

3 MR. ALMOND: Based on that, I don't have any
4 other questions for you, Mr. Hessler.

5 MR. DE HUECK: Mr. Fuerniss.

6 RECROSS-EXAMINATION

7 BY MR. FUERNISS:

8 Q. Yes. Commissioner Nelson is trying to get at the
9 bottom of how far this could go, the infrasound
10 especially.

11 Could that be affected or enhanced by more or less
12 hilly terrain, valleys, so forth? Would that make a
13 difference?

14 A. In theory if the turbine were on a hilltop and there
15 was a valley in between and your house or some point of
16 observation was on the next hill, you would -- there
17 would be a loss of ground absorption attenuation because
18 of the valley in between so the sound would get over
19 there more than it would over flat ground.

20 However, I don't think ground absorption has any
21 real effect at that low end of the frequency spectrum.
22 So now that I've reasoned it out in my head as I was
23 talking, I would say it doesn't make too much
24 difference.

25 Q. Okay. When you're talking 40 dBA or 45 dBA, which

1 metric are you using? Are you talking L90?

2 A. Well, that's interesting you should say that because
3 that is the descriptor that we use to actually try to
4 measure an operating project because it filters out cars
5 going by and sporadic contaminating events and gets out
6 the underlying steady -- and it is more or less steady
7 sound level.

8 So we use the L90 at houses and then the L90 miles
9 away as a background, and then we subtract the two to get
10 what is the project doing. And if you try to use any
11 other statistical like the average, the Leq or the L10 or
12 the Lmax, you're getting progressively worse in your
13 ability to detect the project alone and you're only
14 detecting other things that are unrelated to the
15 project.

16 Q. Okay.

17 A. That was a good question.

18 Q. Would it be appropriate to recommend different
19 levels for time of day, daytime, evening, nighttime?

20 A. Well, the trouble with that, it's not practical to
21 change the noise emissions in the project. They are what
22 they are 24 hours a day. There's no way to substantially
23 change the sound at night, for instance, to lower it,
24 other than possibly putting some or all of the units in a
25 low noise mode.

1 But the improvement in doing that isn't all that
2 dramatic, in my experience.

3 Q. Are there some jurisdictions that do, in fact,
4 require different levels from day and night?

5 A. Yeah. Many, many ordinances are -- expresses
6 day/night. But when it comes to wind turbines you just
7 have to take the nighttime level as the design and forget
8 about the daytime. Because, like I said, the sound level
9 is the sound level, and you don't have any control over
10 it really.

11 Q. Okay. One last question. Are you familiar with
12 bone attached hearing aids? And if you are -- one
13 question at a time.

14 Are you familiar with those?

15 A. I'm familiar with hearing aids. My wife really
16 relies on them, but I'm not an expert on it.

17 Q. Okay. So you wouldn't be able to address that for
18 us then?

19 A. I don't think so.

20 MR. FUERNISS: Thank you.

21 MR. DE HUECK: Ms. Jenkins.

22 MS. JENKINS: Just a couple questions.

23 RECROSS-EXAMINATION

24 BY MS. JENKINS:

25 Q. I'm sorry, but I missed. The Shirley Wind Farm when

1 you visited that, what year was that?

2 A. 2010 -- it's right here. December 24, 2012.

3 Q. Thank you. Can infrasound be measured inside a
4 house?

5 A. That's probably the only place it can be measured.

6 Q. Okay.

7 A. Because you're out of the elements there.

8 Q. And was your -- the main project that I mentioned
9 earlier, was your role at that project the same as your
10 role is here? Did you review this sound study?

11 A. I reviewed a sound study. What it was about, I
12 can't recall. I'm taking it off my resume.

13 Q. I'm sorry. You could just refresh your memory
14 because you might need it again.

15 A. I'll have to pull the folder out back at the office.
16 Big embarrassment.

17 Q. Yeah. When you do a sound study or when a sound
18 study is ordered is it done at a certain time of year,
19 or how do you choose when you're going to do a sound
20 study?

21 A. You typically want to do them during the cold
22 weather season of the year when the leaves are off the
23 trees just to minimize the contamination from leaves
24 rattling and -- and summertime you get crickets and all
25 kinds of stuff that messes up the measurements. So

1 during the winter.

2 Q. Okay. When you do a sound study is there -- do you
3 get a report from the -- like the operation maintenance
4 facility of how the wind turbines are operating, meaning
5 are they operating at the speed of the conditions or are
6 they -- do you have proof of that?

7 A. Yeah. We get a log of what the megawatt output was
8 for all the units as a function of time over the survey
9 so we can identify if there's any down for maintenance or
10 anything else.

11 Q. And can you tell whether they're operating at the
12 normal level they would when they just do it on their
13 own?

14 A. Yeah. Because we also get the wind speed throughout
15 the survey, and once the wind speed gets above usually
16 7 meters per second, they're at full power.

17 Q. Okay. I think there's just one more.

18 MS. JENKINS: No. I have no more questions.
19 Thank you.

20 THE WITNESS: All right. You're welcome.

21 MR. DE HUECK: Ms. Pazour.

22 RECROSS-EXAMINATION

23 BY MS. PAZOUR:

24 Q. I have a question for you. Like infrasounds next to
25 a wind turbine, like with somebody that's sensitive to

1 noise, would that be more bothersome for them?

2 A. If that person had this particular sensitivity that
3 we've been talking about, then yes.

4 Q. Like somebody with like a -- like a hearing aid.

5 A. No. No. I don't think that would make any
6 difference.

7 Q. With the ear or nothing?

8 A. Huh-uh.

9 MS. PAZOUR: Okay.

10 MR. DE HUECK: Did you have anymore questions?

11 CHAIRWOMAN FIEGEN: She can just word it, and
12 you'll make a decision.

13 MR. DE HUECK: Just throw it out there. Throw
14 it out there.

15 Q. I guess, is it possible between infrasounds and
16 reversible systems that the inner ear could feel
17 infrasounds?

18 A. That sounds like a question for one of those doctors
19 mixed up in this thing.

20 MS. PAZOUR: Okay.

21 MR. DE HUECK: Okay. Mr. Hessler, thank you for
22 your testimony. You're excused.

23 (The witness is excused.)

24 MR. DE HUECK: We'll break for lunch and plan on
25 getting things rocking at 1:45.

1 (A lunch recess is taken.)

2 MR. DE HUECK: Welcome back, everyone. We're
3 going to get back in our proper order. We're back in
4 session in EL18-026.

5 I guess we are missing an Intervenor, but I'm
6 sure she'll be here soon. And we'll let Reece continue
7 with his case in chief and call his next witness.

8 MR. ALMOND: Intervenors call Rick James.

9 MR. DE HUECK: Mr. James, we can see you up
10 there on the Skype TV. And welcome to South Dakota.

11 MR. JAMES: Thank you.

12 MR. DE HUECK: My name is Adam de Hueck. I'm
13 the hearing examiner for this proceeding, and I'm going
14 to go ahead and swear you in.

15 (The oath is administered by Mr. de Hueck.)

16 MR. DE HUECK: You are sworn in.

17 Go ahead, Mr. Almond.

18 DIRECT EXAMINATION

19 BY MR. ALMOND:

20 Q. Mr. James, can you introduce yourself to the
21 Commission and briefly describe your education and
22 experience?

23 A. My name is Richard James. I go by the name Rick for
24 all practical and business persons, Rick James. I'm an
25 acoustician who has been working in the field of

1 measurement noise and the impact of noise on people since
2 the late '60s, officially 1972 after I formed a new
3 company.

4 I started working for Chevrolet Motor Division and
5 left them to form my own company in 1972.

6 In the intervening years my companies -- and I had
7 two -- became the consultants who were considered the
8 subject matter experts for noise to corporations like
9 General Motors, Goodyear, Anheuser-Busch, major
10 corporations who had both employee issues and who desired
11 to keep their names out of the newspaper for noise
12 complaints with community noise.

13 So my focus has always been on how do you design a
14 new project or how do you operate a project so as to
15 minimize the adverse impacts on a community and on
16 workers, although it's less of an issue here. And I am
17 very much a pro business acoustician, but my focus is not
18 on getting the project done one way or the other. It's
19 getting a project done that's compatible with a host
20 community.

21 In 2006 due to some serious health issues with my
22 heart, my partner and I closed my old company,
23 James Anderson & Associates, and I decided that I would
24 go into semiretirement. Shortly thereafter, actually
25 almost immediately thereafter, I started getting calls

1 from people in Michigan where wind projects had been
2 proposed. One of those wind projects is actually one
3 that Mr. Hessler worked on back in the late 2000s.

4 My first analysis of that was these machines don't
5 belong in quiet rural areas. They're going to cause a
6 problem. And I presented that to the County
7 Commissioners, but they decided to build the project my
8 way.

9 Since then I have focused mainly on wind turbine
10 noise, although I do other types of complaint-driven
11 noise generally as an expert related to hearings like
12 this or lawsuits. I don't seek out just general
13 business. At 70 years old I need a little bit of time
14 off.

15 Over the past 10 years I've really become very
16 interested in one issue of why is it that wind turbines
17 which don't produce high levels of audible noise as
18 measured on a dBA scale generate so much complaints, and
19 why are we seeing symptoms such as dizziness, tinnitus,
20 migraines, pressure, odd sensations that have nothing to
21 do with audible sound? And so that's led me into the
22 area of kind of going into detail into infrasound.

23 Q. I think that's a good recap of your experience,
24 unless you want to add anything in addition to that that
25 you think --

1 A. Well, I was just going to add one thing. In 2009 I
2 had an opportunity to use very high end acoustical
3 equipment, and that was the first time we managed to
4 measure the infrasound pulses from wind turbines.

5 The measurement methods that I used were the same
6 ones that the Shirley Wind study team used. And since
7 then I have focused basically on that type of
8 measurement, along with microbarometers.

9 So I'll open it up for any of your questions,
10 Mr. Reece.

11 Q. Thank you, Mr. James.

12 Did you prepare prefiled testimony in this matter?

13 A. Yes, I did.

14 Q. And that prefiled testimony has been marked as
15 Exhibit I-1. I understand you want to make a change to
16 that testimony?

17 A. Yes, I do.

18 Q. And what change to the testimony do you want to
19 make?

20 A. This is on page 1, line 24. The question is, "What
21 experiences have you had that qualify you as a," and it
22 currently reads, "health expert in cases involving wind
23 turbine noise?"

24 I would ask that the words "a health" be scratched
25 out and be replaced with "an acoustical."

1 So it would read, "What experiences have you had
2 that qualify you as an acoustical expert in cases
3 involving wind turbine noise?"

4 Q. Are there any other changes to your prefiled
5 testimony that you'd like to make?

6 A. None that are substantive.

7 Q. And along with your prefiled testimony were there
8 exhibits attached to that?

9 A. Yes, there were. There were five exhibits.

10 Q. I count six.

11 A. Six. Excuse me.

12 Q. And those have been marked as Exhibits I-1A through
13 F.

14 A. That's correct.

15 Q. And during the course of this proceeding did you
16 have an opportunity to respond to some questions raised
17 by the PUC Staff via a data request?

18 A. Yes, I did.

19 Q. And I don't know if you have Exhibit I-34 in front
20 of you.

21 A. Yes, I do.

22 Q. Okay. And are those the responses that you provided
23 in response to questions raised by PUC Staff?

24 A. Yes, they are.

25 Q. At least responses next to your name?

1 A. Yes.

2 Q. And if I were to ask you all of the questions that
3 are included in your prefiled testimony, as well as those
4 questions that the PUC Staff asked you, would you give
5 the same answers today?

6 A. Yes, I would.

7 MR. ALMOND: At this time I'd move for the
8 admission of Exhibit I-1 as well as Exhibits I-1A through
9 F.

10 MS. EDWARDS: No objection from Staff.

11 MR. DE HUECK: I'll hear any objection from
12 Prevailing Wind.

13 MS. SMITH: No objection.

14 MR. DE HUECK: So admitted, Mr. Almond.

15 Q. Mr. James, were you listening in to the testimony
16 from earlier this morning?

17 A. I was able to hear parts of it.

18 Q. And there was some discussion about the measurement
19 of infrasound, how to do it, et cetera. Have you ever
20 measured infrasound?

21 A. Yes, I have.

22 Q. And how far have you measured infrasound -- let me
23 ask you a different question.

24 Have you ever measured infrasound generated by a
25 wind turbine?

1 A. Yes, I have. Very specifically, wind turbine
2 infrasound as contrasted to other types of infrasound
3 from wind. Low frequency trucks, et cetera.

4 Q. And in your -- how many times have you measured
5 infrasound generated by wind turbines?

6 A. I probably measured infrasound in over 50 homes
7 ranging from projects here in the U.S., Ridgetop Projects
8 out west to -- in Oregon, New York, Massachusetts, Maine,
9 West Virginia, Michigan, Wisconsin, Illinois. Pretty
10 much almost all of the states.

11 And those measurements are always inside a home
12 because it is almost impossible to get an accurate
13 infrasound measurement outside of a home.

14 Q. And in your experience -- and I think a question was
15 asked earlier, approximately how far infrasound from a
16 wind turbine can travel.

17 Can you answer that question?

18 A. Yes. And if you'd give me permission, I'd like to
19 reference one of my exhibits, which gives a visual
20 depiction, and that is -- I guess it would be my
21 Exhibit 5, which was three pages of densely annotated
22 color charts.

23 Q. And I think you're referring to what your Exhibit 6
24 was, which was Exhibit I-1F. And it's a three-page
25 exhibit with colorful graphs. Is that what you're

1 referring to?

2 A. That's what I'm referring to, yes. Colorful graphs.

3 Q. Okay.

4 A. Pictures.

5 If we could look at page 3 of that exhibit, I'll
6 explain it because I'm sure that it's not
7 self-explanatory to most people.

8 These two graphs, the top one and the bottom one,
9 represent measurements using a microbarometer, and that's
10 an instrument designed specifically to measure infrasound
11 that was left in a home. In both cases -- the one on top
12 represents a home that's actually the same home that
13 Mr. Hessler was talking about, R-1 from Shirley Wind,
14 where the people living in it were very sensitive to the
15 infrasound, and the top one shows a period of about, oh,
16 let's say 12 hours or so from the left to the right.

17 The bottom one is a home four miles away over much
18 of the same period. If you look at the big circle
19 with -- the big white circle with the dashes, those two
20 correlate to the same time period.

21 What we're looking at in the top graph, you'll see
22 these horizontal bands of light blue lines. Those are
23 the spikes or the tones produced by the wind turbine
24 blade as it passes in front of the tower, releasing the
25 energy causing a pulse. And when we look at it over --

1 compressed into like a 12-hour window they begin to look
2 like narrow bands. This is actually specific enough in
3 this case you can see where the solid circle is on the
4 top. You can see the wave. And that shows that the wind
5 turbines that were being measured were changing in RPM.

6 So we can trace -- using this kind of a method we
7 can trace very specifically the sound from a wind turbine
8 as contrasted to other sounds.

9 If we look over at the right-hand side of that
10 graph, just to the right of the white solid circle, we
11 see a period where wind turbines aren't operating. And
12 so the comparison between what's happening in the home
13 when the wind turbines are operating within that dashed
14 circle and then when they're not is dramatic. We see
15 that there's no longer any tones. There's also a lot
16 less scatter on the bottom, the red and yellow spikes
17 along the bottom.

18 We come down to the bottom graph. This shows a home
19 for the same period of time roughly four miles away. And
20 we can see within the dashed circle there that even at
21 four miles these horizontal bands, which represent the
22 wind turbine tones, are still distinctive.

23 So what this shows is that even at a distance of
24 four miles infrasound inside a home is measurable, and
25 the occupant of that home, the reason we were there was

1 reporting to the Brown County Board of Health that she
2 was suffering headaches whenever the wind turbines
3 operated.

4 Now when I investigated the home I found that it was
5 impossible to see the wind turbines from their home.
6 They're actually down in a little valley with a hill
7 separating them from the wind turbines so there wasn't
8 even a line of sight.

9 My point here is that people who say that wind
10 turbine noise blends in with the background infrasound or
11 that it's not measurable beyond a short distance, really
12 that's a result of them not having the right tools and
13 not having the right analysis methods. Properly
14 analyzed, a simple instrument like a microbarometer
15 produces very clear graphs.

16 And this has now become a norm within measuring wind
17 turbine infrasound that microbarometers are the preferred
18 tool because of their simplicity and the durability. A
19 infrasonic microphone is very delicate, very expensive.
20 A microbarometer is durable enough you can drive a truck
21 over it if you need to.

22 So that's my explanation for how far. And also to
23 show just how clearly wind turbine infrasound can be
24 defined when properly measured.

25 Q. And have you had the opportunity to review that

1 German study that was attached to Dr. Roberts's Direct
2 Testimony?

3 A. Yes, I did.

4 Q. That discussed the measurement of infrasound and
5 seemed to suggest that infrasound dissipated at 700
6 meters?

7 A. Yes.

8 Q. Do you have a response for that?

9 A. Yes. And I believe this corresponds fairly well
10 with what Mr. Hessler said this morning.

11 When you have a microphone outside, any air movement
12 over that microphone will generate what's called pseudo
13 noise. It looks like noise, but it's really just the air
14 movement causing the microphone diaphragm to move. So
15 it's not surprising that they were doing tests outside
16 and couldn't find any difference between the wind
17 turbines on or off because they weren't measuring --

18 They weren't measuring wind turbine infrasound.
19 They weren't measuring ambient wind turbine sound or
20 nonwind turbine sound. They were really just measuring
21 the artifact of wind blowing over the microphone.

22 This is a common mistake. I've seen it in
23 Australian studies. I've seen it in others.

24 The other mistake in that report is that they
25 started with the premise that unless the sound pressure

1 levels were sufficient to be audible -- this is the
2 threshold of audibility -- that they weren't of any
3 significance.

4 And what we have found -- in fact, we've known since
5 the 1980s when Dr. Neal Kelly first did an experiment
6 using pressure pulsations. What we found is when the
7 infrasound is pulsed, when it occurs as a whoomp, whoomp,
8 whoomp, although you feel it rather than hearing it, that
9 the human vestibular system can pick that up.

10 And the sensations, when they're picked up, when
11 people have that sensitivity -- we can get into
12 Dr. Schomer's paper later that explains how that happens.
13 But when the vestibular system is triggered the body
14 tends to produce nausea.

15 It's an impact caused by the eyes are giving a
16 certain input. The body sensations don't pick up
17 movement. But we have vestibular data saying something's
18 moving. The end result of that is people get dizzy or
19 they get nauseous or they have headaches.

20 Q. Thank you, Mr. James.

21 Are you familiar with the Steven Cooper study that
22 we've been discussing quite a bit this morning?

23 A. Yes. I've worked with Steven Cooper since my first
24 paper in 2010 demonstrating how to measure the infrasonic
25 pulses. Steve modeled his study at Cape Bridgewater

1 after the design that we used at Shirley and at other
2 studies.

3 I also helped him in his analysis of his data, and
4 I'm quite familiar with it.

5 Q. And did you hear testimony from Mr. Hessler this
6 morning that said once he saw this Cooper study it really
7 linked up, in his opinion, the issue of infrasound and
8 the complaints related thereto?

9 I guess can you just expand on that or comment on
10 that and how that relates to everything you've just been
11 talking to about infrasound?

12 A. Okay. Yes. I can expand upon it.

13 As I said, back in the 1980s Dr. Neal Kelly working
14 for the Department of Energy and NASA did a study of
15 early model wind turbines and the complaints of -- the
16 similar complaints of dizziness, nausea, tinnitus,
17 headaches, et cetera, and he concluded that it was from
18 an infrasonic pulse caused by the blade passing in front
19 of the tower.

20 The wind industry was aware of that -- it was
21 presented at conferences -- but has chosen instead to
22 argue, and do so very effectively, that unless the
23 pressure pulses exceed the threshold of audibility, that
24 they can't be perceived. The source of that is an
25 acoustician in Britain called Dr. Jeff Leventhal who said

1 if you can't feel it, you can't hear it. I mean, if you
2 can't hear it, you can't feel it.

3 The problem here is Dr. Kelly proved him wrong four
4 years after he made that statement. But that concept of
5 that infrasound has to exceed the thresholds of
6 audibility has been promoted very heavily through other
7 acousticians who have picked up on it, not done the
8 proper research, and have repeated test after test
9 saying, well, I've tested wind turbines in Australia and
10 they don't exceed the threshold of audibility so there
11 can't be any problem.

12 But there is a problem. In fact, the German paper
13 you referenced earlier made an interesting comment. They
14 said they noticed some tones at the very low frequent
15 infrasound, but those didn't matter. Actually those are
16 the ones that matter.

17 So that whole German paper and many of the others
18 that are similar to it have consistently ignored the
19 place where the problem is, looked at places where the
20 problem is not, and then concluded there is no problem,
21 which whether for the purposes of pleasing a client or
22 through improper research has led to the confusion we
23 have.

24 We know that -- we know that infrasonic pulses can
25 be perceived. My home office where I'm sitting right now

1 is on the flight path between Detroit and Lansing for
2 helicopters. The Governor comes in and out of this area
3 all the time. I can hear that helicopter coming, the
4 thump, thump, thump of its blades, long before it's
5 audible.

6 I've had many people who were combatants in either
7 Vietnam or the Iraq wars who said they can also feel
8 infrasound long before it's audible. With people --

9 I wrote a paper in 2012 on sick building syndrome --
10 other evidence. When people are in large buildings and
11 the large high-rise buildings, knowledge worker high-rise
12 offices, if the fan is a little bit out of balance, it
13 causes a pulse, and people begin to make the same
14 complaints.

15 Acousticians who have dealt with these low frequency
16 problems over the years have no problem understanding why
17 people in homes in wind projects are having complaints.
18 It's the acousticians who have not dealt with that who
19 seem to be causing the confusion.

20 Q. Thank you, Mr. James.

21 I want to switch topics now away from infrasound and
22 focus -- talk a little bit more on your prefiled
23 testimony, page 3, and the ANSI Standard ASA S12.9 and
24 this notion of modeling the community's response to a new
25 project.

1 And I think we heard some testimony earlier from
2 Mr. Hessler so if you could just explain how that concept
3 ties into this project.

4 A. Well, there are standards that we follow as
5 acoustical professionals to try to guide our work. One
6 of them is the standard ANSI/ASA -- I'm reading line 69
7 of page 3, S12.9, Part 4, Noise Assessment and Prediction
8 of Long-term Community Response.

9 This is a standard designed, for example, when I was
10 designing noise for new automotive plants, that I would
11 refer to as a way to determine what would be the type of
12 levels that would be acceptable.

13 That standard includes a caution in Part 4 of
14 Appendix F that says, F3.4.4, "In newly created
15 situations, especially when the community is not familiar
16 with the sound source in question, higher community
17 annoyance can be expected, and that difference is worth
18 up to 5 dB."

19 Also if there's -- in quiet rural communities
20 there's a greater expectation for peace and quiet worth
21 10 decibels. And if you take the two factors, and for a
22 project like Prevailing Winds both would apply, what this
23 is saying is that guidelines that would be compatible in
24 the suburban environment, for example, 45 dBA need to be
25 reduced either by 10 or 5 dB to result in the same level

1 of annoyance for a quiet rural environment.

2 And it's this part of -- it's this part of our
3 professional standards that seem to be routinely ignored
4 by people like Mr. Howell. We can't quibble -- we can't
5 equate annoyance potential for a community that is rural
6 residential to one that is more adjusted to noise.

7 If people come to the wind turbine project, then
8 they have no expectation of quiet. But they move there
9 with the expectation of peace and quiet. The project's
10 coming to them. Therefore, the burden should be on the
11 project developer to not increase annoyance.

12 And levels of 40, 45 dBA, as I show in my testimony
13 with the Health Canada, will result in about one out of
14 every 10 people -- one out of every 15 people
15 being highly annoyed. And highly annoyed means they're
16 annoyed enough that over a long-term we have health
17 effects, whether the annoyance is due to sleep or due to
18 dizziness or nausea. Whatever the high annoyance may be,
19 the result is that over periods of weeks or months it
20 leads to deteriorating health.

21 And that's what this whole section of ANSI is trying
22 to avoid. When you have people whose lifestyle is for
23 quiet -- they sleep with their windows open. They enjoy
24 the outdoors -- then a new noise source that may have
25 been more than acceptable in an urban environment or

1 suburban environment becomes a serious source of
2 complaints.

3 Q. And have you seen the ambient measurements taken for
4 this project area?

5 A. Yes, I have.

6 Q. And what are the -- what's your opinion in terms of
7 this area and the ambient measurements of the area?

8 A. Well, I looked at the table that Mr. Howell
9 presented. I know he summarizes it as ranging from 21 to
10 45 dB. And the only columns on those that are of
11 significance for background sound are those labeled L90,
12 the 90th percentile. The Leqs are of little use for
13 anticipating annoyance. But he says the range is 21 to
14 45.

15 Well, 45 dB is an outlier. There's no way that a
16 normal, rural community background sound would be that
17 high. But if we look at the table for trends, we can see
18 that even at 10 o'clock in the morning, 5 o'clock in the
19 afternoon, and at midnight the sound levels in most of
20 those measurement sites were between 22 dB and maybe 28,
21 29 dBA. And that's what I find in rural communities.

22 The other thing is that that includes the sound of
23 normal wind. Not high winds. And then I heard
24 Mr. Hessler this morning talking about wind noise masking
25 wind turbines. That's not the time when people have

1 their complaints. They complain about it when it's a
2 quiet night, no wind at the ground, and the wind turbines
3 overhead are whooshing away.

4 So this background sound level issue is critical.
5 We know that if -- we know that if the project was
6 designed to not increase that level significantly, then
7 we'd have few complaints. But we see a project here that
8 looks like it's going to raise the levels anywhere from
9 10 dB or higher at many of these homes, and that is --
10 that is just a prescription for complaints once the
11 project is permitted and operating. There will be
12 complaints.

13 Q. And just to be fair, you've never been to the
14 project area, have you?

15 A. No, I haven't. But I've been to many similar
16 projects in Iowa, Illinois, Indiana. All over the --
17 principally east of the Mississippi. But I've also been
18 involved in projects out in Oregon. And in many of these
19 cases because they were parts of formal proceedings, I
20 was privy to the data that the opposing party's
21 acousticians had taken and able to re-analyze it.

22 And based upon what I have seen in those studies and
23 what I can see about Prevailing Winds, I think I have a
24 reasonably good understanding of the Prevailing Wind
25 project.

1 Q. And you said there was no way that one measurement
2 was 45. And to be fair to Mr. Howell, you don't know
3 exactly what was there next to that measuring tool.
4 There could have been a grain elevator or something like
5 that.

6 But you're exaggerating when you say no way; right?

7 A. Well, no way that that's a background sound. A
8 truck could have driven by that had a bad muffler. When
9 we're taking averages with a sound level meter a single
10 loud noise has a very significant impact.

11 So let's say the sound level was 30 and a truck
12 drives by at 55 but it's only there for a minute, that
13 could easily give you a 45 average over the limit. Or an
14 L90 could mean that they parked the truck and was there
15 for the full 90 percent of the time.

16 Either way, a 45 dBA sound level at -- in a rural
17 community means that something not related to the
18 background sounds -- background sounds are those things
19 you hear from a distance. They're not the things up
20 close.

21 They're when you walk outside at night you can hear
22 the barking dog in your neighbor's farm a quarter-mile or
23 a half-mile away. Those sounds that you hear are the
24 background sound, and that's what our auditory system
25 uses as the basis for assessing annoyance. It's always

1 comparing the sound it's hearing to those quiet periods.
2 And that's why when you put a noise source into a quiet
3 community you can expect complaints.

4 Q. And the question was raised earlier about whether or
5 not once a noise source is introduced to a quiet area if
6 the area will just get used to that noise source.

7 Can you respond or answer that question?

8 A. Yeah. I can respond to that. I'll first respond
9 with a study that was done in Britain back in the 2000s
10 in which they found that, given time, complaints don't
11 decrease. They increase.

12 Or the people become so resolved to the fact that no
13 one will listen to their complaints that they what I say
14 suffer in silence. Or they abandon their homes.

15 Ontario where there are many projects designed to
16 meet a 40 dBA criteria now have abandoned homes all over
17 the rural communities because people have just left them.
18 Or they were elderly, and when they passed away the
19 family just left them to deteriorate.

20 Having the experience of dealing with people who are
21 the -- who are living in wind projects and who find
22 something objectionable, I call them the complainant, has
23 made me really sensitive to how the ANSI standards about
24 expectation of peace and quiet come into play. And so --
25 I'll see if that answered your question.

1 Q. Thank you, Mr. James.

2 Were you listening in when Mr. Hessler opined on the
3 number of people who have complained about infrasound or
4 complained about the symptoms that they believe were
5 caused by infrasound and that he believes that the number
6 of people who -- you know, who have that sensitivity to
7 infrasound is very small?

8 Did you hear that testimony?

9 A. Yes. Yes, I did.

10 Q. Do you want to respond to that?

11 A. Well, many of the projects that I've studied are
12 projects that Mr. Hessler and his father developed. And
13 while he may not be aware that complaints occurred, I am
14 constantly in contact, usually as the recipient of
15 e-mails saying here's another day when I couldn't take
16 it.

17 What happens in the communities -- and the Wisconsin
18 communities in the middle of the state have had wind
19 projects now for almost 10 years -- A, the complaints
20 have not stopped. B, the complaints have increased.
21 And, C, the reason why nobody does anything about it is
22 once a project is permitted no one has the funds to
23 contest it.

24 In Brown County, for example, they declared a
25 two-and-a-half-mile radius around Shirley Wind as a human

1 health hazard. That's a Wisconsin legal definition for
2 an area that has a problem and they want to notify the
3 public.

4 When the operator of Shirley Wind was asked to
5 respond to that they just denied that there was any
6 problem. That denial has gone on now for almost eight
7 years, leaving the Brown County Board of Health having
8 monthly meetings on noise and concluding that even the
9 City of Green Bay and the town of -- the County of Brown
10 do not have the funds to pursue a lawsuit against the
11 utility.

12 So what answer is there? The answer is it needs to
13 be done right the first time. Once that project is
14 permitted, if the complaints occur, there is no solution
15 that is economically viable, and the imbalancing of
16 funding between the operators and the local communities
17 or, for that matter, a complainant trying to file a
18 lawsuit is so unbalanced that there will be very little
19 chance of success.

20 Get it right the first time, or you live with it
21 forever.

22 Q. And have you seen how the Applicant wants this
23 project to be measured in order to comply with a 45 dBA
24 limitation? Have you seen that?

25 A. I don't know if I remember. I heard Mr. Hessler

1 talking this morning about several weeks worth of
2 measurement and an average level or something like that.

3 Q. Yeah. The measurement is over a two-week level.

4 A. Yes. That completely misses the point. Annoyance
5 is not about a long-term average --

6 MS. SMITH: I'm going to object. I'm not sure
7 the witness has seen what is being asked. And I would
8 also say this is going far beyond the scope of the
9 Direct Testimony.

10 MR. DE HUECK: I was thinking the same thing,
11 that we're having new Direct Testimony introduced on
12 today's date. Though I appreciate you fleshing out some
13 of the unanswered questions just as the Applicant does
14 when they call a witness as well. This one just talks a
15 lot more.

16 So just keep in mind that we don't need new
17 filed testimony today orally. And, additionally, if you
18 could clarify how sound will be measured for this project
19 before we go any farther.

20 Q. Do you have access to Exhibit A33, the PUC's web
21 portal in front of you?

22 A. I will pull it up here. Prefiled exhibits. It's
23 A --

24 Q. 33. It's proposed condition --

25 A. A33. Okay. Proposed conditions.

1 Q. Yep. Number 27. If you could read that quickly,
2 please.

3 A. Okay. That was basically what I understood.

4 Q. And if you could explain whether you believe that's
5 an appropriate way to measure any limitation on noise,
6 and why or why not.

7 A. That is not an appropriate way to measure wind
8 turbine noise. The reason being that if you measure over
9 a period of at least two weeks, the average level will
10 always be low because there's periods when the wind
11 turbines don't operate.

12 And the condition that we're trying -- or the
13 characteristic of wind turbines that cause annoyance have
14 nothing to do with the long-term average. They have to
15 do with short-term fluctuations.

16 If, for example, we did a long-term average and it
17 came out to 40 dBA Leq but we then looked at how the
18 sound fluctuated around that, we would see that there
19 were periods when it might have been 55, periods where it
20 might have been 35. It's these fluctuations above and
21 below the average that cause the annoyance, cause sleep
22 disturbance, and are the root of the complaints.

23 So using a long-term measurement as a criteria is
24 essentially an open door to the project creating
25 annoyance and there being no method whatsoever then to

1 ask for mitigation because over a two-week period it will
2 always average less than 45, particularly if we're
3 looking at a project that was designed where we now say
4 the maximum levels are 42, let's say, dBA Leq.

5 It's the fluctuation that is important, and that's
6 why in my testimony I referenced the use of Lmax or an
7 L10 or some other measurement that looks at the peaks.
8 When someone describes a wind turbine -- and Mr. Howell
9 did -- a whooshing sound.

10 A whoosh when you describe it means that there is a
11 sound that rises and then falls. What we should be
12 trying to do is eliminate that whooshing sound by
13 controlling how much it can rise. And in our Michigan
14 cases, which I think Dr. Punch referenced, we said
15 45 dBA.

16 Q. I think you've answered the question.

17 And I've got to push back on you here a little bit
18 because if you read Condition No. 27, it actually, I
19 think, calls to not take into account when the wind
20 turbines are operational.

21 If you can look at line 4.

22 A. Yes, it does. But wind turbines operate over a
23 broad range.

24 Mr. Hessler, for example, in his NARUC document said
25 that measurements will be plus or minus 5 dB around the

1 predicted mean. So there will be periods during that two
2 weeks where that wind turbine -- let's say it was 40 --
3 is running at 35, and there will be periods where it's
4 running at 45. And the complaint times are when it's
5 running at 45, not the average over those times.

6 If we were going to use an Leq or an average as a
7 criteria, it should be a short-term average, a 10-minute
8 average, because anything else is not looking at the
9 characteristic we're trying to control, which is the
10 fluctuating low frequency noise.

11 MR. ALMOND: Thank you, Mr. James. I don't have
12 anymore direct for you. We will turn this witness over
13 for cross.

14 MR. DE HUECK: Mr. James, I'm now going to turn
15 you over for cross-examination, and we'll begin with the
16 Applicant, Prevailing Winds.

17 THE WITNESS: Okay.

18 MR. DE HUECK: We're just going to move our
19 video camera over to the attorney who will be questioning
20 you.

21 (The camera is adjusted.)

22 THE WITNESS: I have no audio on this end.

23 MS. SMITH: I think we're all just very quiet
24 Mr. Hessler -- or Mr. James. I apologize.

25

CROSS-EXAMINATION

BY MS. SMITH:

Q. Mr. James, my name is Mollie Smith. You will see me. I'm raising my hand, if you can see me. I'm over here.

Do you have anyone in the room with you?

A. No, I don't.

Q. And do you have any documents in front of you other than your filed exhibits or the filed exhibits in this case?

A. No, I do not.

Q. You haven't conducted any acoustic modeling related to the Prevailing Winds project; is that correct?

A. No, I have not.

Q. And I would -- that was not part of the scope of your work why you were retained?

A. No, it was not.

Q. And you also did not conduct any analysis of existing sound levels at the project site; is that correct?

A. That is correct. I relied upon the information from Mr. Howell.

Q. And you did not conduct any site-specific surveys of either low frequency or infrasound for the project area. Is that also correct?

1 A. I relied upon the information from Mr. Howell's
2 reports.

3 Q. In your testimony you indicate that the purpose of
4 your testimony is to provide your opinion regarding
5 appropriate thresholds for audible and inaudible wind
6 turbine sound at nonparticipating properties; is that
7 correct?

8 A. That would be fair to say, yes.

9 Q. So given, as you just noted, that you didn't conduct
10 any site-specific studies, you're relying solely on the
11 information that's either provided by others in this
12 docket -- you're not relying on your own data for the
13 project; correct?

14 A. As I explained earlier, I have studied many
15 projects, similar conditions with similar wind turbines,
16 and I relied upon that plus Mr. Howell's data.

17 Q. Okay. In your testimony you indicate that you
18 believe the noise limit should be imposed at the property
19 line; is that correct?

20 A. That's correct. The reason for that is so that
21 the --

22 Q. You did not cite -- excuse me.

23 You didn't cite any specific data to support that,
24 did you, in your testimony? Did you cite any specific
25 data in your testimony to support that statement?

1 A. I stated that -- yes, I did, in my testimony.

2 Q. Can we go to your testimony, please.

3 MR. ALMOND: Can the witness be allowed to
4 answer the questions without being interrupted?

5 MR. DE HUECK: Everything's fine as is.

6 A. Page 6, line 174?

7 Q. Yes. And so I'm looking at the first lines -- 175
8 through 177. It says, "I am a strong supporter of
9 property rights and believe that noise that exceeds known
10 safe levels should not be imposed on people just because
11 they live near a neighbor who wishes to host wind
12 turbines. This position influences my response to this
13 question."

14 There's no citation here for any source to support
15 that statement, is there?

16 A. Just my belief that I've grown up in the
17 United States where property rights are protected by the
18 government.

19 Q. So that's your personal opinion?

20 A. I think that's personal and legal.

21 Q. You're not testifying as a medical expert; is that
22 true?

23 A. That's correct.

24 Q. And you're not a licensed physician; is that also
25 correct?

1 A. That would be obvious, yes.

2 Q. And you are not testifying as an economics expert;
3 is that also true?

4 A. That's correct.

5 Q. And you're not testifying as a psychology expert; is
6 that also true?

7 A. Only to the extent that acousticians are
8 cross-trained in both health and psychology because,
9 otherwise, when you investigate complaints you are
10 hampered.

11 I have 45 years of investigating complaints, and I've
12 learned a lot about people and psychology that would not
13 be tossed in a court. So, yes, I have some background,
14 but it's experience.

15 Q. It's experience. You're not a licensed
16 psychologist?

17 A. That's right.

18 Q. And yet in your testimony you provide statements
19 regarding health effects from wind turbines; is that
20 true?

21 A. That is correct. Because as an acoustician I've
22 been trained to read medical journals, to interpret them
23 for my purposes.

24 MS. SMITH: Object.

25 Q. I didn't ask -- you offered health effects testimony

1 in your written testimony; is that true?

2 A. Only those within the scope of my profession.

3 Q. Are your opinions based on complaints that you have
4 heard from people?

5 A. My opinions are based upon complaints and my own
6 personal experiences.

7 Q. And, again, you're not a medical doctor; is that
8 true?

9 A. That's true. But I don't see the relevance to your
10 question.

11 Q. So you have not conducted a medical examination on
12 any of the people that have provided complaints to you.
13 Is that also a fair statement?

14 A. No. But I've reviewed the medical records that the
15 doctors provided.

16 Q. I only asked you if you --

17 Did you rely on other people's work for this as
18 well, other people's studies for your opinions?

19 A. Yes. The reports from medical doctors who have
20 examined my clients.

21 Q. Would you agree that anyone who is relying on other
22 people's work that the -- what they're relying on has to
23 also be credible?

24 A. That is true. But that's the -- that's the purpose
25 of an expert to make that decision --

1 Q. I'm just going to ask you, Mr. James, if you can
2 just answer my question because I don't -- you'll have
3 your opportunity to elaborate if your counsel so chooses
4 to ask you additional questions.

5 You provided some exhibits with your testimony; is
6 that correct?

7 A. That is correct.

8 Q. And I believe -- and I may have not the same
9 numbering so I will try to look at the versions that are
10 online. Mine are sort of 5 and 6 to your testimony,
11 which may be -- I'll see if I can find yours.

12 So I think it is listed as maybe I-1E and I-1F. It
13 may also be 5 and 6 on yours. I have two different
14 labels.

15 A. Okay. Just give me the titles. I'll be able to go
16 from there.

17 Q. Let's see here.

18 So I believe that 5 -- what I'm looking at is -- one
19 was one that you referenced previously with the colored
20 charts, so I think that was the last exhibit to your
21 testimony.

22 A. Okay.

23 Q. Then the one right before that one, which also has a
24 wind turbine and a chart.

25 A. Those are the two you're looking at now?

1 Q. Yes.

2 A. Okay.

3 Q. Neither of those exhibits address health effects; is
4 that correct?

5 A. They explain the --

6 Q. Do they address health effects?

7 A. No. They're not on health effects. No, they're
8 not.

9 Q. Okay. Thank you. And if you look back one exhibit,
10 so that would be 3 or D, I believe -- so this is a
11 possible criterion for wind farms.

12 A. Okay.

13 Q. That also does not address health effects, does it?

14 A. Indirectly it does.

15 Q. It does not directly address health effects, does
16 it?

17 A. The recommendation from Dr. Schomer included the
18 consideration of health effects. He mentions the Health
19 Canada Study, which is about health effects --

20 Q. Does this paper itself address health effects? Not
21 the citations. Does the paper itself address health
22 effects?

23 Do they offer any opinions on health effects in this
24 document?

25 A. Without having to read it very carefully, I'll say

1 it was not directly about health effects. It was about
2 the criteria needed to prevent them.

3 Q. If we look then at the noise wind farms article, so
4 that would be 2 or B to your --

5 A. Okay.

6 Q. If you could turn to the last page in that article.
7 And I -- hold on. I think it would be actually page 13.

8 A. Yes.

9 Q. Make sure I'm looking at the correct one here.
10 So if we look under Conclusions at the -- I'm going
11 to read the last sentence of the first paragraph under
12 the Conclusion.

13 It says, "Unfortunately then for policymakers there
14 appears to be no proportional relationship between wind
15 turbine noise levels and health as these outcome factors
16 will be influenced by characteristics associated with
17 both the noise and the listener."

18 Is that accurate?

19 A. That is an accurate way of stating a complex set of
20 relationships, not just --

21 Q. I'm just asking if that is an accurate recitation of
22 the statement in the article.

23 A. It can't be answered yes or no.

24 Q. Are those the words on the page?

25 A. Those are the words on the page, yes.

1 Q. And if you'll turn then to Exhibit 4, this may also
2 be D. This is called a theory to explain some
3 physiological effects of the infrasonic emissions at some
4 wind farm sites.

5 A. Okay. I'm going to that now.

6 Q. And if you'll look at pages 1,364 I think it is,
7 Section 6, it says, "Additional research and data
8 collection recommendations."

9 A. Okay.

10 Q. If you look under that it says, "Research to date
11 does not tend to just study the effects on humans
12 reported anecdotally in what is probably a minority of
13 wind farms."

14 Is that an accurate statement?

15 A. I think Dr. Schomer believed that at the time he
16 wrote the paper. Since then he's seen Steve Cooper's --

17 Q. I'm just asking about the --

18 (Discussion off the record.)

19 MS. SMITH: Mr. de Hueck, for Cheri's sake and
20 mine, could you direct the witness to please answer my
21 questions.

22 MR. DE HUECK: Yes.

23 Mr. James, I know you want to elaborate on every
24 single question that's asked of you, but in order for our
25 court reporter to adequately capture this, we can't talk

1 over each other. And I believe Ms. Smith would just like
2 you to specifically answer her questions as asked.

3 Thank you.

4 THE WITNESS: Okay.

5 Q. Mr. James, in that section under Additional Research
6 and Data Collection Recommendations they're actually
7 making recommendations for additional research to do
8 regarding reports; is that correct?

9 A. That is correct.

10 Q. And they provide even a test case in their
11 Appendix A; is that true?

12 A. That is correct.

13 Q. Mr. James, you've been retained as an expert witness
14 in other proceedings; is that correct?

15 A. That is correct.

16 Q. I believe you mentioned that you participated in a
17 case in Oregon; is that true?

18 A. That's correct.

19 Q. So would that be Williams v. Invenergy, LLC?

20 A. That is correct.

21 Q. I'm going to -- Ms. Agrimonti is going to send
22 you -- and maybe we can hand this out too.

23 Give us just a second, Mr. James. We're just
24 handing out -- and Ms. Agrimonti is sending to you what
25 I'm referencing as Exhibit A36.

1 And, Mr. James, if you can let me know when you
2 receive it.

3 A. I have it up in front of me.

4 Q. Okay. And this is an Opinion and Order from United
5 States District Court, District of Oregon case; is that
6 true?

7 A. That is correct.

8 Q. From 2016?

9 A. That is correct.

10 Q. In this case were you excluded from testifying
11 regarding the causal health effects from wind turbines?

12 A. I was excluded from testifying to the cause and
13 effect of wind turbines only to the extent of not having
14 supporting literature because we weren't able to submit
15 it.

16 Q. Can you turn to page 11 of the case.

17 A. I assume these are numbered sequentially?

18 Q. Yes. I believe it's in the lower right-hand corner
19 that you'll see the number.

20 A. Yes.

21 Q. And if you'll look at the very last two sentences of
22 the page -- so the initial -- you'll see a 13. It says,
23 "James." And that James, is that you that it's in
24 reference?

25 A. Yes, it is. Yes.

1 Q. I'll read the bottom. It says, "He has a long
2 career studying the noise and sound pressure produced by
3 industrial wind turbines. However, he is not a doctor or
4 epidemiologist. As a result, he does not have the
5 training to opine that the infrasound and audible noise
6 created by wind turbines activates physiological
7 mechanisms in the body which produce adverse health
8 effects."

9 Do you see that language?

10 A. Yes, I do.

11 Q. And we were discussing the information that had been
12 submitted. The Court also noted that the documentation
13 that you were relying on for your opinions was also not
14 credible; is that true?

15 A. I don't -- I don't remember that specifically. Can
16 you point to that?

17 Q. Certainly. So if we look first at -- let's stay on
18 the same page. I believe you had referenced in your
19 earlier testimony a Dr. Kelly; is that true?

20 A. That's right. I referred to him earlier in my
21 testimony today, Dr. Neal Kelly.

22 Q. And so if we look down at the bottom of page 11 over
23 on the left-hand column towards -- at the very bottom,
24 the bottom paragraph, it says, "However, like James's
25 other sources, the Kelly study has significant scientific

1 shortcomings. First, Kelly takes data from only seven
2 subjects. He admits that the experiment would have to be
3 repeated with a much larger number of evaluators
4 population to confirm his results as scientific
5 knowledge. Moreover, there's no evidence that Kelly's
6 study was published in a reputable scientific journal or
7 that it was subject to any manner of peer review."

8 And I'll skip down to the last sentence. "The study
9 does not support the proposition that wind turbine
10 infrasound is capable of producing broader adverse health
11 effects, including anxiety, panic attacks, and
12 sleeplessness."

13 Is that accurate?

14 A. That's what it says.

15 Q. And if you'll turn back to the prior page, there's a
16 reference to the Cape Bridgewater study as well. And I
17 believe that's on page 10. Do you see that?

18 A. That is correct. Yes.

19 Q. If you look at page 9, it also addresses the
20 Cape Bridgewater study and Mr. Schomer's review of the
21 Cape Bridgewater study on pages 8 and 9.

22 Do you agree?

23 A. I agree there's that -- they're talking about it,
24 but what are you pointing to?

25 Q. If you look at the bottom of page 8, it says, "The

1 Court agrees with defendants that the Schomer documents
2 do not represent reliable scientific knowledge which
3 James may use as a foundation for his expert
4 conclusions."

5 Is that accurate? It's at the bottom of page 8.

6 MR. ALMOND: Objection. Vague. Are you asking
7 if it's -- the statement's accurate, or you're accurately
8 reading the statement or --

9 MS. SMITH: Yes. I apologize. I should be
10 clearer.

11 Q. Am I accurately reading the statement on the bottom
12 of page 8?

13 A. You're accurately reading it. I don't agree with
14 the Court's agreement, but that's fine. Dr. Schomer is
15 the Emeritus Director of the Acoustical Society of --

16 Q. I think that's all. I just needed to know if I read
17 it correctly.

18 Mr. James, have you been excluded or had your
19 testimony in part excluded in any other cases?

20 A. Not in any significant manner other than issues
21 where it treads into medical.

22 Q. So any -- would it be fair to say that you have been
23 disqualified as an expert from testifying regarding
24 health effects?

25 A. Only those that are medical. Not health effects

1 that are visually confirmable.

2 Acousticians have to be able to listen to the
3 complaints --

4 Q. I'm just going to stop you there.

5 MS. SMITH: And I would say that at this point I
6 would move to strike any testimony by Mr. James regarding
7 health effects attributable to wind turbines.

8 MR. DE HUECK: I'll allow Mr. Almond to respond
9 and Staff if you so wish.

10 MR. ALMOND: Yeah. In Mr. James's Direct
11 Testimony, written Direct Testimony, he discusses an
12 acoustician's responsibility to be aware of vague health
13 effects -- the general health effects caused by certain
14 wind turbines, facilities, et cetera when looking at
15 projects.

16 Specifically he talks about -- I mean, it's all
17 throughout his background in his prefiled testimony.
18 Certainly he can't make any medical diagnosis. He's not
19 doing so here. I don't think he's given the opinion that
20 he's making any diagnoses or anything like that.

21 So I'd need to know exactly what opinion it is
22 or what statement Mr. James has made that Ms. Smith is
23 looking to strike, I guess.

24 MS. SMITH: Mr. James is making assertions of a
25 causal relationship between wind turbines and health

1 effects. He is not qualified to do so. He is not --

2 As his own testimony, he is not a medical
3 doctor. He's not an epidemiologist. He's not a
4 psychologist. There's no basis for him. The literature
5 he's relying on is not supportive of that either, as
6 we're seeing. He doesn't have any basis to make those
7 statements.

8 MR. DE HUECK: Go ahead, Staff.

9 MS. EDWARDS: As much as I would like to speed
10 it along, I would argue it goes to weight, not
11 admissibility, and it's an issue that's -- I would intend
12 to brief in my prehearing brief -- posthearing.

13 MR. DE HUECK: Just in terms of Mr. Fuerniss,
14 Ms. Jenkins, and Ms. Pazour, I'm assuming you're in
15 agreement with Mr. Almond?

16 Ms. Smith, I'm going to agree with you. He
17 should not be testifying about any health effects or
18 rendering any expert opinion regarding medical causation
19 or -- along the lines of what you've stated.

20 However, I'm concerned what is it that we're
21 going to strike and who's responsible for pointing that
22 out? Certainly it's not Cheri to go back through the
23 transcript and strike it out. So how do we actually deal
24 with figuring out what statements need to be stricken?

25 To some degree I'd like to allow some of the

1 exhibits he relies on because they're based on
2 infrasound. Not necessarily saying I want to allow it to
3 show that it's causing health effects, but the guy's an
4 expert in infrasound and measuring that type of stuff as
5 an acoustician. Thank you.

6 MS. SMITH: I can address the exhibits.

7 From my read of the exhibits, I don't believe
8 that those would support the causation assertion anyway.
9 So to the extent that I'm not -- I don't have a problem
10 with the exhibits themselves coming in, but his
11 testimony -- and I would be happy to propose in a written
12 format -- take his testimony and strike the portions that
13 I believe should be stricken and provide that tomorrow.

14 MR. DE HUECK: Let's do that.

15 MS. SMITH: Would that be appropriate?

16 MR. DE HUECK: That would be appropriate. So
17 I'm going to go ahead and sustain your objection and your
18 motion to strike, grant that, and we'll figure it out at
19 that point in time.

20 MS. SMITH: All right. Thank you.

21 MR. DE HUECK: And then also I'd like to
22 prohibit any -- oh, Commissioner Hanson.

23 COMMISSIONER HANSON: No. I was waiting for
24 you. I was just signaling you that I had something to
25 say pertaining to before you made your final decision

1 here.

2 I think that he certainly should be allowed to
3 provide us with his opinion of observable health effects.
4 Certainly not any medical. And I'm parsing it here, but
5 even I would be able to say that Commissioner Nelson was
6 obviously happy to hear something because that's
7 observable.

8 I wouldn't be able to say what physical reaction
9 he had within his body, any medical effects from it and
10 hearing or things of that nature, but anyone can talk
11 about the health effects that are observable, readily
12 observable.

13 So I know that makes it more difficult.

14 MR. DE HUECK: It doesn't make it too much more
15 difficult. I just don't want to get into the gray water
16 of allowing an expert testifier to enter into lay witness
17 testimony and start elaborating on matters of common
18 knowledge because that's not why he's been here to
19 testify.

20 COMMISSIONER HANSON: Excellent.

21 MR. DE HUECK: So, with that, where did we leave
22 off? You're in the middle of cross-examination.

23 MS. SMITH: That probably concludes my
24 cross-examination at this point.

25 MR. DE HUECK: So we'll move over to

1 Mr. Fuerniss. Did you have cross-examination?

2 MR. FUERNISS: No.

3 MR. DE HUECK: Ms. Jenkins.

4 MS. JENKINS: No.

5 MR. DE HUECK: Ms. Pazour?

6 MS. PAZOUR: No.

7 MR. DE HUECK: Staff.

8 MS. EDWARDS: Yes.

9 CROSS-EXAMINATION

10 BY MS. EDWARDS:

11 Q. Earlier you stated that you were discussing I
12 believe it was somebody else's study, that there were
13 other types of infrasound from wind that needed to be
14 parsed out.

15 Did I understand that right?

16 A. The term I used was "pseudo noise," I believe. When
17 air -- microphone on a sound level meter is very, very
18 sensitive. If air moves over that microphone and causes
19 a false sound, pseudo noise.

20 That's why we put these foam balls on top of the
21 microphones, to try to block that wind. Infrasound goes
22 right through the foam balls. So any movement of air
23 around the microphone generates a false signal,
24 particularly in the infrasonic range.

25 So when they're measuring outside even after they

1 take all of their cautions with foam balls, it's very
2 common to see no difference between wind turbine on or
3 off just because what they're really measuring is the air
4 moving over the diaphragm.

5 And then Mr. Hessler, I think, agrees with me on
6 this. The proper place to take an infrasound measurement
7 if you want to avoid that is inside the home where the
8 complainant says when I sit in this chair I feel these
9 sensations.

10 Q. Okay. Earlier you stated that one out of 15 people
11 are -- and correct me if I misstate this. Are at risk of
12 being annoyed; is that correct?

13 A. Yes. The Health Canada Study found that when the
14 model sound levels were 35 dBA and below, 2 percent of
15 the population were highly annoyed. Between 35 and 40,
16 10 percent were highly annoyed. And between 45 and
17 above, 14 percent and higher.

18 That's where I got my numbers from and that's from
19 the Health Canada Study and there was a chart in my
20 testimony graphing those results.

21 Q. Okay. So you anticipated my next question and
22 answer, which was where did the number come from.

23 Would you say that the majority of your experience
24 with wind turbine noise and its effects on people comes
25 from firsthand observations and measurements at

1 operational projects?

2 A. For my own?

3 Q. Correct. Firsthand.

4 A. Yes. Yes. But I've corroborated that. I have a
5 number of colleagues who do similar work and we compare
6 our notes, we compare our findings and we compare our
7 methodologies.

8 Q. Have you ever --

9 A. And we corroborate each other's work.

10 Q. Okay. Have you ever conducted a sound monitoring
11 survey of at least one week at an operational wind
12 project?

13 A. No. Because I find it pointless. If you -- if you
14 aren't standing at the microphone -- or standing in the
15 area where the microphone is located so you can hear at
16 your own ears -- that's called an observed measurement --
17 then you have no idea what caused the highs, the lows,
18 the in-betweens.

19 Unobserved monitoring, which is what is used for
20 two-week measurements, requires an awful lot of guesswork
21 afterwards. Whereas, if you're on site and you're
22 measuring the sound, you have your own senses to
23 corroborate the meter's measurements.

24 You know whether there's wind. You know whether
25 there's insects. You know whether a car went by, dogs

1 barked. And, therefore, observed measurements are the
2 preferred measurement in acoustics, as codified in
3 ANSI 12.93, measurements with an observer present. And I
4 focus on that kind of measurement.

5 As to whether that measurement represents other
6 conditions, I rely upon operational data for the noise
7 source, whether it's a wind turbine or a machine in a
8 factory, to let me know other times when that noise might
9 have been in a similar operating mode.

10 Q. Have you ever worked on a wind turbine project for
11 any group or individual that was not opposed to or
12 complaining about the project?

13 A. No. And that is because when I wrote my first paper
14 in 2008 the wind industry decided I was persona non
15 grata. They don't hire consultants that recommend
16 35 Leq. I don't even get the offers.

17 Q. Thank you.

18 On page 7 of your Direct Testimony you refer to a
19 sound study that was carried out at the Shirley Wind Farm
20 in Brown County, Wisconsin.

21 Are you familiar with what I'm talking about?

22 A. Oh, yes. That was at my client's home.

23 Q. You indicated that this same study alluded to by
24 Mr. David Hessler who just testified for PUC Staff in his
25 Direct Testimony -- is that correct?

1 A. That is correct.

2 Q. You --

3 A. That's the same study -- when he made the suggestion
4 to the Public Service Commission that a study be done my
5 clients contacted me, the attorney for them contacted me
6 and we developed the protocols and we selected the
7 acousticians and Hessler Associates is one of the
8 companies that I recommended be involved in that test
9 along with Schomer, Walker, and Rand.

10 Q. You also indicate that you -- you also indicate that
11 you essentially orchestrated the study and developed the
12 test protocol for it; correct?

13 A. Yes. The test protocol was based on my 2011 or 2012
14 paper showing the need for certain types of instruments
15 and measurement techniques to detect the infrasound. I
16 was also -- I was also appointed by the PSC to do a peer
17 review of that test, and I submitted that to the PSC with
18 data showing the pulsations in all three homes, although
19 strongest at the home R-1, I believe, the N's farmhouse
20 that Mr. Hessler also focuses on.

21 Q. You just said you were appointed by the PSC. You
22 were hired by the Commission?

23 A. Part -- yeah. Part of the agreement between the PSC
24 and my clients to have access to their house was that I
25 have access to all of the data from the test that

1 Schomer, Hessler, Rand, and Walker conducted and have
2 that for my own review and then report back to the PSC on
3 what I found.

4 Q. Was the PSC your client?

5 A. No. The client was the Intervenors, but the PSC was
6 the coordinator for the -- I guess for initializing the
7 project. And my clients would not allow anyone in their
8 homes unless I had an opportunity to review the work of
9 the study team.

10 Q. But you did not actually participate in the study;
11 correct?

12 A. No. Because since they were my clients, I had
13 already done testing in the homes. I knew what would be
14 found. It would have been inappropriate for me to be one
15 of the testers. Everyone would have said it was biased.

16 MS. EDWARDS: Thank you, Mr. James. No further
17 questions.

18 THE WITNESS: Okay. Thank you.

19 MR. DE HUECK: Okay, Mr. James. This is where
20 we go to Commission questions, meaning the Commissioners
21 get to cross-examine you. So while Katlyn comes up here
22 to move the camera down to Chairman Fiegen, I'll just go
23 ahead and kick off with the only question that I have.

24 And it is you've testified a lot and reported to
25 a lot of commissions and governments across the

1 United States. You've done that in situations such as
2 this when the wind farm has yet to be built; correct?

3 THE WITNESS: That is correct.

4 MR. DE HUECK: And so are you aware of any
5 commission or government that has created a condition to
6 encapsulate your theories on infrasound?

7 THE WITNESS: Infrasound is still something that
8 hasn't been addressed in any regulatory setting.

9 And there's a reason for that. Before we
10 started putting wind turbines in quiet rural areas there
11 was never a source of infrasound that caused pulsations
12 so it's not studied. It hasn't been studied. The
13 funding is not available, and it is just now, as with
14 Mr. Cooper's work, we're beginning to develop the methods
15 where we can duplicate the sensations in a laboratory.

16 It's very much an unstudied area, but it's one
17 that from my point of view should be a major concern
18 since the people who are affected are severely
19 affected.

20 Some of my clients, for example, the people that
21 owned the house that Mr. Hessler tested in, have left it.
22 That house has sat vacant for years. And they only
23 return when there's a need to do another test.

24 MR. DE HUECK: Okay. Thank you.

25 So to date you're not aware of any permit being

1 denied based on infrasound?

2 THE WITNESS: Not infrasound specifically.

3 MR. DE HUECK: Okay. Thank you. And now I'm
4 going to move over to Chairman Fiegen to allow her to
5 cross-examine you.

6 CHAIRWOMAN FIEGEN: So it seems like you have
7 been in the field for a while, although in the U.S. --
8 you know, wind development has really increased the last,
9 I don't know, five to 10 years. I mean, if you look at
10 the chart, it certainly has increased quickly. Yet
11 there's not a lot of research done, and so do people
12 mostly -- do people in the U.S. mostly look at research
13 in foreign countries and has -- and I know I can't
14 introduce new evidence so -- yeah. I guess that's my
15 question.

16 THE WITNESS: I guess to your first question
17 about wind turbines are new, yes, they're new. But
18 because of serendipity and a number of other factors,
19 I've been intimately involved in many of the early wind
20 projects in Maine, New Hampshire, Vermont, out in the
21 east, and have tracked what's happened at those. Also in
22 Wisconsin we started a wind project in 2008, the one that
23 Mr. Hessler and his company worked on.

24 So my experience, I think, is somewhat unique.
25 There's three other acousticians in the country that I

1 would say have similar experience. But all of this has
2 been funded by local families. There is no research
3 money available to fund my work. Steve Cooper is in the
4 same boat. His whole lab and everything else was funded
5 out of his own money.

6 Research money doesn't go to people who have
7 ideas that may inhibit current government policies, and
8 with the current government policy promoting wind, the
9 chance of getting funding for the kind of work I do is
10 nil so that also means that there's limited research
11 available.

12 CHAIRWOMAN FIEGEN: Okay. Thank you.

13 MR. DE HUECK: Mr. James, up next will be Vice
14 Chairman Hanson.

15 THE WITNESS: Okay.

16 COMMISSIONER HANSON: Good afternoon, Mr. James.

17 THE WITNESS: Good afternoon.

18 COMMISSIONER HANSON: I want to look at the
19 witness box when I'm talking to you.

20 On page 5 of your prefiled testimony on line 153
21 you state, "While it may appear that the difference is
22 only a few decibels, it is important to remember that a
23 3 dB change in sound levels represents a doubling or
24 halving of the acoustic energy."

25 So, obviously, to a layperson -- and we've had

1 these in previous wind dockets, discussions of a variety
2 of different dockets and projects. However, it's always
3 curious to me, in your example then of moving down to a
4 40 dBA you state that it's equivalent to turning off half
5 of the wind turbines in a project designed to meet the
6 40 dBA.

7 If a 3 dBA change is doubling or halving, what
8 is the -- going from a 45 to a 40 dBA? Do you know that?

9 THE WITNESS: Well, it's 5 decibels. It could
10 be the equivalent of somewhere between a quarter, maybe a
11 third. These are logarithms. I can't do them in my
12 head, but it would be a very significant change.

13 And that's why these debates get so heated
14 between a 40 or 45 dBA limit. It represents a big change
15 in the number of wind turbines that can be put into any
16 given area of a project.

17 COMMISSIONER HANSON: Well, you just stated that
18 it would be a change of about a quarter?

19 THE WITNESS: It would be about a third of the
20 wind turbines. Let me give you a simpler example.

21 If I have a noisy fan in front of me and I have
22 my sound level meter and the noisy fan is 40 dBA and I
23 have another noisy fan right alongside of it and I turn
24 that on, then the sound level's going to go up 3 decibels
25 to 43.

1 If I started out with four noisy fans and they
2 were 45 and I cut them in half, turned two off, then it
3 would drop to 43. So when we talk about small changes in
4 decibels we're talking about big changes in acoustic
5 energy. And that's the point I was trying to make.

6 And it's also why I think the answer to this is
7 having nonparticipants negotiate agreements in easements
8 and get compensation for the noise pollution.

9 There's no easy way to site a wind turbine at
10 levels that are going to satisfy everybody. So the
11 proper method in my mind is to set criteria that are safe
12 and then allow monetary negotiations to occur for
13 easements.

14 COMMISSIONER HANSON: Okay. Now thank you. I
15 understand that. But I'm not quite following. I thought
16 originally you said a change of 45 to 40 was a quarter.
17 And then I believe you said that it was a change of a
18 third -- of turning off one-third of the machines. Am I
19 hearing you incorrectly?

20 THE WITNESS: Well, like I said, the
21 relationships are logarithmic. So as long as we move in
22 3 decibel moves, it's easy to estimate, but when you have
23 a 5 dB, I'd say that's harder. I would say it's
24 equivalent to turning off one out of every --
25 one-third -- that would be equivalent to turning off

1 about two-thirds of the machines to drop 5 decibels. Or
2 to increase the setbacks greater, which is really the
3 answer. To increase the distance.

4 COMMISSIONER HANSON: Okay. Intuitively I'm
5 having a little bit of a challenge with that because if
6 you're shutting off -- did you just say two-thirds of the
7 machines to turn off 5?

8 THE WITNESS: To have an equivalent drop in
9 sound level -- or to have a wind project -- the average
10 sound level over the whole wind project because we're
11 talking about not just one location but the whole
12 project, to get a reduction of 5 decibels would require
13 turning off about two out of every three of the machines.
14 And then not being measured -- not taking a measurement
15 right near one of the currently operating machines.

16 My point -- my point in that statement was to
17 show how difficult it becomes to put wind turbines into
18 rural residential areas as the limits are reduced unless
19 there is a safety valve to compensate people for the
20 noise and allow them to enter into separate negotiations
21 for an easement across their property.

22 COMMISSIONER HANSON: Thank you. And I -- I
23 appreciate your clarifications and explanations as you've
24 gone through this. However, if you're at 45 dBA and you
25 decrease by 5 to 40 dBA and in order to accomplish that

1 you have to eliminate two-thirds of the machines, that
2 means one-third of them are creating the 40 dBA. And I
3 know -- I understand it's not quantity there necessarily.
4 One machine could produce 40 dBA.

5 THE WITNESS: If you're close to it.

6 COMMISSIONER HANSON: Correct. But you're also
7 saying that you're eliminating those that are closest to
8 the receiver by --

9 THE WITNESS: In my example I wasn't being that
10 precise. I was trying to give an example of the overall
11 magnitude of the problem of putting a large number of
12 wind turbines into an area and why a couple decibel
13 difference in the criteria makes a big difference to the
14 Applicant.

15 COMMISSIONER HANSON: Thank you. And you're
16 certainly not advocating that the Applicant should remove
17 two-thirds of their machines.

18 THE WITNESS: No. I'm advocating that those
19 machines that are up -- in the model we see some levels
20 about -- above 40. But they seriously look at getting
21 those levels down to 40. And that for the people who are
22 in the impacted range that are nonparticipants, that they
23 work out easement agreements.

24 COMMISSIONER HANSON: I understand that. Thank
25 you for your participation and information. Appreciate

1 it.

2 THE WITNESS: Okay. Thank you.

3 COMMISSIONER NELSON: Mr. James, this is
4 Commissioner Nelson.

5 I understand that you heard most of
6 Mr. Hessler's testimony this morning; correct?

7 THE WITNESS: I heard probably 80 percent of it,
8 yes.

9 COMMISSIONER NELSON: Did you hear the portion
10 where he explained to me that from his perspective it is
11 very, very, very difficult to measure infrasound?

12 THE WITNESS: Yes. But he's been doing that
13 with instruments with microphones.

14 As illustrated in the example I gave and
15 described earlier with all the blue lines and colors,
16 I've moved over to using a microbarometer, which is much
17 less sensitive to air movement, et cetera, and it makes
18 it much easier to get clear readings.

19 With the right instruments, infrasound is easy
20 to measure. With the standard acoustical instruments,
21 it's very complicated and very expensive.

22 COMMISSIONER NELSON: So we've been talking
23 about this whole issue of the test or study of the
24 Shirley Wind Farm and you developed the testing
25 protocols.

1 But apparently he didn't use your testing
2 protocols; is that correct?

3 THE WITNESS: No. No. They followed the
4 testing protocols exactly, and that was to use
5 infrasonic-rated microphones, make recordings, and then
6 use what's called narrow band analysis to do the
7 subsequent analysis of that data. And they executed the
8 methods that I had recommended exactly.

9 COMMISSIONER NELSON: And so why didn't you
10 recommend using the microbarometer?

11 THE WITNESS: Because at that time I wasn't
12 aware that it was a much less expensive tool. It became
13 clear to me after that when I had calls from people to
14 come do testing that I needed a different way.

15 So doing some research into how other fields of
16 science test infrasound, particularly for weather
17 detection, tsunami detection, et cetera, that
18 microbarometers are available, they're highly reliable,
19 very durable, and relatively inexpensive, and not subject
20 to the same artifacts that a microphone was.

21 COMMISSIONER NELSON: So help me understand just
22 a little bit about how a microbarometer works. I
23 understand a typical barometer measures pressure.

24 THE WITNESS: That's correct.

25 COMMISSIONER NELSON: And so a microbarometer

1 does the same thing?

2 THE WITNESS: Except that it measures the little
3 ripple. The pressure you see when someone says the
4 pressure outside is X inches of mercury is the overall
5 pressure.

6 A microbarometer is designed to measure the
7 little ripples that occur at that pressure level. It's a
8 variant on a standard barometer with the exception that
9 instead of measuring the overall pressure it just
10 measures the rapid pressure changes as a breeze goes by,
11 for example, or a pressure pulse from a wind turbine is
12 picked up. And it has very little sensitivity to audible
13 sound, literally no sensitivity to audible sounds.

14 It's measuring the pressure changes that rise
15 above and below the barometric pressure at any given
16 point.

17 COMMISSIONER NELSON: In the charts you were
18 pointing out to us very early on in your discussion I
19 will be honest when I saw those exhibits when they were
20 initially submitted they looked Greek to me so I didn't
21 study them.

22 Now that you've explained them I'm going to go
23 back and study them, and if I remember correctly, one of
24 the axis on there talked about different frequencies; is
25 that correct?

1 THE WITNESS: That's correct.

2 COMMISSIONER NELSON: And so does the
3 microbarometer test various frequencies? And, if so,
4 what frequency range?

5 THE WITNESS: The microbarometer I'm using tests
6 between 0 and 20 hertz.

7 COMMISSIONER NELSON: So you can identify the
8 specific sources of the infrasound that you're testing;
9 correct?

10 THE WITNESS: That's right. Because -- and it's
11 only because wind turbines turn at the same RPM, which
12 means the blade moves in front of the tower at the same
13 point.

14 Usually within the wind project they operate at
15 similar RPMs. And when you take the microbarometer
16 readings and you compress hours worth of this data and
17 plot them as I have, what you get are these horizontal
18 lines that show the specific frequency -- or the specific
19 rotation speeds of the wind turbines. And in this
20 particular case I think that was .7 hertz. .7,
21 .75 hertz.

22 COMMISSIONER NELSON: So what is the scale of
23 measurement of the infrasound?

24 THE WITNESS: Well, the scale of measurement's
25 on the right-hand side. That's in decibels just like we

1 would measure other sounds but without any A-weighting,
2 without any G-weighting, without any filtering of the
3 sound. We're just looking at all of the sounds 0 to 20.

4 The analysis method called Fast Fourier
5 Transform, narrow band analysis, allows us to take that
6 long string of pressures -- it samples 50 times a
7 second -- and convert it into frequencies as we can see
8 depicted in the chart in the upper right-hand corner. We
9 can see the little graph with the spikes and then the
10 arrows pointing to where those traces are in the
11 spectrogram.

12 And it is only by using these kind of tools that
13 you can detect those pulses. Not that the pulses are
14 that faint because they're up in the 50 -- maybe 50 to
15 60 dB range. But those are sufficient as -- as Steve
16 Cooper's study presented, those are inaudible but some
17 people will pick those up and feel a pressure pulse or
18 they'll get a migraine or they'll get dizzy. They will
19 have these symptoms that can't be explained --

20 Excuse me. Turn those off.

21 Can't be explained by normal audible sound
22 effects.

23 COMMISSIONER NELSON: And I'm not looking for a
24 medical conclusion because I don't think you're qualified
25 to do that, but of individuals that you have observed

1 that have made these type of complaints and where you
2 have measured the level of infrasound in their home, what
3 level of infrasound have you associated with complaints?

4 THE WITNESS: When the average sound pressure
5 level of the tones gets over 50 dB then we see people
6 with serious complaints. The most sensitive people can
7 respond at 40, but I'm talking about average.

8 Remember I said it's a pressure pulse so if we
9 have a wind turbine blade coming down and it creates a
10 pulse, there's a high rise much above 50 -- in fact,
11 let's say the average was 50. The pulse would probably
12 be 65 to 70 and then a long period without anything.

13 So the average doesn't look that high. It's the
14 peak or the crest of the pulse that's triggering the
15 physiological response.

16 COMMISSIONER NELSON: And so, again, so the
17 pulse at 50 dB is where you have received or observed
18 complaints; correct?

19 THE WITNESS: Yes. Yes. There are some that
20 are very sensitive who even at 40 average will have
21 complaints, but when it gets to 50 people start
22 complaining. And in homes where you get over 60 they
23 start talking about leaving their home. When it's over
24 60 by any significant amount on a regular basis they will
25 leave their home, and it's because they just give up.

1 COMMISSIONER NELSON: Thank you. I appreciate
2 going through that discussion.

3 I want to shift now to the dBA measurements that
4 are being proposed for this wind project. And you
5 indicated that -- and you explained why you don't believe
6 a two-week measurement works. You've suggested a
7 10-minute average.

8 Is it correct that you would only do that
9 10-minute average when the turbines are at full speed?

10 THE WITNESS: That would be the point of making
11 the measurement, yes. That's why the -- Mr. Hessler was
12 asked this morning about an on/off test. The proper way
13 to take a test of a machine like a wind turbine is to
14 find an ANSI S12.9 Part 3 compliance test, and on a day
15 when the wind turbines are operating at full power and
16 there's no wind at the ground -- this is a stable
17 atmospheric condition. It's very common in the Midwest.

18 The National Renewable Energy Labs has done
19 studies in prairie states saying it's roughly two out of
20 every three nights where this condition occurs with calm
21 winds with high upper-level winds. So the wind turbine's
22 running, but there's no leaf rustle to mask them.

23 You take that condition. You have the wind
24 turbines operating. They're turned off. Another reading
25 is taken, and as long as there's a 6 decibel or so

1 difference between the on and the off, you can be fairly
2 sure in saying that the on condition measurement was the
3 wind turbines and not background sound. If it's over 10,
4 then it's absolute, if there's a 10.

5 And as long as we have Mr. Howell's data showing
6 that levels in the community are 22 to 28 at night, if
7 the wind turbine sound was 40 and it was turned off, I
8 would expect the sound then to drop to 28, and we would
9 know then the contribution of the wind turbine without
10 any concern over whether other things had contaminated or
11 affected the sound.

12 There's operational data, SCADA data, S-C-A-D-A,
13 that I have used in hearings where I can correlate my
14 readings with the exact operating mode, the speed, the
15 blade angles, the power output, et cetera, and all of
16 that can be brought to bear for a simple on/off test to
17 make sure that the test is fair and assesses only wind
18 turbine noise and not other types of noise. And it can
19 all be done in one night, not two weeks.

20 COMMISSIONER NELSON: But from what you're
21 explaining to me it's got to be the right night, and
22 nobody really knows when that is going to be; correct?

23 THE WITNESS: That's right. It may mean that we
24 set up the instruments and we have to spend some evenings
25 waiting for the conditions to be right, yes. But that's

1 still a lot less time than two weeks.

2 COMMISSIONER NELSON: The condition that you
3 described, windy up above, still down below, so I'm a
4 South Dakotan for my entire life. Wind in
5 South Dakota -- we've got a windy state.

6 Is the phenomenon that you described, is that
7 something that occurs everywhere? Because I know that
8 wind is not the same everywhere.

9 THE WITNESS: It's a phenomena created by solar
10 heating. Let me explain how that happens.

11 During the day the sun warms the ground. The
12 warm ground causes air near it to rise and this mixes
13 with the upper-level winds creating a smooth gradient.
14 The wind speed increases. The more you go from the
15 ground up, the wind speed goes up.

16 At night when the sun goes down the ground
17 cools. Now we have cool air at the bottom, warm air up
18 above, and cool air sinks so we have this layer of maybe
19 100 feet deep. Sometimes less than that. Sometimes you
20 can see the top of the trees wiggling, but there won't be
21 enough breeze at the ground to induce leaf rustle.

22 The National Renewable Energy Lab study -- and I
23 think one of the places they did the test was
24 South Dakota, either that or one of the other plain
25 states -- showed that that occurs about two out of three

1 nights during the warm season. And it is a
2 characteristic that meteorologists in other cases where
3 I've testified have agreed. And in acoustics we use that
4 condition as the best test condition.

5 For example, the model, the ISO model that
6 Mr. Howell used for his prediction, makes the assumption
7 that the weather conditions are calm wind at the ground,
8 and if you'll read it, it will say a stable atmospheric
9 environment. That is the ideal condition for testing
10 noise, and that is what I'm saying would be the condition
11 for testing wind turbines knowing from my own experience
12 and from what I have learned about meteorology over my
13 45 years that there will be many nights when the wind
14 turbines will be at full power even though the wind at
15 the ground level is moderate.

16 COMMISSIONER NELSON: I think the last -- and I
17 appreciate that discussion. I think the last question.

18 You made the statement in relation to infrasound
19 and you said, and I think I quote this correctly, "It's
20 unstudied, but a major concern."

21 How can we make sound decisions on something
22 that is unstudied?

23 THE WITNESS: You can't. All you can do is --
24 the precautionary principal says that we err on the side
25 of safety. If we know that we have people complaining

1 about the distances of a mile and a quarter or two miles,
2 then we have to take that into consideration until the
3 science shows us that that isn't a problem.

4 And this is something that's always baffled me.
5 Why are the project -- why are we permitting projects
6 near homes when there's still other areas where we could
7 have wind turbines out at greater distances while the
8 research goes on?

9 So my position has been under the precautionary
10 principal that until we know enough about why these
11 problems occur, that we should be more cautious in
12 allowing wind turbines near residential homes.

13 COMMISSIONER NELSON: Thank you.

14 MR. DE HUECK: Commissioner Hanson.

15 CHAIRWOMAN FIEGEN: Go ahead. I have one more
16 question whenever.

17 MR. DE HUECK: We'll go down to Commissioner
18 Fiegen. And I'll just announce for the room, Cheri
19 really needs a break. She's been at it for a long time.
20 So when we're done with Commission questions we're going
21 to take a recess.

22 CHAIRWOMAN FIEGEN: In your testimony,
23 Mr. James, your written prefiled testimony, you talk
24 about Michigan and Ohio and a noise trespass.

25 Have they used that in regulation, the noise

1 trespass in Michigan and Ohio?

2 THE WITNESS: In Michigan, yes. A number of
3 communities have passed ordinances that encourage that to
4 happen. Basically encourage -- they set restrictive
5 limits, 45 not to exceed, for example. That's an Lmax.
6 And then they let the developer negotiate with the
7 landowners for easements.

8 CHAIRWOMAN FIEGEN: And they haven't used it in
9 Ohio.

10 THE WITNESS: I don't know. Ohio's still
11 arguing over things that -- actually in a case that
12 Mr. Hessler and I were involved in called Buckeye Wind
13 back in the early 2000s. They're still arguing over that
14 case.

15 CHAIRWOMAN FIEGEN: Thank you.

16 COMMISSIONER NELSON: My apology to Cheri. I
17 have another couple of questions.

18 Help me understand how infrasound dissipates
19 over distance, if it does.

20 THE WITNESS: Infrasound is a -- I'll call it
21 infrasound is not absorbed by air. The energy
22 infrasonic rate is not absorbed by air as the audible
23 sounds are.

24 The farther you get away from a high frequency
25 noise, even speech, not only is distance a factor but

1 that energy's being absorbed by ear molecules.

2 Infrasound doesn't do that. Infrasound isn't
3 blocked by physical things, for example. It goes through
4 a house as though the house wasn't even there. And I
5 believe that Mr. Hessler's work at Shirley Wind showed
6 that the levels outside the house and inside were almost
7 roughly the same.

8 Infrasound is a particularly long propagating.
9 But elephants, for example, in Africa use infrasound to
10 communicate, a deep bellow. And they can communicate
11 over hundreds of kilometers. We use infrasound to detect
12 distant nuclear bombs, for example. The microbarometer
13 that I use is used by the U.S. government with detectors
14 to detect when bombs are set off halfway around the
15 world.

16 An infrasonic pulse, if it's sufficiently strong
17 enough, can go around the world and have almost as much
18 intensity as afterwards. There's anecdotal evidence when
19 Krakatoa erupted microbarometers all over the world went
20 off, and they showed the echo of that eruption
21 propagating around the earth several times. So
22 infrasound is just one of those things that is hard to
23 stop.

24 And even though wind turbines aren't like a
25 nuclear bomb, the sound is more than sufficient to

1 propagate miles. I have measured infrasound tones at
2 distances of six miles. I have colleagues who have
3 measured in the distances of 50 miles. Where you can
4 clearly see the tones that we see in my examples.

5 And, again, this depends on how many wind
6 turbines. One wind turbine isn't going to be detectable
7 50 miles away. But a bank of 200 wind turbines will be
8 clearly distinguishable at much greater distances than
9 the single one. And when we start talking about these
10 projects getting larger and larger we get to the point
11 like we have up in Ontario where there's no place within
12 southern Ontario where we can't put up a microbarometer
13 and detect wind turbine tones.

14 COMMISSIONER NELSON: So when you measured
15 infrasound at six miles what was the level?

16 THE WITNESS: It was down around 40. Average
17 40.

18 COMMISSIONER NELSON: And so presumably as you
19 would move further out it would ratchet down and at some
20 point hit zero.

21 THE WITNESS: No, it doesn't hit zero. It just
22 blends into the other infrasound that's there. I mean,
23 just the fact that the earth is rotating, and friction in
24 the atmosphere produces some infrasound. So you get to
25 the point where there's a background infrasound even when

1 you don't have wind gusts and other things triggering it.

2 But at this point when I'm asking what is the
3 distance we should be concerned of, the Board of Health
4 in Brown County, which has debated this for eight years
5 now basically has said that the radius of the human
6 health hazard is two and a half miles around the wind
7 project. And that seems to encapsulate most of the
8 people who are sensitive, and it takes people who are
9 really sensitive beyond that, one of which I have an
10 example in my exhibit, to sense it.

11 But for practical purposes, anytime you're
12 within -- a mile is going to be very significant. And
13 even at two and two and a half miles we'll have people
14 who if they are sensitive will report those sensations.
15 Whether it triggers, you know, an adverse reaction or not
16 depends on them.

17 I have an acoustician friend, Dr. Malcolm
18 Swinbanks, who has published papers about his own
19 sensitivity. And he uses his sensitivity to infrasound
20 pulsations as an expert for the U.S. Department of
21 Defense in protecting our military against infrasound.
22 Because he can feel it, he doesn't have to look at his
23 meter to know whether it's present.

24 I know three other acousticians who also can
25 sense these pressure pulsations. It's not as rare as

1 Mr. Hessler might like to make it out. If my limited
2 number of acousticians friends include three that are
3 using it as tools, then it's more prevalent in the
4 population than we might expect.

5 COMMISSIONER NELSON: Thank you.

6 COMMISSIONER HANSON: Mr. James, all of the
7 positions and thoughts and premises that you're using
8 seem to boil down to a conclusion, and I would like to
9 read what I believe is your conclusion. I've written
10 that down, and I -- it may be a little bit lengthy, but
11 I'd just like you to pause and wait until I ask you if
12 that is correct or not.

13 You're obviously a strong supporter of property
14 rights. And on page 6 line 174 there's a question
15 pertaining to that. And all this seems to boil down to
16 your position that sound levels that are generated from
17 the wind turbines may not exceed the ambient sound level
18 existing at the property line of nonparticipants unless
19 the utility developer/operator is willing to provide
20 compensation for the what you call noise trespass -- or
21 the what I would call sound as opposed to noise; is that
22 correct?

23 THE WITNESS: That's close. You're probably --
24 you're probably right sound trespass, but noise means
25 unwanted sound. If a person didn't bother them, then it

1 wouldn't be a trespass.

2 What I'm concerned about is uncompensated
3 easements. And when we begin to have government bodies
4 set a standard that goes to a home, not to the property
5 line, it results in uncompensated easements. And that's
6 what concerns me.

7 COMMISSIONER HANSON: I'm a strong believer in
8 property rights as well. But there's -- and semantics
9 aside from noise and sound, when you get into something
10 of that nature, does my air conditioning unit outside my
11 house -- do I need to compensate my neighbor for the
12 noise that that creates or the airplane that flies
13 overhead or the street construction work or on and on and
14 on that take place throughout the world daily in
15 everyone's life?

16 I mean, that just seems so extraordinarily
17 unworkable and unrealistic. It's when the noise is -- is
18 really in a trespass sense. And I know you're trying to
19 get to that point, but I just don't see that you're
20 reaching that.

21 THE WITNESS: You know, I -- I understand the
22 issue of air conditioners, but let me use that as an
23 example.

24 The air conditioning industry since I was a
25 young kid back in the '50s has done extensive work in

1 making the sound of an outdoor air conditioning condenser
2 compatible with community noise standards or community
3 lifestyle.

4 When I bought my new air conditioner a couple of
5 years ago it came with all sorts of noise data showing
6 the impact on my neighbor and how that impact would be
7 acceptable. Also in my community there are other sounds
8 at night that raise the level up to about 30, 35 dBA. So
9 my expectation here is that the -- my neighbor, if they
10 put in a wind turbine or an air conditioner, will also
11 put in one that has been designed to be compatible with
12 the acoustic environment of the community.

13 Wind turbines haven't been designed for that.
14 Wind turbines are still in their early years. That
15 doesn't mean that someday they won't have one. It just
16 means that right now a wind turbine is like an old air
17 conditioner in 1950 with a noisy fan or noisy pump and
18 other mechanical sounds, that until they can design wind
19 turbines that are more compatible with being close to
20 homes, they should put their hardware out in areas where
21 people aren't there. Or if a person's willing to accept
22 the noise, compensate them.

23 In my career with workers, there are a number of
24 jobs where the noise was unbearable, but my employers --
25 or my clients who were their employers would pay them

1 extra, and they would take that extra money as
2 compensation for the noise.

3 People have a -- people have a right to privacy,
4 but if you say are you willing to exchange it for X
5 number of dollars a year, they're willing to do it. And
6 that allows each property owner to participate in the
7 process to the extent they want. And that's why I kind
8 of lean towards it.

9 COMMISSIONER HANSON: Thank you.

10 THE WITNESS: Yeah. If wind turbines were air
11 conditioners, it may be different.

12 COMMISSIONER HANSON: Thank you, Mr. James. I
13 understand that we have moved a great deal with, for
14 instance, automobiles or -- you can hardly even hear them
15 when you're standing right next to them.

16 THE WITNESS: That's right.

17 COMMISSIONER HANSON: And there's been a great
18 deal of -- however, you would have to accept that there
19 have been significant advances in the wind turbines of
20 today as compared to 20 or 30 years ago.

21 I won't take exception with your premises and
22 argue those premises. That's up to the other folks here.
23 But I'll give it as much weight as I can to what you've
24 said where I feel that it's justifiable to do so.

25 So thank you for your presentation.

1 THE WITNESS: Okay. Well, thank you.

2 MR. DE HUECK: We will recess until 4 o'clock.

3 (A short recess is taken.)

4 MR. DE HUECK: We are back in session.

5 Mr. James is on the witness stand.

6 Mr. James, you're still under oath. We finished
7 with cross-examination first round. We're going back to
8 Mr. Almond for redirect.

9 REDIRECT EXAMINATION

10 BY MR. ALMOND:

11 Q. First question, Mr. James. Have you ever been
12 permitted to testify in the United States Court to give
13 opinions on noise generated by wind turbines' effects on
14 people?

15 A. Yes.

16 Q. And can you provide a citation to the Commission of
17 what that case was?

18 A. The case --

19 Q. Maybe not the citation, but can you tell us the case
20 name and where it was located at?

21 A. Yeah. The case was here in -- well, there's been
22 many cases where I've been qualified, but there's one
23 where I went through a Daubert hearing in a court here in
24 Michigan. It was McBain, Michigan. I can get the
25 specific reference for the record later. I don't have it

1 in my hands. But in that case I was -- after the Daubert
2 hearing I was qualified as an acoustician.

3 In fact, if everyone would turn to my Exhibit 1, my
4 bio materials, I have the exact quote from that decision
5 on that page so that people can follow along. It's the
6 page bio materials for Richard R. James, November 8,
7 2017.

8 At the bottom of that page there is a table showing
9 some of the example qualifications, and at the very
10 bottom is the Michigan court case where I went through a
11 Daubert hearing and the judge concluded that I was an
12 acoustician with expertise in measurement of wind turbine
13 noise and its effects on people and I was qualified to
14 opine that the Plaintiff's symptoms were caused by the
15 Defendant's wind turbines after that special Daubert
16 hearing.

17 In Alberta, Canada I've also been similarly
18 qualified to speak to not only the noise but also human
19 response to noise, and that is the typical qualifications
20 that I have been granted in other jurisdictions.

21 Q. And what was the name of that Michigan case?

22 A. I will have -- it was -- I remember my clients'
23 names. If you want -- let me pull it up here. I can get
24 it.

25 Q. Well, no. Let's not do that. Unless the Commission

1 would like him to.

2 MR. DE HUECK: Just provide it to us later.

3 Q. We'll just provide it later. Okay?

4 A. I will.

5 MR. ALMOND: I don't have any other questions
6 for you, Mr. James.

7 THE WITNESS: Okay. Thank you.

8 MR. DE HUECK: Mr. Fuerniss, any
9 cross-examination based on Commission questions?

10 MR. FUERNISS: No.

11 MR. DE HUECK: Ms. Jenkins.

12 MS. JENKINS: No.

13 MR. DE HUECK: Ms. Pazour.

14 MS. PAZOUR: No.

15 MR. DE HUECK: And Staff.

16 MS. EDWARDS: Briefly.

17 RECROSS-EXAMINATION

18 BY MS. EDWARDS:

19 Q. Can you turn to Staff Exhibit S-5? Do you have all
20 the exhibits in front of you?

21 A. I will get them up here again. Let's see. Staff
22 Exhibit -- S4, S5, additional data requests?

23 Q. Yes. S5.

24 A. Okay. Opening it up here. I think everyone else is
25 opening it too because it's slow to respond.

1 Q. Just let me know when you get there.

2 A. I will. It's opening slowly.

3 Okay. I have the document open.

4 Q. Okay. And I would like to --

5 A. Which page?

6 Q. -- direct your attention to page 8 of 27.

7 A. Okay. Is that 2-8? Or 2-7? Is that the page with
8 question 2-7?

9 Q. Right.

10 A. Or 2-8?

11 Q. I'm looking at the question before that, which would
12 be 2-6, but I'm looking at the answer so --

13 A. Okay. Okay. Okay. I believe that was the response
14 by Dr. Alves-Pereira.

15 Q. Correct. And do you see at the very end there where
16 she responded that, "There are currently no
17 scientifically valid studies providing numerical data on
18 safe distances that can effectively protect families
19 against ILFN contaminated homes"?

20 A. That is very true because acousticians have ignored
21 low frequency and infrasound since the '70s when I
22 started out, and they concluded that audible --
23 A-weighted sounds would be the focus of regulations.

24 We've underserved the communities by ignoring the
25 low frequency end of the spectrum.

1 Q. How could you set a limit if there's no
2 statistically reliable data?

3 A. Well, to be very honest, the same way we set the
4 criteria back in the 1970s. Acousticians who were
5 familiar with different types of problems got together
6 and pooled their data and came up with, for example, the
7 EPA has an LDN of 55 for urban environments.

8 It was based upon consensus among acousticians and
9 their experiences in the field. And acousticians have
10 plenty of experience with IFLN, but governments don't
11 because they've all focused on dBA criteria.

12 Q. Okay. You testified, and I don't remember in
13 response to which Commissioner question, that there's
14 nowhere you can go in Ontario and not be subject -- or
15 not be able to pick up infrasound; correct?

16 A. I said southern Ontario. Basically if you go from
17 the western edge of southern Ontario on Lake Huron over
18 to the east of Toronto along Lake Erie, any area along
19 there there is I think 1,700 wind turbines in that area.
20 Anywhere in that area you will measure the tones from
21 wind turbines as long as you don't have such high wind
22 levels, et cetera, that they mask them.

23 Q. And earlier you testified that 15 percent of the
24 population would be susceptible to infrasound. So would
25 not then 15 percent of the population of southern Ontario

1 be ill?

2 A. No. That was 15 percent were subject to the audible
3 sound. 15 percent found levels of 40 Leq and higher were
4 susceptible.

5 In my -- let's look at Shirley Wind. When Shirley
6 Wind -- when the Brown County Health Department began to
7 explore it the initial complaints were three families.
8 By the end of their investigation they had 70 families
9 that had reported either audible sound or
10 infrasound-related symptoms. And this was for a small
11 project with eight wind turbines in a relatively small
12 dairy farming community.

13 So what is the percentage that are affected? We
14 don't know. Health Canada, for example, their study
15 found that at one and a quarter mile -- so we're talking
16 two kilometers they asked people within that distance if
17 they had tinnitus, ringing in the ears, migraines,
18 dizziness, et cetera.

19 Well, we know that the general population -- that
20 the percentage of the general population with dizziness
21 and tinnitus, et cetera, is roughly around one out of 10
22 people, and yet at a mile and a quarter from the wind
23 turbines in the Health Canada Study they were reporting
24 20 percent and higher prevalence rates.

25 They couldn't explain what caused it. They tended

1 to ignore it. But I used to say a mile and a quarter was
2 a safe distance. Safe meaning safe. Now I can't say
3 that. The Health Canada data calls it into question
4 because we can't explain why these symptoms of low
5 frequency noise, tinnitus, migraines, pressure
6 pulsations, et cetera, nausea are so prevalent at that
7 distance.

8 Audible sound would have died off by a mile and a
9 quarter. It would only be the low frequency and
10 infrasound that's present in those homes. So the more we
11 learn about the problem the more we begin to see that
12 even what would be considered large setbacks may not
13 prevent some of the complaints.

14 MS. EDWARDS: Thank you. No further questions.

15 MR. DE HUECK: Any Commission follow-up?

16 Okay. Commissioner Nelson has a question for
17 you.

18 THE WITNESS: Okay.

19 COMMISSIONER NELSON: Earlier I asked you to try
20 to explain dissipation to me. And I understood your
21 answer.

22 So it would appear that the dissipation of
23 infrasound would occur uniformly over distance since
24 there appears to be no impediments to it. Is that
25 accurate?

1 THE WITNESS: Yes. It -- it -- it propagates
2 with very little decrease in sound level over great
3 distances, which is an advantage if you're an elephant
4 trying to communicate to another elephant, but it's a
5 disadvantage if you're looking at a noise source that
6 produces infrasonic pulses because that problem
7 propagates much farther than the audible sounds.

8 COMMISSIONER NELSON: So how many -- since it
9 dissipates at a uniform rate over distance, how many dB
10 does it decrease per mile?

11 THE WITNESS: Well, it -- again, it -- sound
12 drops off proportional to the distance. If we're talking
13 about audible sound.

14 COMMISSIONER NELSON: No. We're not talking
15 about audible sound. We're talking about infrasound.

16 THE WITNESS: Well, audible sound decreases at
17 6 dB per doubling of distance. Infrasound is more like
18 1 or 2 dB per doubling of distance.

19 And in my tests I kind of lean towards the
20 two mile, mile and a quarter as the separating difference
21 between a lot of people, a significant number, let's say
22 10 percent, having complaints, and after that it becomes
23 much more spotty.

24 COMMISSIONER NELSON: Let me delve into your
25 answer 1 or 2 dB per doubling of distance.

1 So between 5 feet and 10 feet it reduces 1 and
2 2 -- 1 or 2.

3 THE WITNESS: Yeah.

4 COMMISSIONER NELSON: That doesn't make sense.

5 THE WITNESS: Well, let's say it starts out at
6 100 at 1 meter away. And I'll use meters because it's
7 smooth. 1 meter away it's 100. So at 2 meters it will
8 be, let's say, 98. At 4 meters it becomes 96. At
9 8 meters it becomes 94.

10 And so you can see that as we get to a
11 significant distance like 500 meters, it now -- in order
12 to get another decibel of reduction, we've got to go
13 500 more meters.

14 COMMISSIONER NELSON: Okay. So I understand
15 that math. And so then my question is, is it 1, or is it
16 2 decibels? That's a big difference.

17 THE WITNESS: Yes. It depends upon the
18 atmospheric conditions, and it depends upon the surface
19 conditions but -- and that's why I say 1 or 2. Because
20 it -- depending on where you're measuring, it could be
21 either.

22 But for the levels emitted by wind turbines, the
23 infrasound is significant enough to trigger the
24 sensations of the distances of a mile and a quarter to
25 two miles in those sensitive individuals.

1 COMMISSIONER NELSON: Have you measured
2 infrasound -- the level of infrasound at a turbine?

3 THE WITNESS: Right at a turbine it wouldn't be
4 very high and that's because the sound's occurring up
5 above and it's radiating out.

6 I mean, a wind turbine the sound is radiating
7 off the blades and, therefore, when you're close to it --
8 actually one of the quietest places near a wind turbine
9 is right at the base of the tower.

10 COMMISSIONER NELSON: And I understand that. So
11 at what distance would the infrasound be maximized?

12 THE WITNESS: It becomes more rotatable when
13 we're out at distances of let's say a thousand feet. And
14 for a 1 hertz infrasonic tone it takes a thousand feet
15 for the wavelength to form.

16 So within that you can get numbers -- within
17 that distance the numbers can vary all over, but as you
18 get a little further away, the wave form is fully
19 developed, and the propagation becomes somewhat
20 measurable.

21 But it depends on how it's reflected off the
22 ground, how it's reflected off the ionosphere, and other
23 atmospheric conditions. And it's very variable. Low
24 frequency noise problems are hard to trace because of
25 these issues.

1 And wind turbine sounds fit into that category.
2 One day it could be perfectly fine. The next day it
3 could be much noisier just due to -- I'm assuming they're
4 operating the same. Just due to how the atmospheric
5 boundary layers are reflecting the sound.

6 COMMISSIONER NELSON: So I'm going to ask, have
7 you measured infrasound 1,000 feet away from an operating
8 turbine?

9 THE WITNESS: Yes. Multiple times.

10 COMMISSIONER NELSON: And what level would you
11 typically find there?

12 THE WITNESS: Probably in the 60s to 70s average
13 with peaks up around 85. That was my first paper was at
14 that distance.

15 COMMISSIONER NELSON: And what would cause the
16 difference between it being 60 or it being 85?

17 THE WITNESS: Well, the 60 is the average, but
18 remember a pulse and then quiet. So what we're doing is
19 we're averaging a very large short-term sound with a lot
20 of quiet after it so that average drops down. But it's
21 the peak of the pulse that's causing the sensations.

22 COMMISSIONER NELSON: Right. And I know you
23 explained that already so I assumed that the numbers you
24 were giving me were just the peak numbers.

25 So 85 would be the peak?

1 THE WITNESS: Yeah. 85. Whereas the average
2 would be 50 to 60.

3 COMMISSIONER NELSON: Thank you.

4 MR. DE HUECK: Reece, any redirect after
5 Commissioner Nelson's question?

6 No.

7 Mr. James, thank you for your testimony --

8 MS. SMITH: Excuse me, Mr. de Hueck. I got
9 skipped, and I didn't want to interrupt.

10 Is it okay? I just have one question.

11 MR. DE HUECK: Yep.

12 RECROSS-EXAMINATION

13 BY MS. SMITH:

14 Q. Mr. James, you had previously talked about the
15 Shirley Wind Farm in response to some of the questions
16 that you were asked; is that correct?

17 A. That's correct.

18 Q. And you mentioned that the Board of Health declared
19 the wind farm a human hazard; is that true?

20 A. The exact term is "human health hazard."

21 Q. Human health hazard.

22 Are you aware that that designation was rescinded in
23 2015 due to insufficient evidence of a link between wind
24 farms and people's health issues?

25 A. No, I'm not. In fact, 2015 the --

1 Q. I just asked if you were aware of that.

2 A. I'm aware that it was not rescinded at that point.

3 Q. Was it ever rescinded?

4 A. No. The board has maintained that in spite of
5 efforts to have it rescinded.

6 MS. SMITH: I have no further questions.

7 MR. DE HUECK: Thank you for your testimony,
8 Mr. James. That will conclude it.

9 (Discussion off the record.)

10 MR. DE HUECK: I'm going to turn to Mr. Almond
11 to call his next witness.

12 (The witness is excused.)

13 (A short recess is taken.)

14 MR. DE HUECK: EL18-026 is back in session.
15 Mr. Almond, you may call your next witness.

16 MR. ALMOND: Intervenors call Jerry Punch.

17 MR. DE HUECK: Good afternoon, Mr. Punch. My
18 name is Adam de Hueck. I am the Hearing Examiner in this
19 matter. I'll be swearing you in today.

20 Are you ready?

21 THE WITNESS: I'm ready. Thank you.

22 (The oath is administered by Mr. de Hueck.)

23 DIRECT EXAMINATION

24 BY MR. ALMOND:

25 Q. Why don't you introduce yourself to the Commission

1 and give a brief recap of your education and experience.

2 A. Well, I'm an audiologist. I have two higher
3 degrees, a master's degree in hearing and speech science
4 from Vanderbilt --

5 MR. DE HUECK: Can you slow down a little bit
6 for the court reporter and identify yourself.

7 A. I'm Jerry Punch. I live in Okemos, Michigan where
8 I'm seated right now. I appreciate the opportunity to
9 not have to make the trip to South Dakota, by the way.

10 I have been an audiologist since 1967 so I have
11 really about 50 years experience as an audiologist. My
12 educational background is with a master's of science
13 degree in hearing and speech sciences from Vanderbilt
14 University and a Ph.D. in audiology from Northwestern
15 University. I've been a teacher, a clinician, a
16 researcher, an administrator in a number of settings,
17 mostly academic settings.

18 The last 20 years, 21 years I've been at Michigan
19 State University. I retired from that position, from the
20 faculty there in 2011.

21 Would you like me to go into the issue of how I got
22 involved with wind turbine noise at this point?

23 Q. Sure. Why don't you explain how you got involved.

24 MR. DE HUECK: Mr. Punch, this is the Hearing
25 Examiner. I'm going to interrupt you for just a second.

1 When you look down we can't really see your lips so if
2 you can either back up while you speak or, alternatively,
3 if you can adjust your camera down.

4 (Discussion off the record.)

5 Q. First why don't you just -- what is an audiologist?

6 A. Well, audiology is the study of hearing and hearing
7 disorders essentially, hearing loss. Much of my work has
8 been involved -- particularly, my research has been
9 involved with hearing aid research with diagnostic
10 testing to quantify the amount of hearing loss in people.

11 As I say, I've been certified as an audiologist and
12 still am since the 19 -- late 1960s. I've done a lot of
13 clinical work with patients. As someone already
14 mentioned in the previous testimony, I basically -- I'm
15 losing my train of thought already. It's not that time
16 of day for me.

17 Basically what I was saying is wind turbines is kind
18 of a new area. I got involved in about -- excuse me. In
19 2008 or 2009 when, in fact, Rick James asked me to go to
20 a wind project in lower Michigan. It was in the thumb
21 area of Michigan where a family was abandoning their home
22 or leaving their home at night to be able to sleep
23 because of the turbine noise.

24 By the way, my affiliation with Rick has been over
25 many years. When I was chair of the department for about

1 six years I actually hired Rick as an adjunct instructor
2 to teach a couple of not courses but give a couple of
3 lectures in a hearing conservation course, a graduate
4 seminar in hearing conservation at Michigan State
5 University.

6 And so Rick and I had known each other for sometime
7 before 2008 or '9. So we basically -- I went there
8 thinking I'm not sure what my role is here. I'm an
9 audiologist. I understand sound. They were complaining
10 of the noise. And I've had a lifelong interest or
11 career-long interest in occupational hearing loss and in
12 community noise so I thought it would be interesting. I
13 was thinking about retiring in a few years, and I
14 thought, well, this is something of interest to me. I
15 could possibly become involved if it seems important to
16 do so or interesting.

17 And the family, we just interviewed them more or
18 less informally. Two daughters, two teenage daughters.
19 Again, they were leaving their home at night to sleep in
20 a hotel or motel. And I came away actually thinking
21 honestly that what's the problem here?

22 I heard the turbines. They were moving somewhat
23 during the afternoon that I was there. I felt a little
24 bit of sensation. It didn't feel that strange at the
25 time. I was only there, as I said, a couple hours or so,

1 three maybe. And I came away thinking, well, I need to
2 understand -- I want to understand what's going on.

3 So I rented -- rented. I checked out a book from
4 the library, Paul Gipe's book on wind energy, Wind Energy
5 Comes Of Age. And it was fairly favorable toward wind
6 energy. It did not -- it barely mentioned noise, though,
7 as an issue, and the book was based a lot on the
8 information that was available from the wind turbines
9 that had been installed in European and I think
10 Scandinavian countries and so forth and California at
11 that time -- by the time had become involved with wind
12 energy.

13 So not getting a whole lot from the book in terms of
14 an explanation of what the family was complaining about,
15 I began to search the literature, first the internet and
16 then some other sources of, let's say, journal articles
17 and so on, and I ended up writing an article. Rick was a
18 co-author on the article along with a student we involved
19 in our measurements and writing the report.

20 The study was published in Audiology Today, which is
21 basically a monthly magazine of the American Speech
22 Language Hearing Association in the summer of 2010, I
23 believe. And so as a result of that, I was asked to
24 chair a group in Michigan, which now the Department of
25 Energy essentially in the state to develop --

1 My audio died. Are you hearing me?

2 Q. Yes.

3 MS. SMITH: I'm sorry. I'm kind of wondering
4 what the question is because I don't think it's quite --
5 I'm sorry. I don't know where this started.

6 Q. I think we were just kind of rambling a bit about
7 your background there, Dr. Punch. So let me try to hone
8 you in here.

9 Did you file -- or did you prepare prefiled
10 testimony in this matter?

11 A. I did.

12 Q. And is that what has been marked as Exhibit I-2?

13 A. I'm looking at my list here. I'm sorry I didn't
14 become acquainted with this earlier.

15 Q. I-2.

16 A. Yes.

17 Q. And do you have any changes or corrections you want
18 to make to that testimony?

19 A. No, I don't.

20 Q. And along with that testimony did you include two
21 exhibits which were your CV and then an article written
22 by you and Mr. James?

23 A. I did, yes.

24 Q. And you also provided some responses to some
25 questions asked by PUC Staff; is that correct?

1 A. I did, yes.

2 Q. And I'll represent to you that those are on
3 Exhibit I-34, specifically Intervenor's Responses to
4 Staff's Second Set of Data Requests to Intervenor's.

5 If I were to ask you those same questions that are
6 asked in your prefiled testimony as well as the questions
7 asked by PUC Staff in Intervenor's Responses to Staff's
8 Second Set of Data Requests to Intervenor's, would you
9 provide the same answers here today?

10 A. I would, yes.

11 MR. ALMOND: At this time I would move for the
12 admission of Exhibit I-2, as well as Exhibits I-2a and
13 I-2b.

14 MR. DE HUECK: Do you have an objection?

15 MS. SMITH: Can we revisit this after cross?

16 MR. DE HUECK: Certainly.

17 MR. ALMOND: I think the process we used
18 previously was to admit it and have her move to strike
19 it.

20 MS. SMITH: If you would like to do it that way,
21 that's fine by me.

22 MR. DE HUECK: You're right. Yes.

23 Okay. So, Staff, do you have anything to add?

24 MS. EDWARDS: I have no objection.

25 MR. DE HUECK: So we're going to go ahead and

1 admit the exhibits and testimony.

2 (A short recess is taken.)

3 MR. DE HUECK: Okay. We're back in session.
4 The court reporter is all squared away so we can
5 continue.

6 Q. (BY MR. ALMOND) Dr. Punch, did you have the
7 opportunity to review Dr. Roberts's prefiled testimony in
8 this matter?

9 A. Yes, I did.

10 Q. And do you recall in Mr. -- Dr. Roberts's prefiled
11 testimony him stating that he's not aware of any reliable
12 evidence providing any link between infrasound and
13 adverse health effects?

14 A. I did. Yeah. I do.

15 Q. Do you have any response to that claim?

16 A. Well, I heard him say I'm not aware at least three
17 times with respect to that question. Or I read that.

18 There's, I think, mountains of evidence as we
19 provided in our article, the 2016 article, that included
20 as exhibit -- I've lost the numbers here, but my second
21 exhibit.

22 You've heard testimony, and I would agree with it,
23 that from Rick especially that there's lots of field
24 evidence. There's lots of anecdotal evidence. There is
25 some evidence in the literature -- like Dr. Roberts made

1 the point that only epidemiological evidence is useful in
2 drawing conclusions about causation between wind turbine
3 noise and adverse health effects.

4 He also said paradoxically that -- when asked how
5 likely is it that -- and I'm paraphrasing. How likely is
6 it that such epidemiological studies will be done in the
7 future. And he said not very likely.

8 And I think I agree with this in the sense that
9 they're expensive, they require a lot of preparation,
10 government funding, and Mr. James has already responded
11 to that issue of there's just not government funding
12 available for that kind of research.

13 So my point is we have to take what we have. Just
14 like the Bradford Hill criteria doctor that is --
15 Sir Austin Bradford Hill who addressed the medical
16 society in Britain in 1965 listing nine criteria, which
17 include experimentation, but there are eight other
18 criteria that he talked about that have become sort of
19 the, if you will, the Bible of epidemiology, as I
20 understand that. As I understand it. Indicating that we
21 don't need just epidemiological research to answer
22 questions about causations -- causation of disease
23 processes and/or disorders and external patients.

24 He went through those criteria, but he didn't -- he
25 just named them. He didn't talk about what they are

1 about. And I think he basically ignored the message that
2 I would read into -- or read from Bradford -- Bradford
3 Hill's address, and that is, again, we use what we can to
4 draw inferences. We use what is available.

5 Not that we shouldn't do more research. Some of it
6 might be clinical research design. Some of it might be
7 epidemiological. But these studies that will really
8 address the question definitely about infrasound or just
9 even audible sound and things like dose response, how
10 much sound does it take before people really do come down
11 with the various complaints and problems that they
12 complain about.

13 That was one of my major takeaways from his -- his
14 comments there. He also did talk about -- he basically
15 uses government studies to rely on for his inference or
16 conclusion that there is no causative relationship
17 between adverse health effects and wind turbines. Yet he
18 uses -- he talked about peer-reviewed studies. But these
19 government studies he relies on don't seem to be peer
20 reviewed, per se, in the way that he defines peer
21 reviewed. So I found that rather unacceptable.

22 He holds folks like me and Mr. James and others to a
23 standard of peer-reviewed epidemiological research to
24 establish those relationships. Yet he does not really
25 have -- he can't point to specific studies other than the

1 Health Canada study perhaps as others have also done to
2 support his view that there are no relationships, no
3 causative relationships here.

4 Q. And just I want to jump to kind of your overall
5 opinions and conclusions in your prefiled testimony.

6 You recommended two separate alternative noise
7 limitations; is that correct?

8 A. I did, yes.

9 Q. One was a 40 dBA Leq night outside, the other 40 dBA
10 LAmax; is that correct?

11 A. That's correct.

12 Q. Can you just explain the rationale for those two
13 recommendations?

14 A. Well, the 40 dB Leq comes from mostly -- emanates
15 really with the 2009 World Health Organization document
16 on night noise guidelines. And that's the point at which
17 it was said -- it was said -- it was decided and used by
18 the World Health Organization to be a threshold at which
19 there are substantial and nontrivial numbers of people
20 who are affected by low frequency noise.

21 They did not study in the 2009 document really wind
22 turbine noise. That needs to be understood. Wind
23 turbine noise has its own specific characteristics. But
24 if 40 dB Leq is needed for protection against things like
25 road traffic noise and airport noise -- or airport noises

1 and other kinds of noises, then because infrasound is a
2 component of wind turbine noise, the 40 dB actually seems
3 to be a conservative threshold to me.

4 45 I know is the design goal for this particular
5 project, but 40 is really a very conservative goal. It
6 should be lower. And I know Rick James talks about,
7 recommends, 35 dB Leq but I realize the stress that puts
8 on wind companies to build the projects and I'm not
9 really trying to stop them from building the projects. I
10 just want to protect people as much as possible.

11 Let me point out the 40 dB Leq is the level that --
12 I was about to get into this earlier, that the task force
13 that I chaired in the state of Michigan some years ago
14 was about to recommend -- that task force was shut down.
15 I won't go into that unless you want me to. But there
16 was some lobbying, I think, about shutting us down
17 because --

18 Q. I don't need you to go into that.

19 A. Okay.

20 Q. But --

21 A. All right. So 40 dB is the level that's certainly
22 recommended by the World Health Organization. It is very
23 close to the levels that the -- that Dr. Schomer,
24 Dr. Paul Schomer, has come up with recently based on four
25 different sources of information, data. They recommend

1 36 to 38 dB Leq.

2 And he recommends it to be measured over a 24-hour
3 period basically. That is a little different from the
4 World Health Organization 40 dB level because they
5 recommended that as an annual average, which I think it
6 impractical -- implying by annual that you actually leave
7 the sound level meter out for a year. We don't do that,
8 of course. You take samples over a year.

9 If I can get down into the 40 dB LAmax is an
10 attempt -- and I made this attempt in another case
11 earlier in New York to try to look at the WHO documents,
12 both the 1999 and the 2009 documents.

13 Q. Can you back up just a little bit from the camera?

14 A. Sure. I was actually taking a couple notes and
15 trying to read my notes that I just wrote down just a
16 minute ago. Anyway --

17 Q. Let's not take any notes. Okay?

18 A. Okay. All right.

19 Okay. Can I go ahead with my --

20 Q. Yeah. The 40 dB LAmax.

21 A. 40 dB LAmax. If you review the -- even the 1999 WHO
22 standards I think they talk about the 45 dB LAmax inside.
23 And, again, the 40 dB LAmax, one, is an attempt to
24 account for all the peaks and valleys that occur in wind
25 turbine noise. Much of it is infrasound. Some of it, of

1 course, is also audible sound.

2 I think an even more conservative number might be in
3 order because we're talking about -- when we talk about
4 infrasound we're talking about sound that does not
5 attenuate very well and certainly not very rapidly, and
6 as you've heard many times already in this hearing, it
7 dissipates over very long distances.

8 There's almost no barriers that can stop it. So
9 even if you have your windows closed, it could be as bad
10 inside as outside. And because the World Health
11 Organization dealt with low frequency noises that did not
12 include infrasound, I think an even lower number like 40
13 instead of 45 dB L_{Amax} would be appropriate to account
14 for the peaks and valleys that do cause the annoyance in
15 real time for people.

16 And my concern -- and particularly in the 2009 WHO
17 document, the concern there is with sleep. Sleep
18 disturbance.

19 Q. In addition to noise limitations, you also
20 recommended a 1.25-mile setback. Why is it necessary to
21 have both a noise limitation and a distance setback?

22 A. Well, a distance setback would be ideal if we could
23 show a really close correlation with the noise levels
24 that people are exposed to at those distances. But
25 because there are differences in terrain, even changes in

1 the weather patterns, differences in noise turbine
2 arrays, the way they're arrayed with respect to one
3 another, each other, you can't predict exactly what the
4 noise levels are going to be from knowing the distance.

5 But I think the 1.25 miles or 2 kilometers that's
6 been recommended many times in the literature starting
7 with Pierpont in 2009 would be sort of a minimum
8 distance. 1.5 probably better, obviously. Again, trying
9 to give fairness as much as I can be fair to the wind
10 companies, 1.25 seems a rather respectable conservative
11 number.

12 But because the distance does not correlate very
13 well with the noise levels at those distances, both would
14 be my recommendation. It's not that hard to set the
15 distance as a limiting factor or a minimum distance along
16 with a maximum noise level. But certainly noise level
17 always has to stay in the equation.

18 MR. ALMOND: Thank you. I don't have any
19 further questions for you at this time, and I'll tender
20 you for cross.

21 MR. DE HUECK: Mr. Punch, we're now going to
22 subject you to cross-examination, starting with the
23 Applicant, Prevailing Winds.

24 MS. SMITH: Dr. Punch, I'm just waiting so they
25 can shift the camera over so that you can see me as

1 opposed to others that are watching.

2 (The camera is adjusted.)

3 CROSS-EXAMINATION

4 BY MS. SMITH:

5 Q. Dr. Punch, do you have anyone with you in the room?

6 A. I don't.

7 Q. And other than the documents that were filed in this
8 matter, including your testimony, do you have any other
9 documents in front of you?

10 A. I had taken some handwritten notes. I'm putting
11 those aside. I'm not using them. I don't have any other
12 notes. I have a laptop to my right with some files I
13 thought I might need, but I think everything is on the
14 exhibit list that we might need.

15 Q. Okay. Thank you.

16 You mentioned -- you indicated you're an
17 audiologist; correct?

18 A. Correct.

19 Q. And you're not an engineer, not a professional
20 engineer; is that also true?

21 A. True. True.

22 Q. And you're not an acoustician, as Mr. James is;
23 correct?

24 A. Not as he is, no.

25 Q. You don't perform modeling analyses for wind

1 projects, for instance, to determine sound levels?

2 A. I've never done that.

3 Q. And you're not qualified to do that; is that
4 correct?

5 A. I don't really know, to be honest, in terms of
6 acoustical standards. Probably not. I have certainly
7 done measurements in communities about community noise,
8 racetracks, for example, and public events like concert
9 halls and so forth. I have made noise measurements.
10 Part of my training as an audiologist was how to make
11 noise measurements.

12 Q. Okay. Are you a licensed audiologist?

13 A. I am not. Because I am a retired audiologist, I
14 didn't want to pay the \$350 a year when I knew I wouldn't
15 be practicing clinical work. Licensing only applies to
16 clinical work, working with patients who have hearing
17 problems.

18 Q. Certainly. And so have you ever been licensed?

19 A. I have been licensed the whole time with my career
20 that I was involved in clinical work, yes.

21 Q. Okay.

22 A. In a couple states.

23 Q. Are you licensed to practice medicine?

24 A. Of course not.

25 Q. Based on your testimony earlier, I understand that

1 an audiologist deals with hearing-related diagnoses or
2 treatment. So, for instance, hearing loss treatment. Is
3 that true?

4 A. That's true.

5 Q. And so an audiologist can determine if somebody has
6 hearing loss, but they cannot necessarily determine or
7 diagnose diseases, for instance, from the ear. Is that
8 true?

9 A. Well, I think a medical doctor would say we can't
10 diagnose in the sense that we can tell where the
11 lesion -- the site of the lesion is by audiometric
12 testing battery that we can perform, some of which is
13 electrophysiologic, some of which is audiological through
14 earphones and so forth. But we can't determine what the
15 actual cause of, say, sensory neuro hearing loss really
16 is.

17 Many times in reports we put in audiometric results
18 are highly consistent with presbyacoustic hearing loss or
19 noise-induced hearing loss, for example, and that is
20 helpful to physicians in making their diagnosis. But
21 they have additional tests they can perform, including
22 their own physical exam.

23 Q. So if you -- as I understand your testimony, if you
24 identified an issue, that may be referred to a physician
25 in order to make a further testing diagnosis to determine

1 the actual cause?

2 A. Yes. We work closely with otolaryngologists, ENT
3 specialists, in that we get referrals from them, and we
4 refer to them with respect to diagnostic and sometimes
5 treatment issues. If medical or surgical treatments seem
6 applicable, then certainly we refer to a medical
7 specialist.

8 Q. And as an audiologist, you don't have any expertise
9 to diagnose nonhearing-related maladies like heart
10 disease or diabetes; is that true?

11 A. That's true. True.

12 Q. In your testimony you state that you're testifying
13 as an expert witness regarding the potential health
14 effects posed by noise from the project; is that correct?

15 A. True.

16 Q. I believe if you want to turn to pages 3 and 4 of
17 your testimony, do you have that in front of you?

18 A. What exhibit is that? I do not have it -- I have it
19 on the computer.

20 Q. Certainly. I believe it is Exhibit 2. I-2. Sorry.

21 A. I-2?

22 Q. I-2.

23 A. I-2a? I'm sorry. Prefiled testimony?

24 Q. Yes.

25 A. Okay. Okay. I have it.

1 Q. And if you look at page 3. 3 and 4.

2 A. Okay.

3 Q. I'm looking at lines 58 and 59. Do you see those?

4 A. 59 ends the question, and 60 starts an answer.

5 Q. Yes.

6 A. On my -- okay.

7 Q. That's correct.

8 And, as I understand that portion of your testimony,
9 starting at line 60 through 81 you're identifying your
10 qualifications to testify as a health expert regarding
11 wind turbine noise; is that true?

12 A. Well, the question was what experiences do I have to
13 qualify me as a health expert, yes. In that sense, it's
14 true.

15 Q. And as I'm looking at your testimony, you indicate
16 that you coauthored an article on wind turbine noise in
17 Audiology Today.

18 Is that the article you were referencing with
19 Mr. James that you --

20 A. That was the first article. That's not the same
21 article as I included as my Exhibit 2.

22 Q. Certainly. You talk about chairing a technical work
23 group; is that true?

24 A. Yes.

25 Q. Testifying before zoning boards and commissions; is

1 that also correct?

2 A. I have, yes.

3 Q. Coauthoring a blog on a website; is that also true?

4 A. The article, wind turbine -- well, Exhibit 2 is an
5 article that is published on a website. I called it a
6 blog. I'm not sure it's really a blog. It's really a --
7 it's like a journal of the hearing health -- technology
8 and health matters. Okay.

9 Q. Okay. And then testifying in other matters; is that
10 true?

11 A. Yes.

12 Q. And interviewing individuals?

13 A. I have interviewed individuals, yes.

14 Q. And then the article that you've coauthored with
15 Mr. James that you do have is Exhibit 2-2; is that
16 correct?

17 A. Sure. Yes.

18 Q. So other than your interviews with people where you
19 were interviewing them and asking them about their
20 complaints as you described earlier in your testimony,
21 you're relying primarily on other people's information to
22 have your opinions; is that true?

23 A. Well, to a large extent I have my own experiences
24 visiting and talking with people and doing some more
25 formal interviewing than I had mentioned earlier.

1 Q. Okay. As far as -- as far as the people that you
2 interviewed, did you perform medical examinations of
3 those people?

4 A. No.

5 Q. And you have identified a number of maladies that
6 you think can occur due to wind turbines; is that true?

7 A. Yes. Most of which are documented -- all of which
8 are documented in the literature.

9 Q. And that's your -- you reference those on page 5 of
10 your testimony; correct?

11 A. Are you talking about the symptoms or the complaints
12 or the health problems?

13 Q. Yes.

14 A. Okay.

15 Q. So, for instance, you note sleep disturbance,
16 annoyance, headaches, dizziness, vertigo, nausea, those
17 types of symptoms?

18 A. Absolutely, yes.

19 Q. People that don't live near wind turbines also can
20 experience those same health effects; is that true?

21 A. Admittedly, yes. Of course.

22 Q. And there's multiple reasons why someone might
23 suffer a headache, for instance. Is that also true?

24 A. Many reasons I understand, yes.

25 Q. So if someone is seeking treatment for certain

1 symptoms, part of the process, as we discussed earlier,
2 would be to diagnose potential causes of that
3 particularly symptom; is that true?

4 A. True.

5 Q. And you would also rule out other potential causes
6 so that you can identify hopefully the true cause; is
7 that correct?

8 A. Yes. And you're talking about individuals. I don't
9 diagnose individuals. I talk -- my work is involved with
10 what I call causation assessment or risk assessment, not
11 individual diagnosis.

12 Q. No. That would be what a physician would do; is
13 that correct?

14 A. Individual diagnosis, yes.

15 Q. And an audiologist does not have the training to
16 rule out nonhearing-related symptoms as you've stated
17 earlier; correct?

18 A. Nonhearing-related symptoms? Rule out?

19 We can take the patient's -- or client's or
20 patient's word for it, like the physicians have to do,
21 that they have a headache, for example, but we can't
22 officially diagnose it.

23 Q. On page 5 of your testimony you indicate that
24 landowners who participate in a wind project or sign
25 waiver agreements with a wind company are less likely to

1 experience or report negative effects from turbines; is
2 that correct?

3 A. I believe it is.

4 Q. So a person's perception of a wind project can
5 influence their reaction to the wind project; is that
6 true?

7 A. Of course.

8 Q. On page 6 of your testimony you state that you
9 estimate around 15 to 20 percent of exposed residents
10 will experience extreme annoyance and sleep disturbance;
11 is that true?

12 A. Right.

13 Q. You don't cite a source for that statement in your
14 testimony, do you?

15 A. There is no source that says the range is 15 to
16 25 percent. I was offering an opinion and also an
17 estimate, and that is my estimate.

18 Q. In your testimony you indicate that you have been
19 retained as an expert witness in the past; is that true?

20 A. Yes.

21 Q. Are you familiar with the case of Williams v.
22 Invenergy, LLC?

23 A. Yes.

24 Q. And do you have in front of you what's been marked
25 as I -- oh, A36?

1 A. I have it on the list. I'll have to find it. I'm
2 sorry. I --

3 Q. I apologize. It's A36. It would have been sent to
4 you by e-mail.

5 A. Oh, I think that was sent to Mr. James's e-mail
6 address because I'm in his study in his home. I don't
7 know --

8 Q. I apologize. So do we need to send it to your
9 e-mail now?

10 A. I have my computer available to do that, if you
11 will.

12 Q. Okay. We will send it to you.

13 A. I need to log in --

14 Q. Okay.

15 A. -- again.

16 I think I have it now.

17 Q. Okay. If you have it up, just let us know when
18 you're ready.

19 A. It's open. I'll need to be leaning to the right to
20 access it. Okay?

21 Q. Okay.

22 A. Okay.

23 Q. Were you retained by the plaintiff in this action to
24 provide expert testimony on health effects of wind
25 turbines?

1 A. Yes, I was.

2 Q. And was your testimony excluded by the court?

3 A. As I recall, it was. I heard -- I should say I was
4 present to hear Mr. James's testimony, and I think we
5 were -- I know we were involved in the same case, and for
6 the same reasons my testimony was excluded, because of
7 the Daubert hearing issue that we discussed.

8 Q. Okay. So if you'll look on page 14 of the -- and so
9 the -- as I understand it, the page numbers are on the
10 lower right-hand side.

11 A. Yeah. I'm almost there.

12 Q. Okay.

13 A. Okay. I have page 14.

14 Q. So if we look under A, Qualifications, do you see
15 that subsection?

16 A. I do. Yes, I do.

17 Q. And I'll just warn you Cheri's looking at me so we
18 have to be careful not to talk over each other. Cheri is
19 our court reporter.

20 I see a line that says, "Punch's qualifications are
21 impressive, to be sure." Is Punch you, Dr. Punch?

22 A. I would assume.

23 Q. And if you look down at the bottom of the page, it
24 says, "However," and then up at the top of 14, "Punch is
25 neither a medical doctor nor an epidemiologist who could

1 opine on the cause of Williams's symptoms solely on the
2 basis of these qualifications. Therefore, for Punch's
3 causation testimony to be admissible, he must support his
4 causation opinion with reference to foundational
5 literature which establishes the causal relationship
6 through the Application of scientific knowledge."

7 Have I read that accurately?

8 A. You have.

9 Q. So if we turn then to page 15 --

10 A. Okay.

11 Q. And were you -- before I get there, were you present
12 for the discussion of the reason -- I believe you said
13 you heard Mr. James's testimony?

14 A. From another room. I was listening on another
15 computer, yes, on the website.

16 Q. Did you hear the discussion and us read through the
17 reasons why the Cape Bridgewater study was found by the
18 Court to not support an opinion of causation?

19 A. I have to say I only caught part of that. I'm not
20 fully aware of what was said in total.

21 Q. If I indicate that Mr. James agreed that I read the
22 portions that were referencing the Cape Bridgewater study
23 and the Dr. Kelly article and Paul Schomer's articles as
24 not being sufficient to form a basis for causation, would
25 you accept that based on what's in the document?

1 A. I would accept that you --

2 Q. Read it correctly.

3 A. I'm accepting that you read it correctly, yes.

4 Q. I won't repeat those then.

5 A. Okay.

6 Q. If we look at then on page 15 at the bottom on the
7 left-hand column, it says --

8 And are you there? I should ask before I start.

9 A. Am I here? Yes.

10 Q. It says here, "Neither the Pierpont nor Schomer
11 information constitutes an epidemiological study or shows
12 a significant statistical relationship between
13 turbine-generated infrasound and adverse health effects.
14 The third article by Salt and Hullar supports its theory
15 of causation by demonstrating that some low frequency
16 sounds stimulate hair cells in the cochleas of guinea
17 pigs. However, the Salt and Hullar article, like Punch's
18 other exhibits, fail to demonstrate the statistical
19 relationship between low frequency wind turbine
20 infrasound and human health effects."

21 Did I read that accurately?

22 A. I wasn't actually reading with you. I have no
23 reason to doubt that you read it accurately. Is that
24 acceptable?

25 Q. That's acceptable.

1 And the Pierpont study is the book by Neenah
2 Pierpont called Wind Turbine Syndrome? Is that true,
3 that they're referencing?

4 A. True.

5 Q. And there's testimony in your -- in your Direct
6 Testimony you have certain references to Mr. Howell's
7 study on -- the acoustical study that was performed by
8 Mr. Howell. Is that accurate?

9 A. I did make some comments on that, yes.

10 Q. Okay. And you made recommendations of certain
11 distances and certain sound levels that you believe are
12 appropriate; is that true?

13 A. I don't recall whether that was in -- with respect
14 to Mr. Howell's testimony or someone else's, but I think
15 that's -- that makes sense, yes.

16 Q. And I should --

17 A. I'll take it as true.

18 Q. I should restate that you did make those opinions
19 not necessarily in response always to Mr. Howell but of
20 your own determination?

21 A. That's right.

22 Q. And as I understood your testimony earlier, you
23 indicated that you had offered a distance of -- a mile
24 distance in addition to a dBA level because you didn't
25 know how you would determine sound at a specific level.

1 Is that true -- or a specific distance. Is that
2 accurate?

3 A. Yes. I said basically that the two don't correlate
4 always because of differences like terrain and weather
5 conditions and times of year. All kinds of things,
6 variations, factors, can influence the noise levels that
7 are picked up or expose people to certain noise levels at
8 that particular distance.

9 In other words, different people at 1.25 may not
10 experience the same noise levels. I didn't quite make
11 that clear earlier, I think.

12 Q. Are you aware that -- as Mr. Howell did in this
13 case, that it's possible to model in advance the
14 estimated sound levels at specific distances from wind
15 turbines?

16 A. As I said earlier, I don't do the model but I
17 understand what modeling is about and I understand from
18 other acousticians in addition to Mr. James that modeling
19 is not always accurate.

20 MS. SMITH: I have no further questions at this
21 time. I would move to strike all of Dr. Punch's
22 testimony.

23 He does not have the qualifications to opine
24 regarding health effects. Nor does he have the
25 qualifications to opine regarding acoustical analyses of

1 wind project and appropriate wind turbine levels.

2 MR. DE HUECK: So from my perspective I'm going
3 to stand by my prior ruling and apply it to Mr. Punch in
4 that he may not testify as to health-related effects.
5 However, I think he is allowed to testify as an expert to
6 infrasonic sounds and inaudible noises from his
7 experience and his training and research.

8 MR. ALMOND: May I have the opportunity to voir
9 dire the witness specifically related to this court case
10 that she was just referring to, as there's a pretty
11 significant paragraph in there where the Court says --
12 "Dr. Punch is provided to give an opinion on causation
13 that wind turbines produce audible noise which may
14 disturb individuals and interfere with sleep," which is
15 on page 16 of this court case we're going over that has
16 not been discussed yet.

17 MR. DE HUECK: Can you point me to where
18 you're --

19 MR. ALMOND: Page 16 of the Williams v.
20 Invenergy.

21 MR. DE HUECK: Where is it?

22 MR. ALMOND: C, Admissible Subjects of
23 Testimony. Just read that section.

24 MR. DE HUECK: Yeah. The first sentence, that's
25 what I was trying to say. We're not going to talk about

1 adverse health effects.

2 MR. ALMOND: Of infrasound and not audible -- or
3 low frequency sound pulses.

4 That paragraph goes on to say that, "Given his
5 expertise as an audiologist, he is qualified to give
6 opinions that wind turbines produce audible noise which
7 may disturb individuals and interfere with sleep."

8 MS. SMITH: May I respond?

9 Because nothing that we've discussed here so far
10 indicates that an audiologist tests for infrasound. They
11 test for hearing loss. Hearing has to be audible.
12 Therefore, I do not believe that he is qualified to speak
13 regarding infrasound.

14 MS. EDWARDS: I'd just like to weigh in that, if
15 permissible, I would like to further voir dire the
16 witness on the same issue.

17 MR. DE HUECK: Go ahead.

18 MS. EDWARDS: Thank you. Mr. -- rather,
19 Dr. Punch, are you familiar with the case out of -- or,
20 rather, docket out of New York involving the Cassadaga
21 Wind Farm permit?

22 THE WITNESS: I am.

23 MS. EDWARDS: Did you offer testimony in that
24 case?

25 THE WITNESS: I did, yes.

1 MS. EDWARDS: Was your status as an expert
2 challenged?

3 THE WITNESS: I don't think my credentials per
4 se were challenged. I don't recall that they were.

5 MS. EDWARDS: Was there a motion to have your
6 testimony excluded?

7 THE WITNESS: Well, if you have evidence that's
8 true, your documentation would be better than my
9 recollection. I don't recall it. No. I don't recall
10 it.

11 MS. EDWARDS: Would it be accurate to state that
12 the Public Service Commission found that it went to
13 weight and persuasiveness rather than admissibility and
14 allowed your testimony in?

15 THE WITNESS: That sounds consistent with what I
16 recall. But I'm not -- I'm not a lawyer either, and I
17 don't really fully understand the weight of those -- you
18 know, the substance of those labels.

19 MS. SMITH: I would say that this -- we're
20 really just doing legal argument through the witness
21 because that particular case had a standard where they
22 allowed -- they decided they didn't -- were not going to
23 apply the traditional standards of admissibility and they
24 allowed the witness in and it went to weight.

25 Here we have been applying the rules of

1 admissibility. They need to be an expert witness in
2 order to testify. Otherwise, anyone could come up and
3 give their opinions regarding articles on the internet,
4 and we've been attempting to differentiate between the
5 two.

6 MR. DE HUECK: Okay. So still applying a legal
7 standard, here is my ruling. And it's similar to what we
8 did earlier.

9 He may not talk about adverse health effects as,
10 say, a doctor or another medical professional because
11 clearly he is not. But he has clearly stated that he has
12 been studying audiology for a long, long time, and he's
13 got a background and a resume to support that.

14 On that note, I believe infrasound and other
15 inaudible noises go hand in hand with his study, and he's
16 clearly very fluent in that matter, which is beyond
17 someone just someone talking about what they've read on
18 the internet. So I believe his background will allow him
19 to testify in terms of infrasound.

20 Additionally, I see what Reece has pointed out,
21 and if you read the whole paragraph it makes sense to me.
22 They're not saying that he can medically go on to expound
23 about sleep-related health effects, but that if he has,
24 such as the WHO, literature that talks about health
25 effects, he's qualified to tell us about those reports

1 and what they said.

2 MS. SMITH: And just to be clear, as I
3 understand -- I understand with the reading here that
4 noise can cause sleep disturbance -- the relationship
5 between noise and sleep disturbance was allowed by the
6 court in this particular case.

7 So is your ruling that that's allowable? That's
8 the extent of what's allowable?

9 MR. DE HUECK: That would be the extent.

10 MS. SMITH: Okay. Just wanted a clarification.
11 Thank you.

12 MR. DE HUECK: So I'm considering it pretty
13 limited testimony, avoiding anything that is assessing
14 the risk of health problems.

15 MS. SMITH: All right. As long as we're
16 stopped, I will offer that we'll do the same approach
17 that we did before.

18 We will provide our proposed striking redaction
19 of the testimony that's been submitted, and we'll look at
20 the transcript as well.

21 MR. DE HUECK: Yes.

22 MS. SMITH: Thank you. I have no further
23 questions then.

24 MR. DE HUECK: Okay.

25 Moving on for cross-examination to Mr. Fuerniss.

CROSS-EXAMINATION

BY MR. FUERNISS:

Q. Hello, Dr. Punch. You have referenced the World Health Organization. Is it true that they're currently reviewing their noise standards and looking in particular at noises from wind turbines?

A. That's true. I learned that yesterday.

MR. FUERNISS: Thank you. I have no further questions.

MR. DE HUECK: Ms. Jenkins.

MS. JENKINS: No questions.

MR. DE HUECK: Ms. Pazour.

MS. PAZOUR: No questions.

MR. DE HUECK: Staff.

MS. EDWARDS: No questions.

MR. DE HUECK: Okay. Dr. Punch -- or, Mr. Punch, now we're going to subject you to Commissioner cross-examination. We're going to get you over to Kristie Fiegen.

Before she begins, I just have one question.

That Pierpont lady, she came up with infrasound and studied it and published some things. Would it surprise you to know that she had changed her position and determined that wind turbines do not carry infrasound? In other words, she backed off of her former

1 position that you would have relied on in that court
2 case?

3 THE WITNESS: Well, I relied on a number of
4 things. But it would surprise me, yes. It would
5 surprise me.

6 MR. DE HUECK: So you have not heard that?

7 THE WITNESS: I have not.

8 MR. DE HUECK: Okay.

9 CHAIRWOMAN FIEGEN: I have none.

10 MR. DE HUECK: Vice Chairman Hanson.

11 No questions.

12 Commissioner Nelson.

13 COMMISSIONER NELSON: Dr. Punch, your Exhibit 2,
14 which I think has been labeled as Intervenor-2b, the wind
15 Turbine Noise and Human Health paper, on the bottom of
16 page 2 --

17 THE WITNESS: I'm sorry. Is that Exhibit 2?

18 COMMISSIONER NELSON: It was Exhibit 2 on your
19 testimony.

20 THE WITNESS: Right.

21 COMMISSIONER NELSON: It's been labeled as 2b.

22 THE WITNESS: Well, they're numbered by letters
23 and then a number.

24 COMMISSIONER NELSON: Yep. I-2b. And if you go
25 to the second page.

1 THE WITNESS: Okay.

2 COMMISSIONER NELSON: Bottom of the second page,
3 probably second to the last sentence that starts, "In
4 fact."

5 THE WITNESS: Just getting to the second page.
6 Okay. Yes. Okay.

7 COMMISSIONER NELSON: "In fact, much research
8 and some already rendered legal decisions so convincingly
9 that some segments of the population suffer damaging
10 effects from exposure to wind turbine noise."

11 Can you cite for me the legal decisions that
12 you're referring to there?

13 THE WITNESS: I don't think they're necessarily
14 the legal decisions that were made in cases I've been
15 involved with. They're cases that I've discussed with
16 Rick James, and he's discussed some cases of others who
17 he knows -- other acousticians who have been involved in
18 these cases.

19 I cannot cite at this point -- I was basing that
20 on information I had then, but I don't recall what I was
21 basing it on at this point.

22 I think probably I was thinking for sure about
23 the Wisconsin case. We mentioned the Shirley Wind case
24 in this article, in fact. This was written in 2015 or
25 '16. And that case was ongoing since, I don't know, 2012

1 at least, if not earlier.

2 So the fact that it had been ruled a human
3 health hazard was a legal decision in a court case
4 essentially, in a hearing at least.

5 There are other cases in Europe. There are
6 cases now that I didn't know about then in Canada,
7 particularly Ontario, Australia, I think, Ireland where
8 there are real community pushback -- there's real
9 community pushback to install turbine operations.

10 And even in Canada I think -- my understanding
11 is that in the province of Ontario the new Premier, Doug
12 Jones -- excuse me. Doug Ford was elected in large part
13 because of the community's complaints and upset with
14 respect to all the turbines that are going up in that
15 area of the country.

16 COMMISSIONER NELSON: Yeah. But that has
17 nothing to do with a convincing legal decision.

18 So I want to go back to your reference to the
19 Shirley Wind Farm issue where that area was declared to
20 be a public health area.

21 THE WITNESS: Human health hazard, yes.

22 COMMISSIONER NELSON: Okay. And that decision
23 was made by a court of law; is that correct?

24 THE WITNESS: Well, it was made by the Public
25 Service Commission, I think, based on evidence from the

1 Department of Health. I was not involved in that case.
2 Let me make that clear.

3 COMMISSIONER NELSON: But that's the one that
4 you're referring to in this paper; correct?

5 THE WITNESS: Okay. Correct. I believe so. I
6 believe so.

7 COMMISSIONER NELSON: No further questions.

8 THE WITNESS: Again -- okay.

9 MR. DE HUECK: With that, Mr. Almond, do you
10 have any redirect?

11 MR. ALMOND: No.

12 MR. DE HUECK: Prevailing Winds, do you have any
13 recross based solely on Commissioner Nelson's question?

14 MS. SMITH: No.

15 MR. DE HUECK: Staff.

16 MS. EDWARDS: No.

17 MR. DE HUECK: Okay. Mr. Punch, thank you for
18 your testimony today. You may be dismissed.

19 (The witness is excused.)

20 MR. DE HUECK: And moving on, Mr. Almond, you
21 may call your next witness.

22 MS. AGRIMONTI: Mr. de Hueck, I'm sorry. I just
23 realized the time. We're hitting 5:30, and I know we'll
24 go until 7:00. I didn't know if this was the right time
25 to break, or if you had a different time in mind.

1 (Discussion off the record.)

2 MR. DE HUECK: Reece, why don't you go ahead.
3 Call your next witness. We'll at least get your portion
4 done and then think about a break before
5 cross-examination.

6 MR. ALMOND: Intervenors call Paul Schoenfelder.
7 Paul Schoenfelder,
8 called as a witness, being first duly sworn in the above
9 cause, testified under oath as follows:

10 DIRECT EXAMINATION

11 BY MR. ALMOND:

12 Q. Why don't you introduce yourself to the Commission.

13 A. My name is Paul Schoenfelder. I live at 40228 296th
14 Street, Wagner, South Dakota.

15 Q. And do you own land in or around the project
16 footprint?

17 A. I do.

18 Q. How long -- sorry.

19 A. Sorry. Own a farm together with my wife. I in 2000
20 received a deed to a portion of what's my wife's family
21 farm.

22 Q. How many acres do you own?

23 A. 160.

24 Q. And how long did you say you've lived there?

25 A. My wife grew up on the family farm. We moved to

1 Boise, Idaho, and then in -- let's see. 2017 my wife
2 returned to the area, to the farm, and then I moved to
3 the area in January of 2018.

4 Q. And what do you do for a living?

5 A. Right now I'm working on building two businesses in
6 the area. We -- I lived out in Idaho for 24 years. I
7 worked as a recreation manager for the City of Boise
8 Parks and Recreation Department.

9 Wife and I worked on a business model, a plan, tried
10 to figure out a way to basically get back to
11 South Dakota, get back to the farm. So right now since
12 January I moved back. I'm in the process of building a
13 business on the farmsite.

14 Q. And what about your wife? What does she do?

15 A. She's a training manager for a company called DTS.
16 She works remotely. The company she works for is based
17 out of Orlando, Florida. She works out of our home
18 remotely.

19 Q. Do you have any children?

20 A. We do. We have four adult children. Our adult
21 child, Zachary, our third child, moved back to
22 South Dakota in June.

23 Q. Where does he live?

24 A. He lives on the farm with us. He purchased a camper
25 and moved onto the farmsite. We're in the process of

1 renovating the farmhouse, and so for the last few months
2 we've been living in the camper since we don't have a
3 flush toilet. So until I get my rough-in permit, my
4 rough-in inspection, and get my shower back in place,
5 we're living in the camper on the farmsite.

6 Q. The other three children live outside of
7 South Dakota?

8 A. Yes. All three live in Idaho.

9 Q. And do you have any concerns with this project?

10 A. I have numerous concerns with the project.

11 Q. I should first clarify, are you an Intervener in
12 this proceeding?

13 A. Yes. I am an Intervenor in this case.

14 Several concerns. My primary concern is my health,
15 the health of my family.

16 We have several wind turbines proposed within a mile
17 of our home. I know several people that live near the
18 Beethoven Wind Project have had very credible health
19 concerns associated with that.

20 I've visited the Beethoven area. Again, it's only a
21 few miles from my home. Sound, shadow flicker,
22 vibration, those are things that are definitely concern
23 for me. Long-term we're planning to live in this house I
24 have to assume for the rest of our lives. It faces
25 towards the east. To the southeast we've got multiple

1 wind turbines. So health issues are huge.

2 You know, from an aesthetics standpoint, this is
3 where we want to live. This is where we've spent the
4 last 10 years trying to figure out how to get back to.

5 I wake up every morning and look to the east and,
6 based on the maps, envision where the wind turbines are
7 proposed. I know that physically it would be a different
8 environment.

9 So along with my own health concerns, I guess I'm
10 afraid for the health of my neighbors. I fear for their
11 physical and psychological well-being, having multiple
12 large wind turbines in the neighborhood.

13 Q. And what county do you live in?

14 A. Charles Mix County.

15 Q. And did you participate in the, I guess, attempted
16 zoning process and all the County Commission meetings
17 that we talked about with Mr. Mushitz?

18 A. Yes. Pretty much throughout the process. I started
19 attending some meetings in April. Shortly thereafter,
20 the idea of zoning was brought up, and again attended
21 multiple meetings in which zoning was discussed by the
22 county.

23 Q. And from start to finish just give the Commission
24 kind of your impression of the process that took place.

25 A. Well, the first meeting I attended was in April. I

1 believe it was April 19. It was a County Commission
2 meeting attended by Mr. Powers who discussed his health
3 concerns.

4 MS. AGRIMONTI: Objection. I'm going to ask
5 that the witness please not recite what others may have
6 said at a meeting. He was asked about his impression,
7 not what people said.

8 THE WITNESS: I apologize.

9 MS. AGRIMONTI: That's okay. I'm sorry for
10 interrupting. I want to make sure I have an opportunity
11 to interject an objection during a narration.

12 A. I attended meetings in April. My primary takeaway
13 from that meeting was that the County Commissioners did
14 not have a great deal of information about the proposed
15 project.

16 My impression was that they were surprised at what
17 the setbacks potentially were in neighboring Bon Homme
18 County. It was expressed by County Commissioners that
19 they -- they were surprised that setbacks would be that
20 close to occupied residences.

21 I expressed my concerns that there was a lack of
22 information about the project available. There was a lot
23 of unknowns. I didn't know exactly what the plans were.
24 I've been trying to follow the project earlier, you know,
25 through 2016, through 2017, but still didn't have a great

1 deal of information.

2 I attended several meetings, at least two or three
3 meetings, during the month of May in which the topic was
4 brought up to the County Commissioners. Several members
5 of the community attended those meetings. Again, I was
6 struck by the general lack of knowledge of wind, large
7 wind facility regulations, practices.

8 We discussed setbacks with the County Commission.
9 It was expressed several times that two-mile setbacks may
10 be appropriate. County Commissioners expressed that --

11 Q. And let's not talk about what any County
12 Commissioners said.

13 MS. AGRIMONTI: Yeah. I'm going to move to
14 strike the testimony of the witness. He has provided, I
15 believe, speculation about what the County Commissioners
16 knew or did not know in his recounting of what was said
17 or not said at a variety of meetings.

18 MR. DE HUECK: So it's pretty blended in there
19 with what he took away from the meetings. I'm going to
20 allow him to continue. I'm not going to strike any
21 testimony up to this point, but we need to just focus on
22 what you observed, how you felt, and not speculate as to
23 what they said or how they felt or --

24 THE WITNESS: Yes.

25 Q. So summarizing, you said you attended meetings in

1 the months of April and May. Did you get a sense or a
2 feeling of whether or not the County Commissioners were
3 attentive to the concerns of the residents?

4 A. I got the impression they were very, very attentive
5 to the input that they were receiving from the public.

6 Q. Okay. So then after May did you continue to attend
7 meetings?

8 A. I did. I attended.

9 Q. Tell us about those.

10 A. I attended the meeting in June. That was the
11 meeting that was attended by a representative from
12 District III Economic Development, Mr. McGinnis. He
13 talked about -- I got to be careful. I honestly want to
14 be very careful.

15 MR. DE HUECK: Well, here's the easy way to do
16 it. You're doing a lot of what's called narrative, and
17 you just start -- which is great and appreciate it, but
18 your attorney can ask a lot more questions and kind of
19 help guide what comes out of your mouth.

20 So I'm going to allow Reece to ask more
21 questions and for you to give shorter answers. You can
22 talk just as much. It's just he's going to be there to
23 help you guide it along so we're going to break up your
24 long narratives into smaller sections through your
25 attorney.

1 THE WITNESS: Thank you.

2 Q. So this June meeting in which a District III
3 representative was there, at that meeting did you have a
4 sense or an impression of how the Commissioners were
5 responding to the concerns of the citizens?

6 A. I believe they put a lot of weight on what
7 Mr. McGinnis brought forward. My takeaway was that if
8 the county was going to set about regulations greater
9 than those that existed in Bon Homme County, that they
10 would subject the county to litigation, that there was a
11 rationale that was used to develop the Bon Homme County
12 regulations regarding large wind turbines, and that if
13 the county were going to do anything more restrictive
14 than that, they would have to provide peer-reviewed
15 research or they would subject the county to litigation.

16 Q. And did you continue to attend county meetings as
17 the process continued on?

18 A. I did. I attended another meeting later in June.

19 Q. And what was the purpose of that meeting about?

20 A. That meeting was to take more public input. There
21 were several members of the community that came in and
22 expressed larger setbacks. One-mile setbacks and
23 two-mile setbacks were what they would like to see, what
24 they would expect, that they felt would be necessary to
25 protect them.

1 Q. And did you have a sense or impression of how that
2 information was -- or how the Commissioners responded to
3 those requests?

4 A. Continued to be very well received. Expressions
5 that -- at the public -- we felt as members of the public
6 and other public people that I heard there that those
7 things were being heard and that the idea of larger
8 setbacks, one-mile setbacks for residences, was
9 certainly -- certainly under consideration.

10 Q. And did there come a point in time where you felt
11 that the County Commissioners were no longer as receptive
12 to the requests of their citizens?

13 A. I attended a meeting in July, which was also
14 attended by Mr. McGinnis, members of -- I guess I refer
15 to them as Prevailing Winds Project. Thorstad, their
16 legal counsel, also several people who were investors
17 and/or had easements for the project.

18 At that time the tenor of the Commission seemed to
19 change.

20 Q. How so?

21 A. When the topic of one-mile setbacks was brought up
22 the Commission seemed to be stepping away from that.
23 Mr. McGinnis brought a map that he had put together, I
24 assumed it was Mr. McGinnis put together, that showed the
25 southern part of Charles Mix County overlaid with

1 residences with multiple rings representing setbacks.
2 Overlaid with that were proposed turbine locations, and
3 that was reviewed.

4 Several times -- you know, it was -- it was -- it
5 felt difficult to express something, you know, other than
6 what would now have been significantly reduced setbacks.

7 I requested at that meeting that a map show -- a map
8 of nonparticipating residents. Because as it was looked
9 at, people observed that most of the county -- if you
10 overlaid one-mile or two-mile setbacks, that occupied
11 most of that southern part of the county. I requested a
12 map that would also represent nonparticipating or
13 withdraw nonparticipating households. Mr. McGinnis, I
14 believe --

15 Q. Did you receive a copy of the map that you
16 requested?

17 A. I did not receive a copy of that map. I also did
18 not see a copy of the map that included nonparticipating
19 residences.

20 Q. Okay. After that meeting, did you attend any
21 additional meeting?

22 A. I did. At that meeting in July it was suggested
23 that -- it was suggested that an agreement --

24 Q. You said the July meeting. This is the one you were
25 just talking about?

1 A. Just talking about. The July meeting.

2 It was suggested that Prevailing Winds Staff visit
3 with --

4 Q. Let's hold on -- off on that testimony. Okay?

5 A. Sure.

6 Q. So when you left this meeting in July what was your
7 kind of takeaway from it?

8 A. My takeaway was that -- my takeaway was that the
9 Prevailing Winds Staff was having more influence on the
10 County Commission than the residents of the county.

11 Q. Okay. And then did you continue to attend County
12 Commission meetings thereafter?

13 A. I did.

14 Q. And did your impression or your sense change at any
15 point as you attended those additional meetings that the
16 County Commission was providing -- was receiving the
17 Prevailing Winds' input more favorably than that of its
18 residents?

19 A. Yes. That was my impression. It built from that
20 July meeting and continued in future meetings that I had
21 attended.

22 Q. When was the last Commission meeting that you
23 attended with respect to this project?

24 A. I attended an August meeting of the Commission,
25 which zoning was discussed. And then I also attended a

1 September -- early September meeting that was actually
2 with township representatives and the County Commission
3 to discuss zoning.

4 Q. What was that September meeting about?

5 A. That was about zoning in general. There was a Draft
6 Zoning Ordinance being brought forward, and there were --
7 there were, I don't know, approximately -- there were
8 several people -- 40 people from the community, several
9 of them representing the townships, discussing all
10 aspects of zoning.

11 Q. And was the discussion of wind energy zoning -- or
12 was wind energy zoning considered during that meeting?

13 A. In that September meeting wind energy zoning was by
14 and large dismissed because at that point what was
15 referred to as an agreement had been signed and the
16 county would not entertain any zoning changes or
17 emergency zoning with regards to large wind facilities.

18 Q. And you referenced the agreement. Have you come to
19 learn that was the Peter Pawlowski Affidavit that we've
20 been discussing in this hearing?

21 A. Yes.

22 Q. Okay. You've attended this entire hearing process;
23 is that right?

24 A. Yes.

25 Q. Earlier a question was asked about the level of

1 social disruption that has occurred in the area. What is
2 your sense on the social disruption that has occurred and
3 that will -- whether you think it will likely continue
4 on?

5 MS. AGRIMONTI: Objection. Vague.

6 MR. DE HUECK: You may go ahead and answer that.

7 A. I've been -- I've been aware of this project since
8 2016, and I've seen that it's generated quite a bit of
9 anxiety.

10 I attended the public meeting in Avon in July of
11 2018, and I think if you attended that meeting, what you
12 saw at that meeting is really indicative of what I've
13 seen in the community, if not even more so. I've seen a
14 great deal of anxiety.

15 My sister-in-law owns property adjacent to ours.
16 Her intention -- she's developing that property with the
17 intention to move to that property. When she learned
18 that there may be turbines --

19 MS. AGRIMONTI: Objection. He's testifying to
20 what other people think or believe.

21 MR. DE HUECK: Yes. So don't continue down the
22 road of that. Just your own personal.

23 A. I've seen people who I fear would -- who have been
24 so emotionally bothered that I fear for their health.
25 The idea that wind turbines are going to be placed in the

1 area. I've seen high levels of anxiety. I've felt
2 personally a lack of information, a lack of accurate
3 information. I can't -- I guess I could speak for others
4 because I've talked to quite a few people, but my
5 feelings have been echoed by others. They feel that it's
6 esthetically disturbing.

7 Q. Have you observed any strains on friendships or
8 relationships in the community?

9 A. Absolutely. I've seen neighbors who don't look each
10 other in the eye. I see conflicts. I see people brought
11 to tears. I see people who feel ashamed because they --
12 because of the position they've taken for or against it.

13 MS. AGRIMONTI: I'm going to object to that
14 testimony as well. He's speculating as to how people
15 feel.

16 MR. DE HUECK: I agree. However, I'm not going
17 to strike that testimony. I don't think it's
18 incredibly -- just, Reece, continue to ask some
19 questions.

20 MR. ALMOND: I don't have any other questions
21 for Mr. Schoenfelder. Thank you for testifying.

22 THE WITNESS: Thank you.

23 MR. DE HUECK: As you've seen, we're now going
24 to turn you over for cross-examination. We'll start over
25 here with the Applicant.

1 MS. AGRIMONTI: Thank you.

2 CROSS-EXAMINATION

3 BY MS. AGRIMONTI:

4 Q. Mr. Schoenfelder, just a couple of questions.

5 You've reviewed the proposed layout for the project in
6 this proceeding; is that right?

7 A. I have. I've seen the map change a couple times,
8 but I'm pretty familiar with it.

9 Q. And do you know how close the nearest turbine is to
10 your home?

11 A. I would say approximately three-quarters of a mile.

12 Q. And you stated that you were actively involved in
13 Charles Mix County with respect to whether a zoning
14 ordinance ought to be put in place; is that right?

15 A. Yes.

16 Q. And you would agree that all interested persons who
17 have a stake in whether zoning would be appropriate or
18 not have a right to speak and influence the political
19 process?

20 A. Yes.

21 Q. And, in fact, that's what happened in Charles Mix
22 County?

23 A. Could you restate that question?

24 Q. Yeah. You would agree that both -- or all sides.
25 There were townships that weighed in on whether zoning

1 was appropriate, there were people like yourself who had
2 opinions about setbacks, there were participants who
3 believed there should be certain rules in place for their
4 development of their property, and there was Prevailing
5 Wind Park.

6 And all of those entities weighed in to this
7 Charles Mix process. Would you agree?

8 A. Yes.

9 MS. AGRIMONTI: I have no further questions.

10 MR. DE HUECK: Mr. Fuerniss, do you have any
11 questions for Mr. Schoenfelder?

12 CROSS-EXAMINATION

13 BY MR. FUERNISS:

14 Q. Mr. Schoenfelder, you mentioned the potential impact
15 of a wind farm on your home, your homestead, and your
16 business. Do you feel it would also potentially
17 impact -- you said that your -- that was your wife's
18 home. She grew up there.

19 Would there possibly be an impact on the cemetery
20 that her family's buried in?

21 A. I believe so. Absolutely.

22 MR. FUERNISS: Thank you.

23 MR. DE HUECK: Ms. Jenkins, do you have any
24 questions?

25 MS. JENKINS: I have one.

CROSS-EXAMINATION

BY MS. JENKINS:

Q. Do you think that we -- that the process to get this Application approved or denied, has it gone according to how you would expect for people like us Intervenors?

MS. AGRIMONTI: I'm going to object. I don't believe that the witness would have any expectation or basis on which to make a prediction about how this process ought to go.

MS. JENKINS: Maybe I have to restate that.

MR. DE HUECK: You do.

I think you're trying to ask him his level of satisfaction with the process that he's gone through? Or something along those lines?

Q. Do you understand?

A. I believe I understand the question.

Q. Okay.

A. I have been disappointed in the amount of -- or the lack of information available about the project. I have been dissatisfied with the -- with the type of information that I've been able to access.

I've never been contacted by Prevailing Winds, even though I live in the impacted area. My wife's never been, you know, contacted. I've attempted to contact Prevailing Winds. See very little response. I hear --

1 I am surprised and disappointed at the length of
2 time between when the Application is submitted through
3 this process and when it will be approved. My personal
4 opinion is that the County Commission doesn't have the --
5 didn't have the time, didn't have the tools in order to
6 adequately and in-depth look at this project.

7 I fear that it moved very quickly for the people in
8 the area, and it moved very quickly for our county
9 officials.

10 Q. Thank you. And can you describe how you feel about
11 it since the Application came in and the process for the
12 Intervenor to prepare for the case and the burden?

13 Do you feel like there's a burden?

14 A. Well, if you look at the mounds of paper, there's a
15 lot of information. And it's a very complicated process.
16 I think for individuals to try and navigate that process,
17 it's very difficult. And I think there's a lot of people
18 that would be shut out of the process simply due to the
19 lack of understanding of how the process works.

20 Q. And do you feel that the necessary permits from the
21 different entities that are required --

22 A. Again, having a lack of understanding of how the
23 process works, I was somewhat surprised that certain
24 things -- the WAPA study being primary among them.

25 I submitted a letter to WAPA in 2016. It was by

1 happenstance I saw the announcement in the Wagner Post
2 that that deadline for information to be submitted to
3 WAPA was drawn to a close.

4 It seems like it's a very important, impactful
5 project, and a lot of people are, myself included, my
6 family, not aware of what the process was and still look
7 at it to a certain extent shaking our heads wondering how
8 this has happened so quickly.

9 Q. Okay. And then one final question, I think.

10 Do you feel like the resources that we as
11 Intervenors have are comparable to the resources that --
12 of the Applicant's?

13 A. Absolutely not.

14 Q. Okay. And the question B to that is do you feel
15 that if the necessary permits that they needed to
16 finalize this project -- do you feel like they probably
17 should have been obtained before they filed an
18 Application with the PUC and caused us to have to spend
19 money to protect our interests?

20 MS. AGRIMONTI: Objection. Relevancy.

21 MR. DE HUECK: You can go ahead and answer that.
22 If you understood the question.

23 A. I think that there are still unknown factors in the
24 Application, that there's still holes in the Application.
25 And I don't know how -- how those could be addressed.

1 I still don't understand how they could be addressed
2 or redressed through the process leading up to either
3 approval or denial of the Application.

4 Q. Okay. And do you have any other concerns?

5 A. Well, again, I have personal concerns. I'm trying
6 to start a business in the area. That business is based
7 on -- on sort of the uniqueness of the area. I'm trying
8 to -- I'm working on opening a brewery.

9 We'd love people to come out and enjoy the area and
10 understand that you have products that are -- that are
11 produced in this area, that this is where it comes from.
12 And when I -- I'm kind of -- I'm a history buff so
13 whenever I go up to the hill, I go up to Fort Randall,
14 anybody who's in the car gets to hear me point out Lake
15 Andes. You can see Lake Andes from the hill. Lewis &
16 Clark documented Lake Andes because it's a natural lake.

17 Well, then you turn and look farther to the east.
18 What you don't see is the rolling plains that was there
19 250 years ago. What's become the dominant feature is a
20 band of large wind turbines. And then you envision that
21 large band of wind turbines stretching for miles farther
22 to the south across Highway 46.

23 And then you look off towards Nebraska. I drive
24 down to Elgin, Nebraska, and I'm -- I'm not stricken by
25 the rolling hills. I'm struck by the large wind

1 turbines, and that's not -- that's not where I grew up.
2 I grew up in Mitchell. I didn't grow up in an industrial
3 wind farm. So that's some concern.

4 MS. JENKINS: Thank you.

5 MR. DE HUECK: Ms. Pazour.

6 MS. PAZOUR: No comment.

7 MR. DE HUECK: Staff.

8 MS. REISS: No, thank you.

9 MR. DE HUECK: And that brings us to Commission
10 questions, starting with Commissioner Hanson.

11 COMMISSIONER HANSON: Good evening,
12 Mr. Schoenfelder.

13 It's understandable that there will be mixed
14 feelings about a large industrial project of this nature
15 within an area for a number of different reasons and that
16 there will be some significant feelings expressed by the
17 inhabitants that are affected by it.

18 We've read a number of things, and certainly
19 we've witnessed some emotional presentations to us when
20 we were there for the public meeting.

21 Can you tell us just -- I'm curious. And it's
22 not necessarily going to weigh a tremendous amount on the
23 decision, but I'd like to know, have you witnessed --
24 let's look at degrees, for instance.

25 Have you personally witnessed altercations from

1 the standpoint of shouting matches between people?

2 THE WITNESS: I've witnessed, I would say,
3 strong words. I don't know if I would describe them as
4 shouting matches.

5 COMMISSIONER HANSON: Have you witnessed any
6 physical altercations?

7 THE WITNESS: I have not.

8 COMMISSIONER HANSON: Okay. I'm just curious to
9 the fabric of the town and relationships. Have you seen
10 people that are no longer willing to do business at
11 particular areas or people who have estranged
12 relationships of that nature?

13 THE WITNESS: Yes. Yes, I have.

14 COMMISSIONER HANSON: Okay. Thank you.

15 Well, to what degree have you seen that? Is it
16 just one or two or --

17 THE WITNESS: Again, I guess trying to avoid
18 hearsay.

19 COMMISSIONER HANSON: Sure. That's a little
20 difficult. I understand.

21 THE WITNESS: People say I -- I don't want to --
22 I don't want to do business with that person. I don't
23 want to tell them how I feel because I fear that I'll
24 estrange them and they won't do business with me.

25 COMMISSIONER HANSON: Is this, I'm assuming --

1 when you socialize and to whatever extent, church and
2 sports events in the high school, things of that nature,
3 is this a number one topic of discussion or is Trump's
4 latest tweet the --

5 THE WITNESS: What to me is almost more
6 disturbing is that there is a lack of information that
7 people don't know, that more than anything else I hear,
8 Is that still happening? Or I don't want to talk about
9 it because it's already done. It's already -- a done
10 deal is the word you hear so often. It's a done deal.
11 As if this -- all these proceedings are completely
12 irrelevant. That people, when asked if they would attend
13 that meeting in Avon in July, said there's no point.
14 It's already approved, and I don't want to rock the boat.
15 That's -- that's been repeated several times.

16 COMMISSIONER HANSON: All right. Thank you.

17 COMMISSIONER NELSON: Thank you for being here.

18 Just to make sure I've got you placed properly
19 on the map, I'm seeing a parcel owned by the Vernon Sip
20 Life Estate. Is that where you're at?

21 THE WITNESS: That is correct.

22 COMMISSIONER NELSON: Perfect.

23 You referred in your testimony to the mountains
24 of paper that were involved in this process.

25 THE WITNESS: Uh-huh.

1 COMMISSIONER NELSON: But you ended by saying
2 that there are holes in the Application.

3 THE WITNESS: Uh-huh.

4 COMMISSIONER NELSON: And do you believe that
5 those holes have not been filled by the mountains of
6 paper that have been involved here?

7 THE WITNESS: A couple things I guess that come
8 to my mind immediately.

9 The one is WAPA environmental study. It was my
10 understanding that that was a precursor for approval for
11 this project. Again, submitted letters to that process.
12 Still waiting to hear what that says.

13 The environmental cultural asset survey. Even
14 in the Application I read that that's being worked on.
15 Then -- again, then the accelerated process of the zoning
16 in my own county, led to believe that zoning would move
17 forward, that there would be opportunities for public
18 input when there is -- to the best of my knowledge, that
19 Agreement and Affidavit that was produced between
20 Prevailing Winds and the county didn't receive public
21 input.

22 So, again, still feeling like there's a lack of
23 information out there and misinformation but definitely
24 still things lacking and not understanding how the
25 process works.

1 COMMISSIONER NELSON: Do you understand that
2 those first two items that you mentioned will, in fact,
3 need to be completed before any permit would ever be
4 valid from this Commission?

5 THE WITNESS: I do absolutely.

6 COMMISSIONER NELSON: And that that information,
7 at least that which is not confidential information, will
8 ultimately be public?

9 THE WITNESS: Yes.

10 COMMISSIONER NELSON: The last question, I want
11 to follow up on Commissioner Hanson's question about
12 relationships.

13 Have any of your relationships been damaged
14 through this process?

15 THE WITNESS: Yes.

16 COMMISSIONER NELSON: Are there people that you
17 don't talk to because of this?

18 THE WITNESS: There are people I feel less
19 comfortable talking to. There are relationships that
20 have been strained personally for me. Neighbors. Yes.

21 COMMISSIONER NELSON: And do you feel ill will
22 towards those who support the project?

23 THE WITNESS: I am -- I made a commitment early
24 in this process that I would want to be treated the way
25 other people want to be treated. I hope that other

1 people feel the same way.

2 These are my neighbors. A lot of those
3 neighbors are taking the stands for a lot of different
4 reasons. They're not evil people. I just -- I -- I
5 refuse to -- I refuse to hate anyone through this
6 process.

7 COMMISSIONER NELSON: Thank you. And I
8 appreciate your sharing that. And that was a tough
9 question for me to ask, and I appreciate your answer.
10 Thank you.

11 THE WITNESS: Thank you.

12 MR. DE HUECK: Chair Fiegen.

13 CHAIRWOMAN FIEGEN: Thank you for being here.
14 Thank you for being part of the process.

15 When I was a legislator and then I came to the
16 PUC the process here is completely different than the
17 legislative process and it is difficult to maneuver but
18 we're quasi-judicial and yeah. So it's completely
19 different. And so thank you.

20 THE WITNESS: No problem. It's my pleasure.

21 CHAIRWOMAN FIEGEN: Two quick questions.

22 The closest wind tower number to your property
23 is -- do you know what number it is, or could Reece --

24 THE WITNESS: I could look at the map in a
25 heartbeat.

1 Between 23 and 58. I couldn't tell you exactly
2 which one's closer. They're both approximately
3 three-quarters of a mile from my home.

4 CHAIRWOMAN FIEGEN: Okay. How many acres there
5 does your family own?

6 THE WITNESS: In total, 320.

7 CHAIRWOMAN FIEGEN: 320. And then you talked
8 about looking at building a business and --

9 THE WITNESS: Uh-huh.

10 CHAIRWOMAN FIEGEN: It's always neat when people
11 come back -- come back to South Dakota and raise their
12 families and retire here, whatever. We love that.

13 THE WITNESS: Uh-huh.

14 CHAIRWOMAN FIEGEN: Tell me a little bit about
15 the business that you're looking at developing. And will
16 people come to your facility? Will they be outside?
17 Will they be in your home? Are you building a shed?

18 Help me understand the dynamics of that business
19 and like how many acres. Where will it be? Right next
20 to your home?

21 THE WITNESS: And I apologize. You're going to
22 get me started.

23 The first thing is the family farm. So we're
24 working on the family farmhouse. We sharecrop that land.
25 So we're involved in the process. We received revenue

1 from that farm. We would never want to do anything that
2 would significantly diminish that. Farms are important
3 both economically and culturally. So we want to make
4 sure that that family farm can continue working with a
5 couple of families who do the real work and they've done
6 it for 10, 15, 20 years plus and we want to maintain that
7 relationship.

8 We also want to build a farm-based business.
9 Basically producing products on the farm, woodworking
10 products, handcrafted products, and then distribute it
11 from the farm.

12 And then the primary business that we're working
13 on is a brewery. From the legislative side, I would say
14 the legislature did a good job this spring because they
15 changed some of the brewery laws so now we're able to do
16 what's called self-distribution.

17 In the past you -- if you didn't sell beer on
18 the site, you had to work through a distributor.
19 Approximately 35 percent of what you -- the cost of
20 production goes to that distributor. So being able to
21 self-distribute is huge, up to 1,500 barrels.

22 So we started the process. We have a building
23 permit. We're clearing the ground for a brewery
24 building. It will be a pole barn.

25 We know that the margins -- you make a lot more

1 money if you can sell it on-site so we are hoping to get
2 people on-site to come out and buy our beer.

3 We also know that brand loyalty is huge in the
4 small brewery market. So we want to create an
5 environment where people can come out, sit on the porch
6 patio that would be incorporated into this building. We
7 are trying to situate the patio of that building so it's
8 got a prairie view.

9 Emphasizing the farmhouse origin and nature of
10 our products is a big part of that marketing strategy.
11 And knowing that also then we can self-distribute that
12 and push that out of the area, that we can push the
13 lion's share of our products out. But if we get people
14 to identify with us, they'll become loyal to our brand.

15 CHAIRWOMAN FIEGEN: Thank you. I certainly
16 appreciate understanding how you're using the land that
17 you came back to.

18 Thank you.

19 MR. DE HUECK: Mr. Schoenfelder, in following up
20 with both Commissioner Hanson and Commissioner Nelson
21 regarding the social climate of your community, you
22 talked a lot about strained relationships, high anxiety
23 among community members, annoyance between the two sides.

24 Have you ever felt a threat to your personal
25 safety?

1 THE WITNESS: Up to this point -- concerns but
2 not a threat. I mean, that's kind of a subtlety but it's
3 something I've thought about but it's not --

4 MR. DE HUECK: It's not there on the streets.

5 THE WITNESS: -- personally threatened.

6 MR. DE HUECK: Like a riot isn't looming?

7 THE WITNESS: Yeah. Yeah.

8 MR. DE HUECK: You can still gather under one
9 roof.

10 THE WITNESS: Yes.

11 MR. DE HUECK: You feel that hostility and
12 whatnot.

13 THE WITNESS: Yeah. There's a high level of
14 sensitivity, anxiety.

15 MR. DE HUECK: The community's been able to keep
16 civility amongst each other because you're good people.

17 THE WITNESS: Yes. For the most part -- I mean,
18 I've been to these County Commission meetings where, I
19 mean, some of the Intervenorors are personally attacked and
20 insulted. Not physically attacked.

21 MR. DE HUECK: Yeah.

22 THE WITNESS: But demeaned. That's -- yeah.
23 That's disturbing.

24 MR. DE HUECK: Yep. Thank you.

25 With that, we'll go back to your attorney for

1 redirect.

2 MR. ALMOND: None.

3 MR. DE HUECK: And we had Commissioner questions
4 so, Prevailing Winds, do you have any cross based on
5 those questions?

6 MS. AGRIMONTI: No. Thank you,
7 Mr. Schoenfelder.

8 MR. DE HUECK: Mr. Fuerniss. No.
9 Ms. Jenkins.

10 MS. JENKINS: Of course, I have one.

11 RECROSS-EXAMINATION

12 BY MS. JENKINS:

13 Q. Did you give a business plan to the county, or have
14 you presented that to them?

15 A. We went to the County Commission I want to say in
16 2014, presented a model of what we had in mind, and they
17 said that from their perspective -- my understanding,
18 their perspective was that we would be able to move
19 forward with our plan.

20 MS. JENKINS: Okay. Thank you, Paul.

21 THE WITNESS: Thank you.

22 MR. DE HUECK: Ms. Pazour.

23 MS. PAZOUR: None.

24 MR. DE HUECK: Staff.

25 MS. EDWARDS: No.

1 MR. DE HUECK: Go ahead.

2 MR. ALMOND: Do you intend to brew brown ale?

3 THE WITNESS: I will say my wife's family's
4 Belgian. We'll brew a lot of Belgian styles.

5 MR. DE HUECK: We'll take a short break, come
6 back at 6:25. That's about a 10-minute break.

7 (The witness is excused.)

8 (A short recess is taken.)

9 MR. DE HUECK: The hearing has resumed.

10 Mr. Almond, you may call your next witness.

11 MR. ALMOND: Call Gregg Hubner.

12 Gregg Hubner,
13 called as a witness, being first duly sworn in the above
14 cause, testified under oath as follows:

15 DIRECT EXAMINATION

16 BY MR. ALMOND:

17 Q. Gregg, why don't you introduce yourself for the
18 Commissioners.

19 A. Gregg Hubner, spelled H-U-B-N-E-R. My address is
20 29976 406th Avenue, Avon, South Dakota.

21 Q. How long have you lived at that address?

22 A. Since 2012.

23 Q. And what do you do for a living?

24 A. I'm a licensed real estate broker and a certified
25 general appraiser, and I farmed up until last year. I

1 have rented my land out now.

2 Q. Do you own any land in or around the footprint of
3 the project?

4 A. Yes.

5 Q. Using the map behind you over your shoulder, can you
6 point out to the Commissioners where your residence is?

7 A. Right here this long yellow line. It's right at the
8 bottom (indicating). I see it's under my wife's name,
9 Marsha.

10 Q. And in addition to your residence, do you own other
11 land in the project footprint area?

12 A. Yes.

13 Q. And using Exhibit I-29 back there, can you see the
14 Hubner name on various parcels of land?

15 A. Yes. From the house, I own 240 acres where the
16 house are -- is, excuse me. And my brother owns the next
17 four quarters north, and then I own some land to the west
18 of it and then some more to the east of it.

19 And then my brother and I own a couple quarters up
20 north, but I think it's just out of the project. Because
21 it's right near Beethoven so I think it's right up in
22 that white there.

23 Q. And how many total acres do you own -- do you and
24 your brother own? And if you can split up who owns what
25 approximately.

1 A. Well, I have -- yeah. I think I have about 1,120
2 acres, and my brother has about 840 acres, I think.
3 There's about 1,900. And we own that one piece together.
4 So roughly the two of us -- but we each own our own land,
5 but together we own about 1,985 acres.

6 Q. Okay. And at some point were you asked to sign up
7 to participate in the project?

8 A. Yes. I was asked to sign up for the Prevailing
9 Winds project in the spring of 2015.

10 Q. And how were you asked to sign up?

11 A. Well, I was called by Ron Hornstra, and he wanted to
12 make an appointment, which they did. And so him and
13 Roland Jurgens came to our house. I think it was in -- I
14 think it was in March of '15.

15 Q. And if you'd take a look at Exhibit I-16 for me.

16 A. Okay. Yes. I've got that.

17 Q. And tell me what Exhibit I-16 is.

18 A. Well, they brought this document with them the day
19 they were at my house, and this was their, shall you call
20 it, addendum or estimate or projection of what my payment
21 would be and how it would work out. And for some reason
22 they put my brother's land and my land together because I
23 think someplace on here it says 1,985 acres.

24 But anyway -- yeah. Right here on the bottom, long
25 table on top. It says 1,985 acres. And they did all the

1 calculations over their 25-year projected time. And they
2 projected us to get 12 turbines. This was all based on
3 12 turbines. And that's up in the top table. Yeah.

4 So 12 times whatever they were going to pay per
5 turbine for 25 years would total about \$2.886 million,
6 and that was their projection or estimate.

7 Q. So did you take it to mean that if you signed up,
8 there was a possibility you were going to get \$2.896
9 million?

10 A. Well, there might have been a possibility, but I
11 thought it was a pretty slim possibility since my brother
12 and I were actually small farmers. We're small
13 landowners compared to nowadays.

14 And 12 percent at that time when they were
15 projecting 100 turbines was 12 percent of the project.
16 So that wasn't the reason I didn't sign, but, I mean, it
17 was pretty unlikely to me that we were going to get
18 12 turbines on this small piece of land.

19 Q. Was it ever expressed to you why 12 was used?

20 A. No.

21 Q. Okay. I'm going to do some quick math, but
22 1,985 acres divided by 12, does that come out to about
23 165 acres per turbine?

24 A. I think that's the math, yes.

25 Q. Was this -- did you have any other interactions with

1 Mr. Jurgens or Hornstra regarding this exhibit?

2 A. No.

3 Q. And this meeting took place at your house?

4 A. Yes.

5 Q. In March of 2015?

6 A. It was either February or March, but it was in the
7 early spring of '15.

8 Q. And during that meeting did you sign up for the
9 project?

10 A. No.

11 Q. So after that meeting did you then become engaged
12 with the county process and follow this project, how it
13 went through the county process?

14 A. Yes.

15 Q. And can you give a brief broad brushstrokes summary
16 of your involvement in the county process from the spring
17 of 2015 to, I guess, today?

18 A. Well, we got pretty involved in the county process
19 after they came to our place. To be honest, I had never
20 been to a County Commissioners meeting in my life before
21 this started. Probably a zoning meeting either. So
22 shame on me, we'll say.

23 But give you just a little bit of history. It won't
24 take over 30, 40 seconds. When they built the Beethoven
25 project we were also approached to sign up for that. And

1 the 320 acres my brother and I own up right next to it
2 was right next to it so they wanted that, and we decided
3 not to do that.

4 But we had built this house in 2012, and before we
5 built the house we knew the Beethoven -- you know, they
6 had been around since 2009 actually. In 2010 I was first
7 approached by my neighbor, not by Roland or Ronnie but by
8 my neighbor in 2010. And I said, no, I'm not interested.

9 And so before we built our house then in the fall of
10 2011 I called the same neighbor, and I said we're going
11 to build our house. We're going to move from town.
12 We're going to build this home where we want to retire.
13 Just a mile from where I grew up. And I said is there
14 anything going on with wind towers? Because we certainly
15 wouldn't build a new home --

16 MS. AGRIMONTI: I'm going to object to the
17 extent the witness is stating what other people said.

18 MR. ALMOND: He hasn't done it yet, but I think
19 he's about to get there, so if you can avoid that, Gregg.

20 THE WITNESS: I was trying not to.

21 MR. DE HUECK: You were saying that your
22 neighbor said there was nothing going on so that's --

23 A. Okay. I got information to find out from a B&H
24 representative -- that won't work either.

25 Q. Did you have an understanding of whether or not

1 there was going to be --

2 A. I was assured, don't worry about wind turbines.
3 There's nothing happening.

4 MS. AGRIMONTI: Same objection.

5 MR. DE HUECK: Okay. We won't strike it. Let's
6 just move on.

7 Q. Let's go back to the original question.

8 Walk us through the county process and your
9 involvement in the process after that spring of 2015.

10 A. Okay. Okay. So we built the house. We moved into
11 the house. And Beethoven came along, and we can see it
12 from our house. It's about 9 miles away. And we
13 thought, well, that's okay.

14 Well, then in 2015 when they came around with the
15 second project the house was already built. So we
16 thought, well, you know, these things come and they're --
17 you know, very seldom don't they build them. So we
18 thought the only thing we can do to protect ourselves --
19 the second best thing we can do is get safe, long
20 setbacks so that we can stay in our house.

21 And so we started attending Zoning and Commissioners
22 meetings in the spring summer of 2015. I looked up in my
23 records. We attended -- my wife and I and several
24 neighbors and people that were interested -- eight
25 meetings in 2015, and at the fall of 2015 is when they

1 did the draft -- or excuse me. The Article 17. And so
2 this was kind of leading up to that and advocating for
3 setbacks through that Article 17 process. That's what
4 happened in 2015.

5 Q. And during the Article 17 process was a state
6 standard utilized during these meetings?

7 A. Yeah. It was -- at all of our meetings we were
8 talking a two-mile setback. And I've, you know, written
9 some stuff in my prefiled stuff that would explain why we
10 thought we wanted two miles. And, you know, it's very
11 similar to what Paul testified to just a little while
12 ago.

13 You know, the first meeting it sounded like they
14 were listening. But the second meeting not so much. And
15 by the third meeting it's like they didn't even hear what
16 we said.

17 I mean, we took them volumes and volumes of stuff to
18 read, and, I mean, it just -- they were being highly
19 persuaded, highly influenced by, in my opinion,
20 Prevailing Winds, District III. And they had their mind
21 set up on this state standard, 1.1 times, 1,000 feet from
22 the house, and there was nothing you could say, nothing
23 you could do, nothing you could show them to make any
24 difference.

25 And going through the process, the hearing process

1 at the zoning and also the public hearing meeting for the
2 County Commissioners, the vast majority of people that
3 spoke against the Article 17 were people that were living
4 in the project, and the vast majority of people that
5 spoke for Article 17 were people that were adjacent -- or
6 not adjacent. What's the word I'm looking for?
7 Landowners.

8 Q. Absentee?

9 A. Absentee.

10 It's late in the day. I would have been better this
11 morning. But, anyway, absentee landowners and people
12 that live in Sioux Falls or investors, these type of
13 people were for it.

14 So, in my opinion, we never had much of a chance
15 because they always got what they wanted, and there was
16 never talk of compromise. As a matter of fact, they
17 painted it like -- at the public hearing at the
18 Commissioners they painted it -- if you go through some
19 of the recorded stuff that I have sent in, two miles is
20 way too long. We're against the two-mile setback. Two
21 miles doesn't work anywhere.

22 And they never talked about a mile or half-mile or
23 anything but 1,000 feet or two miles. And so we just got
24 totally wiped out by the people that persuaded them more
25 than we did.

1 Q. And how many County Commissioners are there in
2 Bon Homme County? First I should say you live in
3 Bon Homme County; right?

4 A. Yeah. Bon Homme County. Western edge.

5 Q. How many County Commissioners are there?

6 A. We have five. One -- one for every town.

7 Q. What town?

8 A. Avon, Springfield, Tabor, Tyndall, and Scotland
9 districts. We're in the Avon District and that is the
10 only district that has any Beethoven towers and it's also
11 the only district that is going to have any Prevailing
12 Winds towers is the Avon district.

13 Q. Who's the Commissioner for the Avon district?

14 A. Our Commissioner is Bruce Voigt.

15 Q. And was Bruce Voigt participating in any of the
16 processes?

17 A. Well, Bruce Voigt is on the managers board of
18 Prevailing Winds. And it's only been that way since the
19 last election so I assume he took office January 1 of
20 '17.

21 MS. AGRIMONTI: Objection. The witness is
22 assuming.

23 THE WITNESS: Okay.

24 A. He got elected in the last general election.

25 Q. Okay.

1 A. Whenever he would have taken office, that's how long
2 he's been there.

3 Q. And has he voted on any matters that related to this
4 project?

5 A. No. He -- he can't vote.

6 And that's another problem I have with this process
7 is that if you're for this project or against this
8 project, it doesn't make any difference. If you're in
9 the Avon district where all the turbines are, you have no
10 representation.

11 Q. We talked a little bit about the state standard.
12 Was your understanding of the use of the state
13 standard -- or was it your understanding the state
14 standard came from the PUC Draft Model Ordinance?

15 A. Yes. I've done extensive research on all of those
16 things, and the Draft Model Ordinances Ordinance, which
17 was made in 2008 and implemented in 2009, and it was
18 never law or -- you know, it was just more of a
19 suggestion. And I think counties used that back when
20 wind came in to our state back in 2008, 2009.

21 Q. Did you observe the Bon Homme County Commission
22 utilize those state standards --

23 A. Yes.

24 Q. -- I'll call them?

25 A. Because as they were doing the process, I would look

1 through and read and compare, and, yes, it was based on
2 that ordinance.

3 Q. Changing topics here, can you flip to Exhibit I-18
4 for me, please.

5 A. Okay. I have it.

6 Q. And what is Exhibit I-18?

7 A. This is a -- an sPower production, front and back.
8 I think it's actually two pages. But it's an sPower
9 production with a map on it where the blue lines
10 represent the footprint of this new Prevailing Winds
11 Park.

12 Q. And the land that is colored orange or red, can you
13 tell me who owns that land?

14 A. Well, I had a neighbor that went to one of the
15 meetings in Tripp and brought this map back home and
16 showed it to me. And I looked at it, and it hit me,
17 struck me kind of funny because it doesn't take me very
18 long to figure out that all of this land at the bottom
19 belongs to my brother, myself, and one piece to my
20 neighbor Greg Wyly.

21 And then all the land, the next little piece up to
22 the left, is Indian land. And then we go up to Sherman
23 Fuerniss's land on the very north part. And there was I
24 think another piece of Indian land, and there was maybe
25 one we didn't identify.

1 Basically this map was showing about three or four
2 people. I contend that it was to make it look like we're
3 the only ones who didn't sign up. I don't know what else
4 it would have meant.

5 MS. AGRIMONTI: Objection. Speculation.

6 MR. DE HUECK: I agree.

7 MS. AGRIMONTI: So I'd move to strike.

8 MR. DE HUECK: We can strike that very last
9 part. But you can continue to take him down that line of
10 questioning.

11 A. I guess before the hearing's up I would like to see
12 sPower tell me what this map is, since my land is front
13 and center.

14 Q. We might get a chance to do that.

15 A. Okay.

16 Q. But let's continue with your examination.

17 Can you flip to Exhibit I-29 for me, please.

18 A. Okay.

19 Q. Do you see a Data Response 4-2?

20 A. Yes.

21 Q. The data request asks the Applicant to "Provide the
22 names of the 35 landowners who will have a turbine on
23 their property, and in doing so, identify the county in
24 which the landowner owns the land where the turbine will
25 be placed." And you see the answer is see,

1 "Attachment 4-2"?

2 A. Yes.

3 Q. Turn over your right shoulder. What does it say on
4 the top right corner?

5 A. Of this (indicating)?

6 Q. Of that board.

7 A. 4-2. Attachment 4-2.

8 Q. And since receiving that, have you had the
9 opportunity to go through and count all the landowners
10 that have turbines placed on their land?

11 A. Yes. I did.

12 Q. And have you created a table showing the different
13 turbines and the landowners associated with each turbine?

14 A. Yes. As best I could. Yep.

15 (Exhibit 38 is marked for identification.)

16 Q. I'm handing you what's been marked as Exhibit I-38.
17 Is this the table that you've prepared after reviewing
18 Attachment 4-2?

19 A. Yes.

20 Q. And is this table showing the different turbine
21 numbers and the landowners associated with each turbine
22 number?

23 A. Yes. There's a couple turbines that were like right
24 on the border. Could possibly be mistaken here, but it's
25 as best I could do.

1 Q. And if you flip to the second page, did you then add
2 up the different number of turbines that each particular
3 landowner would get?

4 A. Yes.

5 MR. ALMOND: At this time I'd like to move for
6 the admission of Exhibit I-38.

7 MS. AGRIMONTI: I will not object to the extent
8 it is the witness's interpretation of what he believes is
9 shown on the map.

10 MS. REISS: No objection.

11 MR. DE HUECK: So admitted for -- as
12 Ms. Agrimonti stated.

13 Q. And what was the purpose of performing this
14 analysis?

15 A. Well, what's come up in our rural community in the
16 last, say, month was the talk about all of the people
17 that aren't getting turbines that thought they were. So
18 that's why I wanted to know who was actually getting the
19 turbines. And I think, according to what I heard from --

20 MS. AGRIMONTI: Objection.

21 MR. ALMOND: You can't talk about what you
22 heard.

23 THE WITNESS: At this hearing?

24 MR. ALMOND: Oh, you want to talk about what
25 someone said at this hearing?

1 MS. AGRIMONTI: Let me just interpose an
2 objection.

3 To the extent he wants to use this exhibit to
4 talk about people who thought they were going to get
5 turbines but who aren't, hearsay, speculation. So if
6 that's where he goes, that's my objection.

7 Q. Go ahead.

8 MR. DE HUECK: Try to help him down a road he
9 can go.

10 Q. What have you heard during this hearing?

11 MS. AGRIMONTI: Objection.

12 MR. DE HUECK: Yeah. We're going to be in the
13 same boat. That would be hearsay.

14 MR. ALMOND: It's not out of court.

15 No. We'll go elsewhere.

16 Q. So I'll ask again what were you trying to illustrate
17 with this analysis?

18 A. I heard somewhere --

19 Q. Well, hold on, Gregg.

20 A. I'm sorry. I heard this week. It's in the docket.
21 It's somewhere.

22 Q. Hold on, Gregg. No. No.

23 A. Can I assume anything?

24 Q. No.

25 MR. DE HUECK: Reece, you can pry a little bit

1 on what he's heard while we've been in trial, if that's
2 helpful.

3 Q. While you've been attending this trial what have you
4 heard?

5 A. The number of turbines -- the number of leases that
6 sPower Prevailing Winds has. I heard the number this
7 week. Or it's probably on the docket.

8 Q. Well, you can actually refer to Exhibit I-29. You
9 should be open to it. No. 4-3 gives you that
10 information.

11 A. I-29? 4-3?

12 Yeah. That's what I'm trying to say. If I just
13 turn the page over.

14 There's 136 full rights agreements. Those would be
15 agreements where they could put turbines on. And so in
16 relationship to the 136 that could have had turbines, I
17 was interested in how many actually got turbines and
18 that's why I made this paper.

19 So 136. And I think it was 29.

20 MS. AGRIMONTI: I object to this line of
21 questioning. I don't understand the relevance to the
22 factors that are before the Commission in terms of who
23 got turbines and who didn't.

24 MR. ALMOND: We were done with the line of
25 questioning so I'll end there.

1 MR. DE HUECK: Okay.

2 Q. I don't have any other questions for you, Gregg.
3 You are an Intervenor so I don't want to not allow you to
4 say anything that you want to.

5 Is there anything you want to tell the Commission at
6 this point, given this opportunity?

7 A. Well, basically I got wrapped in this because -- all
8 the work that we did in the county. We were there eight
9 times in 2015, six times in 2017. In 2016 we didn't go
10 at all because we felt -- after they did the Article 17
11 and did it with basically no consideration for the
12 residents at all, we basically gave up. We did nothing
13 in 2016. Never went to one meeting.

14 And then they came along in August of 2016, had the
15 PUC meeting, and then a week or 10 days later pulled
16 their permit. And it's also in the exhibits here where
17 Mr. Pawlowski testifies that the reason they pulled it,
18 they didn't have their land signed up.

19 And it's always bothered me that they would bring
20 the PUC clear to Avon and put on this big show as if this
21 was going to happen and they never had the land signed
22 up. And I knew that was the fact, but they never -- it
23 took them two years to actually admit that.

24 And so it's always been about second best, which is
25 protection of our home, our neighbors' home, creation,

1 safety, shadow flicker, red lights. It's always been
2 we're trying to get some protection. We got no
3 protection from the county.

4 The county is not capable -- the county doesn't do
5 enough work. The county doesn't have enough time -- as
6 was probably evidenced here this morning -- to do the due
7 diligence that they need, you know, to do setbacks and do
8 shadow flicker and study sound and all this stuff we've
9 been going through for, you know, three days already.
10 They don't have -- I don't mean to be disparaging, but
11 they don't have a clue as to what all this is.

12 And we would take them information after information
13 after information and we'd talk to them and we'd give
14 them stuff and it made absolutely no difference.

15 And then not having a County Commissioner to
16 represent us. We have just totally given up on our
17 county because they have done everything that the wind
18 energy system has wanted them to do.

19 Every time we went to a meeting if we would get --
20 if we would just show up and they wouldn't know it, the
21 next time you'd show up at a meeting they'd have a wall
22 stacked with investors, attorneys, and Prevailing Winds
23 people. And it was totally intimidating, totally.

24 I could go on and on about each individual meeting.
25 I won't have to. But that's the way it's always been.

1 As soon as you opposed or brought in a witness -- we
2 brought in Jerome Powers one day. We brought in
3 Vicki May one day. And at the very next meeting they
4 showed up and basically refuted and tried to dismiss the
5 whole thing.

6 So we got no protection from our county. They're
7 not capable, and they've been highly influenced by the
8 wind industry. And you can go to any county in the
9 state, and they're going to tell you the exact same
10 thing.

11 So that's why we're here, and we're trying to -- you
12 know, everybody wants to paint us as anti-wind,
13 anti-wind, anti-wind. That's not it. We're for safe and
14 responsible wind energy if they want it. I mean, I'd
15 never put it on my land, but my neighbor has the right to
16 do with his land what he wants, to a point. To a point.

17 Until he starts putting flicker on my land or into
18 my bedroom window or making noise where I can't sleep.
19 That point has been crossed.

20 And I used the analogy -- I thought of this a few
21 weeks ago. The tobacco industry. It took 40 years of
22 people dying from lung cancer before they finally did
23 something. Now I can't legally light up a cigarette and
24 start puffing smoke in this room. Why is that?

25 If I lit a cigarette and then burned another one and

1 another one, I'd have smoke in this room and it's illegal
2 and everybody's going to go home and probably nobody's
3 going to get lung cancer. Probably not. But why is that
4 law in existence? Because we protect people. We protect
5 them.

6 And so when you talk about protecting people you
7 need to protect all the people. Not the big corporations
8 or the big money, but the people. Because that's what
9 we're supposed to do, and that's the way a lot of our
10 laws are written.

11 That's why I can't smoke a cigarette. I don't
12 smoke, but that's why I can't light up a cigarette in
13 here. Because we're to protect. And that's why we're at
14 the PUC. Because we don't get protection, and we will
15 never get protection at our county level.

16 I don't think I have anything else to say.

17 MR. ALMOND: Thank you, Gregg.

18 THE WITNESS: Yep.

19 MR. DE HUECK: So it's 7 o'clock. So what I'd
20 like to do is break for the evening, come back refreshed,
21 and be at our best tomorrow morning. If that works for
22 my three Commissioners.

23 CHAIRWOMAN FIEGEN: So can we start earlier
24 tomorrow?

25 MR. DE HUECK: 8:15?

1 (Discussion off the record.)

2 MR. DE HUECK: I guess we'll move into
3 cross-examination. So if we were recessed, we're back in
4 session now.

5 Go ahead, Prevailing Winds.

6 MS. AGRIMONTI: Thank you, Mr. de Hueck.

7 CROSS-EXAMINATION

8 BY MS. AGRIMONTI:

9 Q. Mr. Hubner, are you aware of the predicted shadow
10 flicker and sound level predictions for your residence?

11 A. I've read them, but I can't tell you right now what
12 they are.

13 Q. All right. Please turn to Exhibit A22-1. Page 2.

14 A. I've got the wrong book here.

15 Q. I'd like you to go to the response to 1-2a. It's
16 the paragraph that begins "Another concern." It's about
17 the fourth paragraph down.

18 Do you see that?

19 A. Where it says, "Identify"?

20 Q. Where it starts, "Another concern relates to
21 compliance with setbacks."

22 Do you see that?

23 A. I'm on page 1.

24 Q. I'd like you to be on page 2, please.

25 A. Oh, okay. "Another concern."

1 Q. Yeah. And in that paragraph you talk about a
2 belief --

3 And let me ask you first, did you participate in
4 drafting these responses, Mr. Hubner?

5 A. I did.

6 Q. All right. And it states that there is another
7 concern relating to the Campbell County wind farm and
8 that it relates to seven instances where the turbines
9 were built in violation of setbacks; is that right?

10 A. Yes.

11 Q. So that's the concern for the Campbell County wind
12 farm is they were not built in conformance with required
13 setbacks?

14 A. Well, that's a concern I would have too is if they
15 don't follow the law here, you know, how do I know
16 they're going to follow the law here?

17 Q. I'm trying to understand a couple of other lay
18 witnesses who are identified as potential witnesses for
19 the Intervenor, including yourself, and they're going to
20 talk about the Campbell County wind farm and I want to
21 make sure I understand what the concern is.

22 And I read this response to say it's about violation
23 of setbacks. Is that an accurate summary?

24 A. Yes.

25 Q. Thank you.

1 All right. Please go to page 13 of the exhibit.
2 You're actually ahead of me. Give me just a second.

3 Can you please tell me what this document is? The
4 top of it says, "Timetable."

5 A. These are the meetings that we attended at our
6 county level.

7 Q. For what purpose was this table put together?

8 A. I just do a lot of -- I just do a lot of
9 documentation of all this stuff.

10 Q. All right. Did you create it for the purposes of
11 responding to this discovery request, or was it already
12 something in your files?

13 A. No. I had done this about maybe a year ago or less
14 than a year ago.

15 Q. All right.

16 A. Would have been after February. So it would have
17 been sometime this spring probably.

18 Q. I note in there a variety of meetings both with
19 Commission and Zoning. Do these all relate to Bon Homme
20 County?

21 A. Yes. These are all Bon Homme County.

22 Q. And I note that in 2017 there are two meetings
23 listed, one for Zoning and one Commission where it says,
24 "Gregg proposes one mile with waivers."

25 Can you please explain what that is.

1 A. Yes. I would like to.

2 What happened there was the Draft Model Ordinance
3 that, you know, Article 17 was based on was taken down by
4 the PUC.

5 Q. Mr. Hubner, I'm just asking -- maybe I've asked a
6 poor question.

7 What was your proposal with respect to one mile with
8 waivers? What kind of setback was it?

9 A. Okay. It was a mile from a residence with waivers.
10 And we know what they are; right?

11 Q. Yeah. Thank you.

12 A. All right.

13 Q. Okay. Please turn to page 28.

14 A. Okay.

15 Q. What is this letter?

16 A. It looks like a -- oh, that's a letter I sent to the
17 Real Estate Commission and without reading the whole
18 letter because it was September '15, I was -- I had been
19 trying for years to get the South Dakota Real Estate
20 Commission to add in their property disclosures statement
21 on the house just a little paragraph that says does the
22 seller of the property -- is there a wind farm in the
23 area or a proposed wind farm or do you know of a wind
24 farm in the area so that if somebody bought your house,
25 they would know -- even if it wasn't built yet, they

1 would know if a turbine was -- turbines were coming in.

2 Q. All right. And that effort hasn't been successful,
3 has it?

4 A. No. Not at all.

5 Q. Please turn to page 15 of the exhibit. I'm going to
6 back up a little bit.

7 A. Okay.

8 Q. One second.

9 All right. On the paragraph that begins, "Today."

10 A. Yep. Right in the middle?

11 Q. Yeah.

12 A. Yep.

13 Q. I'm going to read a portion of the last paragraph.
14 It says -- and you're responding to your concerns about
15 the Bon Homme Zoning Ordinance; is that right?
16 Article 17 in this letter?

17 A. There's no date on this letter, is there?

18 Q. I didn't see one.

19 A. Well, this would have been -- if it starts out -- it
20 starts out talking about in the spring of '15 so I'm
21 assuming this is a spring or summer 2015 letter.

22 Q. Okay.

23 A. Okay.

24 Q. All right. At the end of that paragraph you state
25 that, "There should be concerns about reduced property

1 values." And then, "Not only would I want my property
2 taxes and valuation reduced, I plan to sue B.H. Wind or
3 Ronnie Hornstra personally for the loss I'll have to take
4 on my property."

5 Did I read that right?

6 A. Yes.

7 Q. And have you otherwise made threats to commence
8 legal action against any of the wind developers in the
9 area?

10 A. Not that I know of.

11 I'm not sure B&H Wind is in existence anymore.

12 Q. I'm sorry. What did you say, sir?

13 A. I'm not sure B&H wind is even in existence anymore.

14 Q. And do you know what the closest turbine is to your
15 residence?

16 A. Yeah. According to a map that was provided to me
17 during this hearing, it was in the 4,500-foot range, I
18 think.

19 MS. AGRIMONTI: Thank you. I have no other
20 questions.

21 MR. DE HUECK: Mr. Fuerniss.

22 MR. FUERNISS: I don't have any questions.

23 MR. DE HUECK: Ms. Jenkins.

24

25

CROSS-EXAMINATION

BY MS. JENKINS:

Q. Gregg, you heard my testimony yesterday?

A. Yep.

Q. And did you also have the concerns of the -- the county not following proper procedure? Bon Homme County?

A. Well, I never contended their procedure -- I mean, I -- whether they made a mistake or didn't make a mistake as they were doing this.

How they did it was really not an issue for me. It's what they did and who they listened to.

Q. Okay. And do you have anything else that you want to talk about?

A. Oh, not really.

MR. ALMOND: I don't think we've got time.

MS. JENKINS: Thank you.

MR. DE HUECK: Ms. Pazour.

MS. PAZOUR: Not at this time.

MR. DE HUECK: Staff, do you have cross-examination?

MS. REISS: Yes. Thank you.

CROSS-EXAMINATION

BY MS. REISS:

Q. Mr. Hubner, you mentioned that one of your concerns was the setback distance; correct?

1 A. Correct.

2 Q. And did you have concerns about sound or shadow
3 flicker at all?

4 A. Yeah. Shadow flicker definitely. Sound definitely,
5 yes. All three.

6 Q. Okay. You mentioned the one-mile setback as your --
7 or as a recommendation. Would you have any
8 recommendation for sound or shadow flicker?

9 MR. ALMOND: I'm going to object. Misstates his
10 testimony.

11 MS. REISS: Can I rephrase?

12 MR. DE HUECK: Yeah.

13 Q. What was the setback you requested in your
14 testimony?

15 A. The setback I requested in my testimony. Today?
16 Here? Now?

17 Q. In response to a question Ms. Agrimonti -- or
18 Ms. Agrimonti had pointed you to a document. Let me pull
19 it up.

20 A. You're referring to the one mile with waivers or --

21 Q. Yes.

22 A. -- what were you talking about?

23 Okay. So that's one mile with waivers from a
24 residence.

25 Q. Yes.

1 A. Yes.

2 Q. Would you have any recommendations to alleviate your
3 concerns with sound?

4 A. Well, from what I've heard today, 35 decibel top
5 limit would be -- would be very good. I've been duck
6 hunting already, and I've heard turbines for three miles.
7 And I'm assuming at one mile I'm going to hear turbines.

8 So 35 decibel one mile from a residence, 1,500 feet
9 from a property line would be a minimum for me.

10 Q. Okay. Would you have any recommendation in regard
11 to shadow flicker?

12 A. Zero. On the property or on the house.

13 Q. Okay. And if the Applicant could commit to those
14 sound and shadow flicker levels related to your property,
15 would it alleviate some of your concerns?

16 A. Some of them.

17 MS. REISS: No further questions.

18 MR. DE HUECK: That brings us over here to
19 Commission questions. And I'll call -- I'm starting with
20 Commissioner Nelson.

21 COMMISSIONER NELSON: Gregg, just a couple of
22 questions.

23 I've asked a lot of questions about infrasound
24 in the proceeding. Do you have any evidence that you or
25 your wife have a sensitivity to infrasound?

1 THE WITNESS: I have no evidence, but if I could
2 just say another sentence, from reading a lot of this, we
3 do have a health condition in the family that could be
4 sensitive to infrasound.

5 COMMISSIONER NELSON: I promised myself I wasn't
6 going to ask any questions about the zoning process
7 because I don't believe that's properly before us, but
8 I'm going to ask one.

9 Was there ever an attempt to refer the 2015
10 Bon Homme zoning changes to a vote of the people?

11 THE WITNESS: No.

12 COMMISSIONER NELSON: No other questions. Thank
13 you.

14 MR. DE HUECK: Chairman Fiegen.

15 CHAIRWOMAN FIEGEN: Thank you. I did not know
16 your background. And so were you here -- you were here
17 yesterday when I -- or maybe two days ago. I can't
18 remember now. When I asked about housing eligibilities?

19 THE WITNESS: Yeah.

20 CHAIRWOMAN FIEGEN: So I couldn't remember. How
21 much land do you own all by yourself with Marsha, your
22 wife?

23 THE WITNESS: The 1,120 acres or whatever.

24 CHAIRWOMAN FIEGEN: Okay. And then do you have
25 another 1,900?

1 THE WITNESS: No.

2 CHAIRWOMAN FIEGEN: It's all -- okay. So out of
3 that 1,100, how many housing eligibilities would there
4 possibly be? And because of your background -- yeah.
5 That's my question.

6 THE WITNESS: Well, I think the word
7 "housing" -- the term "housing eligibility" is more for
8 the more metropolitan if you want to use that term,
9 Sioux Falls, Brookings, Watertown. They go in their
10 counties, and they establish housing eligibilities so
11 that you can put so many houses on a quarter of land.
12 And each county's got a different set.

13 Okay. In Bon Homme County we don't call them
14 housing eligibilities, but there are zoning laws that you
15 have to have so many minimum acres to build a house. And
16 I think that it's five acres, if I'm not mistaken.

17 So you can't plat off anything less than five
18 acres and build a house unless, of course, you can get a
19 waiver.

20 CHAIRWOMAN FIEGEN: I'm going to go back to the
21 Staff's questions.

22 When they asked you questions about what you
23 would be comfortable with on a -- when you proposed that
24 one-mile setback, I guess, and then the Staff kind of
25 asked you a little bit of questions.

1 You did talk about your goal was to negotiate at
2 the County Commission meeting, I believe, and what you
3 said, it was two miles or 1,000 feet and you wish they
4 would have negotiated.

5 THE WITNESS: I wish they would have tried to
6 compromise in some way.

7 CHAIRWOMAN FIEGEN: Compromise. Okay.

8 THE WITNESS: Yeah.

9 CHAIRWOMAN FIEGEN: So when you answered the
10 Staff questions was that property lines, or was that your
11 resident that you built?

12 THE WITNESS: What I have -- I started out for
13 two miles. And after we fought that for two years and
14 got nowhere and it looked like this next project was
15 going to come in, that's when I made an effort to go back
16 one more time and say, here, I'd like you to do a mile
17 from a residence.

18 And I don't think at the county at that time I
19 mentioned 1,500 feet from the property line. But since
20 being involved in a couple PUC hearings and learning
21 about, you know, ice throw and owners manuals of turbines
22 and all of that stuff, it occurred to me that the
23 property line and the right-of-way line to a highway
24 would be a minimum of 1,500 feet.

25 If you have a bunch of bare land, you know, a

1 1,500-foot property is going to allow some of your
2 neighbors to put turbines on their land. If your bare
3 land is next to their bare land, you know, 1,500 foot
4 would work. It's a minimum, but it --

5 To summarize, a mile from a residence, 1,500
6 feet from a property line, 35 decibels.

7 CHAIRWOMAN FIEGEN: From a residence? 35?

8 THE WITNESS: Yeah.

9 CHAIRWOMAN FIEGEN: Thank you.

10 MR. DE HUECK: Commissioner Hanson.

11 COMMISSIONER HANSON: Good evening.

12 THE WITNESS: Hi.

13 COMMISSIONER HANSON: Over the years I have read
14 a lot of literature.

15 THE WITNESS: So have I.

16 COMMISSIONER HANSON: From a gentleman by the
17 same name as you who lives in your vicinity. Would that
18 be you?

19 THE WITNESS: It's possible.

20 COMMISSIONER HANSON: I'm surprised when you
21 gave your resume you didn't say author on it as well.

22 I don't have any questions for you. You've been
23 very patient sitting there going through the process.
24 Appreciate it.

25 THE WITNESS: Thank you.

1 COMMISSIONER HANSON: And that's all I have to
2 say other than good evening.

3 MR. DE HUECK: Mr. Almond, do you have any
4 redirect? No.

5 Mr. Hubner, thank you for your testimony.

6 THE WITNESS: Thank you.

7 (The witness is excused.)

8 MR. DE HUECK: That's concludes our hearing
9 today. We will reconvene --

10 MS. AGRIMONTI: Just one housekeeping matter,
11 Mr. de Hueck.

12 Ms. Smith cross-examined two witnesses with an
13 Exhibit No. 36. It's a court case. We would move
14 admission.

15 MR. DE HUECK: Oh. We had this discussion
16 earlier, and I could have swore you guys already got it
17 in.

18 Yes. The court case will be admitted. Thank
19 you for catching that.

20 MS. AGRIMONTI: Thank you.

21 MR. ALMOND: Can I say no objection?

22 MR. DE HUECK: Yeah.

23 So reconvene at the same time? Is that okay?

24 CHAIRWOMAN FIEGEN: Well, I'd love to start at
25 8:00 but --

1 MR. DE HUECK: 8:30. We'll show up at 8:30 and
2 be ready to go.

3 (The hearing is in recess at 7:20 p.m.)
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1 STATE OF SOUTH DAKOTA)

2 :SS

CERTIFICATE

3 COUNTY OF SULLY)

4

5 I, CHERI MCCOMSEY WITTLER, a Registered
6 Professional Reporter, Certified Realtime Reporter and
7 Notary Public in and for the State of South Dakota:

8 DO HEREBY CERTIFY that as the duly-appointed
9 shorthand reporter, I took in shorthand the proceedings
10 had in the above-entitled matter on the 11th day of
11 October, 2018, and that the attached is a true and
12 correct transcription of the proceedings so taken.

13 Dated at Onida, South Dakota this 31st day of
14 October, 2018.

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/s/ Cheri McComsey Wittler
Cheri McComsey Wittler,
Notary Public and
Registered Professional Reporter
Certified Realtime Reporter

1967 ^[1] - 882:10 1970s ^[1] - 873:4 1972 ^[2] - 793:2, 793:5 198 ^[1] - 645:17 1980s ^[2] - 803:5, 804:13 199 ^[1] - 645:18 1997 ^[1] - 666:24 1998 ^[1] - 664:1 1999 ^[3] - 660:23, 893:12, 893:21 1:30 ^[1] - 781:19 1:45 ^[1] - 791:25	891:21, 893:12, 894:16, 895:7, 957:6, 962:17, 962:20 201 ^[2] - 645:18, 645:19 2010 ^[9] - 652:9, 654:7, 654:10, 756:9, 789:2, 803:24, 885:22, 957:6, 957:8 2011 ^[4] - 756:10, 841:13, 882:20, 957:10 2012 ^[9] - 653:11, 656:4, 656:6, 789:2, 806:9, 841:13, 918:25, 952:22, 957:4 2013 ^[3] - 656:12, 656:15, 761:4 2014 ^[7] - 652:12, 652:24, 654:20, 656:19, 761:15, 764:25, 951:16 2015 ^[25] - 652:15, 652:18, 653:8, 667:25, 668:1, 668:5, 673:16, 676:23, 678:25, 679:6, 880:23, 880:25, 918:24, 954:9, 956:5, 956:17, 958:9, 958:14, 958:22, 958:25, 959:4, 969:9, 977:21, 982:9 2016 ^[15] - 653:18, 654:14, 656:8, 656:10, 658:15, 658:15, 658:19, 829:8, 888:19, 925:25, 933:8, 938:25, 969:9, 969:13, 969:14 2017 ^[11] - 653:3, 653:15, 653:21, 654:5, 658:21, 660:5, 870:7, 922:1, 925:25, 969:9, 975:22 2018 ^[9] - 644:7, 654:19, 655:19, 662:4, 670:25, 922:3, 933:11, 988:11, 988:14 203 ^[1] - 645:21 20th ^[1] - 654:9 21 ^[6] - 660:4, 693:8, 693:9, 809:9,	809:13, 882:18 211 ^[1] - 645:21 213 ^[1] - 644:25 22 ^[3] - 699:18, 809:20, 857:6 220 ^[1] - 776:13 23 ^[3] - 672:3, 678:20, 947:1 237 ^[1] - 645:22 24 ^[4] - 787:22, 789:2, 795:20, 922:6 24-hour ^[1] - 893:2 240 ^[3] - 645:22, 645:23, 953:15 25 ^[5] - 678:20, 720:9, 726:11, 904:16, 955:5 25-year ^[1] - 955:1 250 ^[1] - 940:19 253 ^[1] - 645:23 26 ^[156] - 652:3, 652:3, 652:4, 652:4, 652:5, 652:6, 652:7, 652:7, 652:8, 652:11, 652:14, 652:17, 652:19, 652:24, 653:3, 653:7, 653:10, 653:13, 653:15, 653:16, 653:21, 653:23, 654:3, 654:7, 654:10, 654:13, 654:17, 654:19, 654:23, 655:3, 655:6, 655:7, 655:7, 655:9, 655:10, 655:11, 655:11, 655:14, 655:15, 655:16, 655:17, 655:17, 655:18, 655:18, 655:20, 655:20, 655:21, 655:22, 655:22, 656:3, 656:7, 656:11, 656:15, 656:18, 656:22, 656:22, 656:23, 656:23, 656:24, 656:24, 657:3, 657:4, 657:5, 657:6, 657:9, 657:12, 657:15, 657:18, 657:21, 657:22, 657:24, 658:3, 658:4, 658:7, 658:8, 658:9, 658:10, 658:12 26-page ^[1] - 754:8 27 ^[4] - 737:7, 816:1, 817:18, 872:6	28 ^[13] - 658:15, 659:3, 659:4, 659:5, 659:5, 809:20, 857:6, 857:8, 976:13 282 ^[1] - 645:24 285 ^[1] - 645:24 287 ^[1] - 645:25 289 ^[1] - 646:4 29 ^[40] - 659:17, 659:22, 660:5, 660:8, 660:9, 660:10, 660:12, 660:13, 660:14, 660:14, 660:16, 660:17, 660:18, 660:19, 660:20, 660:21, 660:22, 660:23, 660:24, 809:21, 968:19 293 ^[1] - 646:4 296th ^[1] - 921:13 29976 ^[1] - 952:20 2:220 ^[1] - 654:22 2a ^[1] - 652:11 2b ^[2] - 652:14, 917:21 2c ^[1] - 652:17	661:18, 661:19, 661:21 35 ^[21] - 680:10, 684:1, 684:7, 684:14, 722:6, 722:11, 723:6, 755:5, 816:20, 818:3, 838:14, 838:15, 840:16, 867:8, 892:7, 948:19, 964:22, 981:4, 981:8, 985:6, 985:7 35's ^[1] - 722:13 351 ^[1] - 646:12 358(6359):44 ^[1] - 655:6 36 ^[2] - 893:1, 986:13 37 ^[1] - 756:2 370 ^[1] - 646:12 371 ^[2] - 646:13, 646:13 374 ^[1] - 646:14 379 ^[1] - 646:14 38 ^[2] - 893:1, 965:15 380 ^[1] - 646:15 383 ^[1] - 646:15 384 ^[1] - 646:16 386 ^[1] - 646:16 388 ^[1] - 646:17 39 ^[1] - 749:15 392 ^[1] - 646:19 399 ^[1] - 646:19
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