

1 THE PUBLIC UTILITIES COMMISSION
2 OF THE STATE OF SOUTH DAKOTA
3 =====
4 IN THE MATTER OF THE APPLICATION EL18-026
5 BY PREVAILING WIND PARK, LLC FOR
6 A PERMIT OF A WIND ENERGY FACILITY
7 IN BON HOMME COUNTY, CHARLES MIX
8 COUNTY, AND HUTCHINSON COUNTY,
9 SOUTH DAKOTA, FOR THE PREVAILING
10 WIND PARK PROJECT
11 =====
12 Transcript of Hearing
13 October 11, 2018
14 8:30 a.m.
15 Volume III, Pages
16 =====
17
18 BEFORE THE PUBLIC UTILITIES COMMISSION,
19 KRISTIE FIEGEN, CHAIRWOMAN
20 GARY HANSON, VICE CHAIRMAN
21 CHRIS NELSON, COMMISSIONER
22
23 COMMISSION STAFF
24 Adam de Hueck
25 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 Intervenors 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

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:

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 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.

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

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 5</p> <p>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 acts 8 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 hand print -- 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.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 7</p> <p>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 I 5 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. Can you tell the Commissioners what Article 17 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.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 6</p> <p>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 --</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 8</p> <p>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 -- or 8 the Zoning Board and the County Commission at that time? 9 A. At that time, yes. I was not the Chairman of the 10 Commission but I was on the Zoning Board. And a 11 Commissioner. 12 Q. And just generally when ordinances are adopted, 13 what's the general process that gets played out? 14 A. I guess we heard input from both sides, and that's 15 how we adopted it with advice from the public. 16 Q. And how was the idea to adopt Article 17 first 17 brought to the county? 18 A. Well, that was several years ago. I think after we 19 did that first wind farm some individuals had came 20 forward that we should try to make something -- an 21 improvement on that so that's what became of that Article 22 17. 23 Q. And the first wind farm, are you referring to the 24 Beethoven Wind Farm? 25 A. Correct.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 9</p> <p>1 Q. And you said some individuals came forward to make 2 improvements on something. What -- 3 A. Oh, I would say a handful. About every time we 4 always had a handful either in favor or against. 5 Q. And in terms of the improvements that were looking 6 to be made, can you just give a flavor of what those 7 improvements were. 8 A. Oh. 9 Q. Not the ones that were actually made but just what 10 people were looking for? 11 A. Yeah. That's kind what have we did on Article 17. 12 With our advice everything seemed to be up to par. 13 Q. Prior to the adoption of Article 17 did Bon Homme 14 County have an article of their ordinances dedicated 15 exclusively to wind energy systems? 16 A. It is hard for me to answer that question exactly. 17 You know, we've always talked about it, but I can't 18 say -- you know, it's always been on the back burner, the 19 wind farm, for many years. 20 Q. And in -- 21 A. I've got to apologize. I didn't brief up on that 22 history from, you know, way back. 23 Q. And in the adoption of Article 17 I assume you 24 didn't pull out a computer and just start typing Article 25 17 from scratch, did you?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 11</p> <p>1 I'd like you to compare Section 1701 of the zoning 2 ordinance to the PURPA section of the PUC ordinance. And 3 you don't need to read it out loud, but read it to 4 yourself. 5 So what I'd like to you do is compare Section 1701 6 of Article 17 with the PURPA section of the draft model 7 ordinance. Just compare the language of each. 8 (Witness examines documents.) 9 A. Okay. I read them both. 10 Q. Now go to Section 1703 of Article 17 and compare 11 that to Section 2 of the model ordinance. 12 A. Now what do you want to know? 13 Q. I'd like you now to compare Section 1703 of Article 14 17 to Section 2 of the draft model ordinance. 15 (Witness examines documents.) 16 A. Yes. 17 Q. Would you agree with me that the language of both 18 Article 17 and the draft model ordinance is substantially 19 the same? 20 A. Yes. 21 Q. So for Article 17 why don't you flip down -- I'll 22 help you. 23 A. Okay. 24 Q. To Section 1723 of Article 17. 25 A. Ain't there a few pages?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 10</p> <p>1 A. No. It probably took a few months, I'm sure. 2 Q. Rather than starting from scratch, did the county 3 utilize the draft model ordinance that was on the PUC's 4 website? 5 A. We did a lot of our stuff with District III. So I 6 guess -- I'm just a farmer. I didn't go to college. But 7 we kind of acted on -- you know, asked them for advice 8 and helped guide us -- guidance us. 9 Q. Well, why don't we compare the draft model ordinance 10 to Article 17 to see if we can conclude that that's kind 11 of the document that the county used from scratch. Okay? 12 A. Okay. 13 MS. AGRIMONTI: Objection. The witness has 14 testified he doesn't know and if there's a comparison 15 between the ordinances, I believe Mr. Almond can make 16 that argument in his brief. 17 MR. DE HUECK: I'm going to let Mr. Almond make 18 this comparison. 19 Q. So also in front of you is what's been marked as 20 Exhibit I 23. 21 A. Okay. Two separate sheets? 22 Q. Are you on Exhibit I 23? 23 A. Yeah. 2018. 24 Q. Can you compare Section 17 -- okay. So I want you 25 to put Exhibit I 14 and Exhibit I 23 side by side. And</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 12</p> <p>1 Q. In comparing Section 23 of Article 17 -- first what 2 is Section 1723 of Article 17? What's the title of it? 3 A. On the setbacks? 4 Q. Section 1723. Setbacks? 5 A. Yeah. 6 Q. Now go ahead and compare Section 1723 titled 7 setbacks with page 6 of the draft model ordinance. 8 A. Okay. 9 Q. Where it talks about setbacks. 10 (Witness examines documents.) 11 A. Okay. I read it, that Section 1723. 12 Q. Do you think Section 1723 matches the language from 13 the draft model ordinance regarding setbacks? 14 A. Unless I made a mistake when I read it, I think it's 15 the same. 16 Q. That's what I thought when I read them too so I 17 don't think you made a mistake? 18 A. Yeah. I read sentence by sentence but I'm very 19 nervous and I could easily make a mistake up there. 20 Q. No. And I get that. I think that's the point; it's 21 the same language; right? 22 A. Looks the same to me. I just read it. 23 Q. And we could continue this process, but for the sake 24 of time while you were considering Article 17 and what to 25 adopt it, did you know something that's the state</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 13</p> <p>1 standard? Was there a state standard?</p> <p>2 A. You know, back that many years ago I remember that</p> <p>3 word, state standard, but I cannot sit here and say that</p> <p>4 I remember.</p> <p>5 Q. I mean, did you refer to the state standard during</p> <p>6 these meetings?</p> <p>7 A. I'm pretty sure we did.</p> <p>8 Q. And what was the state standard that you were</p> <p>9 referring to? Was it the draft model ordinance there?</p> <p>10 A. I would say yes.</p> <p>11 Q. Okay.</p> <p>12 A. That was three years ago. And then in that summer</p> <p>13 of 2015 my dad died so we were in and out of the hospital</p> <p>14 quite a bit.</p> <p>15 Q. And it makes sense?</p> <p>16 A. Yeah.</p> <p>17 Q. If the PUC has a draft model ordinance, it would</p> <p>18 make sense that a county would start with that when</p> <p>19 drafting the zoning ordinance; right?</p> <p>20 A. Right.</p> <p>21 Q. I think you need to --</p> <p>22 A. As far as my opinion we did everything up to par. I</p> <p>23 can't say that we -- we can't make a mistake because</p> <p>24 everybody watches us.</p> <p>25 Q. Okay. So we can set aside --</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 15</p> <p>1 public and took in public input. Who were some of the</p> <p>2 more active participants in the public input process?</p> <p>3 MS. AGRIMONTI: Objection. I'd like to have a</p> <p>4 standing objection to this investigation into how a</p> <p>5 zoning ordinance was adopted.</p> <p>6 I understand the Commission's ruling and I won't</p> <p>7 continue to interpose objections but I would like it to</p> <p>8 be maintained.</p> <p>9 MR. DE HUECK: So noted.</p> <p>10 MS. AGRIMONTI: Thank you.</p> <p>11 Q. Who were involved -- who were the more active public</p> <p>12 participants in that public input process?</p> <p>13 A. Mainly Mr. Hubner, who I've known forever. And his</p> <p>14 wife.</p> <p>15 Q. Anyone else?</p> <p>16 A. Mr. Van Gerpen from Avon.</p> <p>17 Q. Anyone else from the public that was involved in the</p> <p>18 public input process?</p> <p>19 A. Those would be the main two to three.</p> <p>20 Q. Was anyone on behalf of the wind industry involved</p> <p>21 in the public input process?</p> <p>22 A. Yes. Mr. Roland Jorgenson [sic] was there, and a</p> <p>23 couple of landowners that will eventually have windmills</p> <p>24 were at the meeting.</p> <p>25 Q. Do you know the names of those landowners?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 14</p> <p>1 MR. ALMOND: Well at this time I'd like to move</p> <p>2 for the admission of Exhibit I24.</p> <p>3 MR. DE HUECK: Absent any objection, I'm going</p> <p>4 to go ahead and admit it.</p> <p>5 MS. EDWARDS: Is that the draft model ordinance?</p> <p>6 MR. DE HUECK: Yeah.</p> <p>7 MS. REISS: Staff would object just based on the</p> <p>8 fact that no appropriate foundation was laid. The County</p> <p>9 Commissioner never said that he reviewed it. He just</p> <p>10 reviewed the language and answered questions as to</p> <p>11 whether it matched or not.</p> <p>12 MR. DE HUECK: Anything from the Applicant?</p> <p>13 MS. AGRIMONTI: I'd join in the objection.</p> <p>14 MR. ALMOND: Would you like a response from me.</p> <p>15 MR. DE HUECK: Go ahead.</p> <p>16 MR. ALMOND: I believe his testimony was that he</p> <p>17 just relied on the state standard which was this PUC</p> <p>18 model ordinance.</p> <p>19 MR. DE HUECK: With that, I'm going to go ahead</p> <p>20 and admit it.</p> <p>21 Q. You can set aside the model ordinance now and we're</p> <p>22 going to change topics. Okay?</p> <p>23 A. Okay.</p> <p>24 Q. Earlier when deciding whether or not to -- or in</p> <p>25 adopting Article 17 you mentioned you heard from the</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 16</p> <p>1 A. Well, I would say through the summer -- Mr. Bowder</p> <p>2 (check) and I don't know who else to say on the -- I</p> <p>3 guess just supporters of the wind farm.</p> <p>4 Q. And you mentioned Mr. Roland Jurgens. Who is he?</p> <p>5 A. I guess he's the project manager of the wind farm.</p> <p>6 Q. You say the wind farm, which wind farm are you</p> <p>7 referring to?</p> <p>8 A. Actually he was involved with both of them. I'm</p> <p>9 pretty sure he was on the -- with the first wind farm,</p> <p>10 the Beethoven Wind Farm.</p> <p>11 Q. When you say both of them, are you referring to</p> <p>12 Beethoven and?</p> <p>13 A. Right.</p> <p>14 Q. This wind farm?</p> <p>15 MS. AGRIMONTI: Objection. Vague. I would note</p> <p>16 that we have various entities that have owned -- or two</p> <p>17 entities that have owned the project that was before the</p> <p>18 Commission, and I'd just like the record to be clear what</p> <p>19 developer was being discussed in 2015 versus the</p> <p>20 Applicant in this proceeding.</p> <p>21 MR. DE HUECK: Does Mr. Almond need to rephrase</p> <p>22 that then?</p> <p>23 MR. ALMOND: I think to the extent Ms. Agrimonti</p> <p>24 wants to clear up the record, she can do so on</p> <p>25 cross-examination.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 17</p> <p>1 MS. AGRIMONTI: I can do it that way. It seems</p> <p>2 to me we'd have a clearer record if we know what</p> <p>3 developer we're talking about when questions are being</p> <p>4 asked.</p> <p>5 MR. DE HUECK: Yes.</p> <p>6 So, Mr. Almond, please refer to the correct</p> <p>7 developer while asking questions.</p> <p>8 But before I go any further, Mr. Soukup, could</p> <p>9 you please scoot your microphone a little closer to your</p> <p>10 mouth. Because you end up turning sideways and get a</p> <p>11 ways away. And you can move that around if you want to</p> <p>12 continue sit sideways. It's absolutely fine.</p> <p>13 Thank you.</p> <p>14 Q. Again, so who is Mr. Roland Jurgens?</p> <p>15 A. One of the -- the wind developer for this last wind</p> <p>16 farm.</p> <p>17 Q. When you say this wind farm, which one are you</p> <p>18 referring to?</p> <p>19 A. The one we're talking about today.</p> <p>20 Q. And did he hold himself out to the county as</p> <p>21 overseeing all development activities for the project?</p> <p>22 A. Well, when he would come to our meetings he would</p> <p>23 tell us the future plans of what they wanted to do.</p> <p>24 Q. Okay.</p> <p>25 A. Briefed us on what was coming in the future.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 19</p> <p>1 on our records, we started acting on the first meeting of</p> <p>2 November, which would be November 3 of 2015.</p> <p>3 Q. I want to take -- take your time and familiarize</p> <p>4 yourself with that e-mail, please.</p> <p>5 MS. AGRIMONTI: I object. This document to the</p> <p>6 extent the witness is just being asked to review a</p> <p>7 document. No foundation has been laid for it. I would</p> <p>8 request that foundation be laid before we investigate and</p> <p>9 ask questions about this document.</p> <p>10 MR. ALMOND: Ms. Agrimonti, I believe you</p> <p>11 stipulated to the foundation of this document.</p> <p>12 MS. AGRIMONTI: I stipulated to the document</p> <p>13 being an e-mail from Mr. Jurgens to Mr. Elsberry. The</p> <p>14 witness has not -- stated he's never seen this document</p> <p>15 before. It's also a document from a prior Applicant with</p> <p>16 this PUC than Prevailing Winds so it's not relevant, but</p> <p>17 I don't believe you've laid the foundation that this</p> <p>18 witness can speak to the document.</p> <p>19 MR. DE HUECK: Continue reviewing the document.</p> <p>20 I'm going to allow Mr. Almond to ask his</p> <p>21 questions just based on this mail. I'm assuming, yes,</p> <p>22 this gentleman cannot speak to the conversation that took</p> <p>23 place in this e-mail, but maybe there's some information</p> <p>24 within that he -- Mr. Almond's got some sort of line of</p> <p>25 questioning that will make sense.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 18</p> <p>1 Q. And Mr. Jurgens was involved in the public input</p> <p>2 process, as we've discussed.</p> <p>3 A. Yes.</p> <p>4 Q. Who's Eric Elsberry?</p> <p>5 A. He's our zoning administrator. I suppose he's been</p> <p>6 there the last three years. Our other guy retired so we</p> <p>7 hired him and put him in there. And he does a very good</p> <p>8 job.</p> <p>9 Q. And as the zoning administrator, do members of the</p> <p>10 public submit input and comments to Mr. Elsberry?</p> <p>11 A. Yes, they do. And if there's any questions he</p> <p>12 usually calls District III for some advice because</p> <p>13 there's a wide variety of knowledge you need to know.</p> <p>14 Q. I'm going to ask you to turn to Exhibit I24 for me,</p> <p>15 please. It's in the binder under the tab I 24.</p> <p>16 A. With them yellow tags? There's 23 and there's 25.</p> <p>17 Right there? I 24. Okay.</p> <p>18 Q. And is Exhibit I24 an e-mail from Roland Jurgens to</p> <p>19 the zoning administrator Eric Elsberry?</p> <p>20 A. Yes, it is. I'm reading it right now. Hi, Eric."</p> <p>21 Q. And this e-mail was sent in October of 2015, around</p> <p>22 the same time the county was looking to adopt Article 17;</p> <p>23 right?</p> <p>24 A. Yes. I would say the Commissioner meeting was a</p> <p>25 week before that. And then according to what we looked</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 20</p> <p>1 (Witness examines documents.)</p> <p>2 A. Okay. I've read it.</p> <p>3 Q. As part of the public input process Mr. Roland</p> <p>4 Jurgens suggested to the county that a 35 dB</p> <p>5 nonparticipant noise restraint is absolutely the best way</p> <p>6 to protect nonparticipants?</p> <p>7 MS. AGRIMONTI: Objection. He's just asking the</p> <p>8 witness to state what is in the document. The document</p> <p>9 speaks for itself.</p> <p>10 MR. DE HUECK: Yeah. But I'm going to let the</p> <p>11 factual basis for these questions just merely go to the</p> <p>12 weight of what this witness responds and gives to the</p> <p>13 Commission. And we'll go from there.</p> <p>14 Q. Would you like the question repeated?</p> <p>15 A. What do you really want to know now.</p> <p>16 MR. ALMOND: Cheri, can you ask the question</p> <p>17 again.</p> <p>18 (Reporter reads back the question.)</p> <p>19 MS. AGRIMONTI: Further objection of hearsay.</p> <p>20 MR. DE HUECK: Well, and I'm just going to</p> <p>21 advise Mr. Almond you're basically testifying, and you're</p> <p>22 leading your direct examination. So let's try to avoid</p> <p>23 leading questions and leave them more open-ended.</p> <p>24 Q. Did Mr. Jurgens propose a noise limitation to be</p> <p>25 placed on nonparticipants as part of the public input</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 21</p> <p>1 process?</p> <p>2 A. I can't answer that. I can't remember. That was</p> <p>3 three years ago.</p> <p>4 Q. Looking at exhibit -- what's been marked as Exhibit</p> <p>5 I24, go to the fifth paragraph for me. Follow along as I</p> <p>6 read it out loud.</p> <p>7 MS. AGRIMONTI: Objection. The witness has not</p> <p>8 seen this document except for today. He has not laid any</p> <p>9 foundation that the document in front of him influenced</p> <p>10 his decision or that he was even aware of it. To have</p> <p>11 Mr. Almond read into the record what isn't otherwise</p> <p>12 admissible is improper, it's not relevant, and the</p> <p>13 foundation has not been laid.</p> <p>14 MR. ALMOND: May I respond?</p> <p>15 MR. DE HUECK: You may.</p> <p>16 MR. ALMOND: We've heard this witness who is the</p> <p>17 County Commissioner also sitting on the Zoning Board.</p> <p>18 We've heard that the Zoning Board and the County</p> <p>19 Commission receives public input in whether or not to</p> <p>20 adopt zoning ordinances. We've heard as part of that</p> <p>21 public input process people submit e-mails to Mr. Eric</p> <p>22 Elsberry, the zoning administrator for the county.</p> <p>23 This is an e-mail from Mr. Jurgens to Eric</p> <p>24 Elsberry, the zoning administrator clearly providing</p> <p>25 public input into the process of the adoption of Article</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 23</p> <p>1 MR. DE HUECK: Can the parties help me out. Did</p> <p>2 we have this one?</p> <p>3 MR. ALMOND: No. It's not admitted.</p> <p>4 MR. DE HUECK: Not admitted.</p> <p>5 MS. AGRIMONTI: It's not admitted. And the</p> <p>6 Applicant does agree that it is a document from</p> <p>7 Mr. Roland Jurgens to Eric Elsberry so that that</p> <p>8 foundation -- I'm not suggesting that the document isn't</p> <p>9 what it is. But it is hearsay, and there's no foundation</p> <p>10 for this witness to opine on it.</p> <p>11 MR. DE HUECK: In agreement. It's not admitted</p> <p>12 at this point in time.</p> <p>13 MR. ALMOND: And, just to be clear, I cannot use</p> <p>14 this document for impeachment purposes with this witness?</p> <p>15 MR. DE HUECK: I have not seen you try to do</p> <p>16 that yet.</p> <p>17 Q. Did the county receive public input from Mr. Roland</p> <p>18 Jurgens suggesting a 35 dBA limit for nonparticipants?</p> <p>19 A. To my knowledge I cannot remember that. It was</p> <p>20 three years ago.</p> <p>21 Q. Looking at Exhibit I -- what's been marked as</p> <p>22 Exhibit I24 in front of you read along as I read for you.</p> <p>23 "The 45 dB participant, 35 dB nonparticipant noise</p> <p>24 restraint is absolutely the best way to protect</p> <p>25 nonparticipants."</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 22</p> <p>1 17. As a County Commissioner and the board of -- a</p> <p>2 member of the planning board he's capable to speak to</p> <p>3 those public input that is submitted into the process.</p> <p>4 MS. AGRIMONTI: The witness has not seen the</p> <p>5 document --</p> <p>6 MR. DE HUECK: I got this.</p> <p>7 So Mr. Elsberry should be on the stand because</p> <p>8 it's clear from his statement and from observing him he's</p> <p>9 never seen this. He's completely unfamiliar with this</p> <p>10 document. So I am not going to let you read it into the</p> <p>11 record.</p> <p>12 I think you could formulate your questions</p> <p>13 without even having this e-mail in front of us right</p> <p>14 now.</p> <p>15 MR. ALMOND: Well, I asked the question of</p> <p>16 whether or not Mr. Jurgens submitted public input, and</p> <p>17 I'm now attempting -- to the county, and I'm now</p> <p>18 attempting to impeach the witness.</p> <p>19 MR. DE HUECK: He's never seen this public</p> <p>20 input. But Mr. Elsberry probably has. So I think --</p> <p>21 MR. ALMOND: Very clear. Just so we're very</p> <p>22 clear on this record, I'm going to move to admit</p> <p>23 Exhibit I24. And, as I'm understanding it, I'm not</p> <p>24 allowed to use Exhibit I24 either for admission or for</p> <p>25 impeachment purposes with this witness.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 24</p> <p>1 Did I read that correctly?</p> <p>2 A. You're on the page of this I 24?</p> <p>3 Q. Yes. It's the fifth paragraph.</p> <p>4 A. Read that again for me.</p> <p>5 Q. "The 45 dB participant, 35 dB nonparticipant noise</p> <p>6 restraint is absolutely the best way to protect</p> <p>7 nonparticipants."</p> <p>8 Did I read that correctly?</p> <p>9 A. That's what's wrote in the book.</p> <p>10 Q. What was that?</p> <p>11 A. That's what is written here.</p> <p>12 Q. Okay. What noise limitation did the county</p> <p>13 ultimately adopt for nonparticipants?</p> <p>14 A. I'd have to go through the book and you'd have to</p> <p>15 show me what page. When we did that three years ago we</p> <p>16 did it.</p> <p>17 Q. Do you frequently look to your zoning ordinances?</p> <p>18 A. Well, I haven't been on the board for a couple of</p> <p>19 years and that -- we had read through, and this is all --</p> <p>20 you know, we deal with many things, gravel to machinery</p> <p>21 to personnel and whatever. We go through that book, and</p> <p>22 I guess I'll apologize. I did not read through this</p> <p>23 zoning book before I came here today.</p> <p>24 I carried it in my briefcase for years. Got it --</p> <p>25 but our big concern now was the hog barns. You know, you</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 25</p> <p>1 ask me questions about hog barns and setbacks, and I can</p> <p>2 answer them.</p> <p>3 Q. Well, let's look to Article 17 and find the noise</p> <p>4 setback for nonparticipants. Can you turn to Article 17</p> <p>5 of your zoning ordinances for me?</p> <p>6 A. What page is that on?</p> <p>7 Q. It starts on page 57.</p> <p>8 A. Okay. I'm on page 57, Article 17. What do you want</p> <p>9 to know?</p> <p>10 Q. I want to know what the county's noise restriction</p> <p>11 is for nonparticipating residences of a wind energy</p> <p>12 system, a large wind energy system?</p> <p>13 A. Well, I know it's in here but I'm not going to be</p> <p>14 able to tell you right offhand where that paragraph is.</p> <p>15 Because we did study that three years ago.</p> <p>16 Q. And I'll help you out. It's Section 1741.</p> <p>17 A. Okay. "Noise level produced by" --</p> <p>18 (Witness examines document.)</p> <p>19 A. Okay. Now what do you want to know here?</p> <p>20 Q. Yeah. What is the noise limitation placed on large</p> <p>21 wind energy systems for nonparticipating residences?</p> <p>22 A. I guess I will admit the truth. This is a little</p> <p>23 above my head. You know, we went through this three</p> <p>24 years ago and according to the zoning administrator and</p> <p>25 everything, other counties, it worked.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 27</p> <p>1 that. That's why it was put in there.</p> <p>2 Q. And what are the issues you said there had been</p> <p>3 issues?</p> <p>4 A. That shadow flicker. You know, I personally</p> <p>5 don't -- I do understand it, but I don't. I mean, I know</p> <p>6 what it is and that's why it was put in there, to the</p> <p>7 best of my knowledge.</p> <p>8 Q. You said there had been other issues. Do you know</p> <p>9 what those other issues are?</p> <p>10 A. No.</p> <p>11 Q. Okay.</p> <p>12 A. But when we -- from some county or whatever, they</p> <p>13 said that -- you know, we kind of relied on everybody</p> <p>14 else's advice is how we acted on that, other --</p> <p>15 Q. In adopting the ordinances, did the county ever</p> <p>16 consider the concepts of infrasound or low frequency</p> <p>17 noise?</p> <p>18 A. Oh, I'm sure that was brought up. About everything</p> <p>19 you've talked about has been brought up in them three</p> <p>20 years prior a little bit.</p> <p>21 Q. And in anywhere in those Article 17 of your</p> <p>22 ordinances does the county place any sort of limitations</p> <p>23 or restrictions on infrasound or low frequency noise?</p> <p>24 A. I did not read up on that. I cannot answer that.</p> <p>25 Q. Well, you have Article 17 in front of you so feel</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 26</p> <p>1 Q. Looking specifically at the first line of Section</p> <p>2 1741 it says, "Noise level produced by the large wind</p> <p>3 energy system shall not exceed 45 dBA average A-weighted</p> <p>4 sound pressure at the perimeter of occupied residences."</p> <p>5 What does that 45 dBA average A-weighted sound</p> <p>6 pressure mean?</p> <p>7 A. Well, they monitor that and not supposed to go over</p> <p>8 it; right, is my understanding.</p> <p>9 Q. And the 45 dBA average A-weighted sound pressure, I</p> <p>10 understand you're saying that they monitor it and they</p> <p>11 can't go over it, but what is it?</p> <p>12 A. Well, it's the sound from the windmills.</p> <p>13 Q. And it says average A-weighted. How is it averaged?</p> <p>14 A. I cannot answer that. That is over my intelligence.</p> <p>15 Q. Is there a certain time period over which it's</p> <p>16 averaged that you're aware of?</p> <p>17 A. No.</p> <p>18 Q. In that same Section 1741 deals with shadow flicker.</p> <p>19 Do you see that?</p> <p>20 A. Yes, I do. To the bottom. I read that.</p> <p>21 Q. Why did the county think it needed to regulate</p> <p>22 shadow flicker?</p> <p>23 A. I guess with advice from other counties and other</p> <p>24 wind farms there has been issues with shadow flicker. So</p> <p>25 according to District III and whatever, they understand</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 28</p> <p>1 free to -- if you can find --</p> <p>2 MS. AGRIMONTI: Objection. Argumentative.</p> <p>3 MR. ALMOND: I'm attempting to refresh the</p> <p>4 witness's recollection of his zoning ordinances.</p> <p>5 MS. AGRIMONTI: I think it's an unfair test to</p> <p>6 ask him to read the entire ordinance and answer the</p> <p>7 question. It's either in the ordinance or it's not.</p> <p>8 MR. DE HUECK: I agree. And he gave the answer</p> <p>9 he's unaware.</p> <p>10 A. I guess we adopted this three years ago, and at that</p> <p>11 time we started up we thought everything was up to par at</p> <p>12 that time three years ago.</p> <p>13 I've flipped through it here and there. You know,</p> <p>14 we've heard about this many times and flipped through,</p> <p>15 whatever, should be good. And you're asking me these in</p> <p>16 depth questions, and they are over my intelligence.</p> <p>17 Q. At some point was it communicated to the county that</p> <p>18 the PUC model ordinance should not be used as a resource?</p> <p>19 A. I honestly can't recall that.</p> <p>20 MR. ALMOND: I don't have anymore questions for</p> <p>21 you, Mr. Soukup. Thank you for coming in.</p> <p>22 THE WITNESS: Okay. But I do recall the night</p> <p>23 at Avon when it was 100 degrees and your speaker system</p> <p>24 did not work. Remember that? And I sat there for three.</p> <p>25 MR. DE HUECK: Mr. Soukup, you're not quite done</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 29</p> <p>1 yet. What I have to do now is to tender you for 2 cross-examination. Which means that now we let the 3 Applicant ask you questions, and then I'll turn it over 4 to these other Intervenors in room and then we'll go to 5 Staff and then the Commission will have an opportunity to 6 ask you some questions as well. So, with that, 7 Prevailing Winds would you like to cross-examine this 8 witness? 9 MS. AGRIMONTI: I have no questions. I thank 10 you for coming in today. 11 MR. DE HUECK: Mr. Fuerniss, do you have any 12 cross-examination? 13 <u>CROSS-EXAMINATION</u> 14 <u>BY MR. FUERNISS:</u> 15 Q. Mr. Soukup, I don't think you're giving yourself 16 enough credit when you say this is over your 17 intelligence. 18 Don't you think perhaps you just haven't looked into 19 this lately, that it's not fresh you're mind? 20 A. I will apologize. You know, I should have brought 21 that -- in fact, I borrowed my zoning book to one of the 22 other Commissioners to read through it two weeks ago. 23 And I should have brought that book along. This morning 24 I was waiting in the hall. I could have read it about 25 twice and refreshed my memory. You know, this was all</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 31</p> <p>1 A. You know, I remember taking notes that night you 2 guys all talked in Tyndall. I said who was in favor, say 3 your name. Karen, yes and -- or no. And I kept track of 4 that because I sat right next to the Chairman that night. 5 And, you know, that meeting was two and a half hours 6 long. I guess there was a lot of things that was asked 7 for. I don't really remember anything specifically. 8 MR. FUERNISS: Okay. Thank you. 9 MR. DE HUECK: Ms. Jenkins. 10 MS. JENKINS: No questions. 11 MR. DE HUECK: Ms. Pazour. 12 MS. PAZOUR: No questions. 13 MR. DE HUECK: Staff. 14 MS. REISS: Thank you. Just briefly. 15 <u>CROSS-EXAMINATION</u> 16 <u>BY MS. REISS:</u> 17 Q. Thank you for being here, Commissioner. I just have 18 a couple of quick questions for you. Prior to today, did 19 anyone help you prepare your testimony for today? 20 A. No. I met with the State's attorney two days ago 21 and she said when to be here and I said what room and 22 that was it. And if I would have been prepared I would 23 have brought that book and read it instead of sitting 24 here looking like an idiot. 25 Q. Great. And in response to some of Mr. Almond's</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 30</p> <p>1 stuff from three years ago. I remember that October 20 2 night meeting. And there was quite a few people spoke 3 that night. I'm sure Gregg was there that night. I'm 4 sitting here. You know, I know everybody here with the 5 wind farm and I drive right by Karen's farm on my way 6 here and -- you know, cut through your neighborhood, I 7 should say, and -- 8 Q. And maybe this came out, Reece got this out, I don't 9 know, but do you remember any specifics that the public 10 was asking for, as far as putting into the ordinance for 11 the wind farm? 12 Do you remember any specific requests that were made 13 that it should have this or it should have that? 14 A. You know, I guess I'm very nervous, but as I sit 15 here I remember Karen speaking in Tyndall at least three 16 different times; right? And you was in Tyndall once or 17 twice. 18 Q. But do you remember what was specifically being 19 asked for? 20 A. Three years ago? The main specific thing was you 21 guys just wanted to stop it. 22 Q. But you don't recall -- 23 A. No. 24 Q. By what means or what specific regulations or 25 anything like that that were being asked for?</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 32</p> <p>1 questions you responded that the Commission looked 2 towards counties and other entities for zoning 3 ordinances. Do you remember that? 4 A. In that area -- we had paid attention to what some 5 of the other counties up north had done. 6 Q. Uh-huh. 7 A. And like I said that was three and a half years ago. 8 Q. Yeah. 9 A. Almost four. So we did give it a lot of thought, 10 and at that time everything we did in that book we 11 thought we was up to par and District III thought it was 12 up to par. Everything -- we did not want to make any 13 mistakes. 14 Q. Sure. 15 In your experience as a County Commissioner -- I 16 believe you said 17 years? How many years was it? 17 A. Zoning is 21. Commissioner 8. 18 Q. 21 years? 19 A. Yeah. 20 Q. So in your experience on the Zoning Board is it 21 abnormal for the county to look towards other resources, 22 counties? 23 A. Oh, yeah. We're issuing with these hog barns right 24 now, which is a big gray area trying to figure out 25 what -- and no county can figure out the correct answer,</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 33</p> <p>1 setbacks and smell and whatever.</p> <p>2 Q. So just to clarify it's a normal practice for the</p> <p>3 county to look to other entities or it's not normal?</p> <p>4 A. Yeah. I would call other Commissioners. Other</p> <p>5 Commissioners call me all the time about something.</p> <p>6 Q. Sure. And I guess my last question is after looking</p> <p>7 at other resources did the county independently review</p> <p>8 the information in the ordinance before passage?</p> <p>9 A. I think I'm sure our Chairman had called some other</p> <p>10 counties and we just thought everything we did was up to</p> <p>11 par.</p> <p>12 MS. REISS: Okay. No further questions.</p> <p>13 MR. DE HUECK: That will bring us to Commission</p> <p>14 questions. And I'll go down to Chairman Fiegen and see</p> <p>15 if she has any questions for you.</p> <p>16 CHAIRWOMAN FIEGEN: I don't have any questions.</p> <p>17 And thank you for coming to your State Capitol and</p> <p>18 leaving your farm for a little bit. We are praying for</p> <p>19 better weather every single day.</p> <p>20 THE WITNESS: Next week.</p> <p>21 CHAIRWOMAN FIEGEN: Thank you.</p> <p>22 THE WITNESS: Next week.</p> <p>23 MR. DE HUECK: Commissioner Hanson.</p> <p>24 COMMISSIONER HANSON: No thank you.</p> <p>25 MR. DE HUECK: Commissioner Nelson.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 35</p> <p>1 Q. And does Charles Mix County have any zoning</p> <p>2 ordinances?</p> <p>3 A. It does not.</p> <p>4 Q. Are you aware of the project that's being considered</p> <p>5 as part of this proceeding?</p> <p>6 A. For Prevailing Winds, yes.</p> <p>7 Q. And when did you first learn about this project?</p> <p>8 A. Six months ago, roughly.</p> <p>9 Q. And how did you come to learn of the project?</p> <p>10 A. They petitioned the county, let us know that they</p> <p>11 had an Application out. But beings how we're not zoned</p> <p>12 they're really not required to do a lot. They did let us</p> <p>13 know what some of the tax base would be from the project.</p> <p>14 Wanted to meet with the highway superintendents for road</p> <p>15 agreements.</p> <p>16 Q. You said they petitioned the county? Is that what</p> <p>17 you said?</p> <p>18 A. No.</p> <p>19 Q. Okay. Maybe I misheard you.</p> <p>20 A. No.</p> <p>21 Q. They just reached out to the county let them know</p> <p>22 about the project?</p> <p>23 A. Right. There would be haul road agreements to be</p> <p>24 considered and things like that.</p> <p>25 Q. And in response of learning of this project, what</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 34</p> <p>1 COMMISSIONER NELSON: Thanks for being part of</p> <p>2 the process. No questions.</p> <p>3 MR. DE HUECK: Mr. Almond do you have any</p> <p>4 redirect?</p> <p>5 MR. ALMOND: No.</p> <p>6 MR. DE HUECK: With that, you may step down.</p> <p>7 Thank you for testifying.</p> <p>8 THE WITNESS: Thank you. And you earned your</p> <p>9 money that night at Avon. That was a tough one. Between</p> <p>10 the heat and the speaker problem.</p> <p>11 (The witness is excused.)</p> <p>12 MR. DE HUECK: Mr. Almond, you may call your</p> <p>13 next witness.</p> <p>14 MR. ALMOND: Call Keith Mushitz.</p> <p>15 Keith Mushitz,</p> <p>16 called as a witness, being first duly sworn in the above</p> <p>17 cause, testified under oath as follows:</p> <p>18 <u>CROSS-EXAMINATION</u></p> <p>19 <u>BY MR. ALMOND.</u></p> <p>20 Q. Will you introduce yourself to the Commission,</p> <p>21 please.</p> <p>22 A. I'm Keith Mushitz. Geddes, South Dakota. Chairman</p> <p>23 of Charles Mix County.</p> <p>24 Q. You're Chairman of Charles Mix County Commission?</p> <p>25 A. Charles Mix County Commission, yes.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 36</p> <p>1 did the county do?</p> <p>2 A. We're not zoned. We really didn't do nothing,</p> <p>3 other -- after there was some protests, we looked into</p> <p>4 zoning but that's not going to work in Charles Mix</p> <p>5 County.</p> <p>6 Q. And you say after some protest. Tell me about that.</p> <p>7 A. Your clients were not in favor of wind power or the</p> <p>8 placement of it. Whatever.</p> <p>9 Q. When you say your clients who are you referring to?</p> <p>10 A. This row of gentlemen and Mr. Fuerniss.</p> <p>11 Q. Cuss their names and can you get a little more</p> <p>12 closer to the microphone?</p> <p>13 A. Mr. Sherman Fuerniss, I know he spoke before the</p> <p>14 Commission before and Mr. Hubner. And I'm not real good</p> <p>15 with names so I don't know the rest of them by name.</p> <p>16 Q. And when did the members of the public protest about</p> <p>17 this project?</p> <p>18 A. When it was prevented -- when it was presented by</p> <p>19 Prevailing Winds, I guess.</p> <p>20 Q. And you said there was some consideration of zoning.</p> <p>21 Tell us about that.</p> <p>22 A. Some people thought we should do some emergency</p> <p>23 zoning, but after more so meeting on other matters, not</p> <p>24 necessarily wind matters, zoning is not just not going</p> <p>25 to -- we had zoning once and it got voted out it's not a</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">37</p> <p>1 good fit for Charles Mix County. There's 40,000 acres</p> <p>2 that we have no control over.</p> <p>3 Q. Did the County Commission start the process of</p> <p>4 implementing the ordinance zoning?</p> <p>5 A. We looked into it. We never ever read any</p> <p>6 ordinances. We did District III draw an ordinance up but</p> <p>7 we never acted on anything.</p> <p>8 Q. And when you said you looked into it, is that what</p> <p>9 you meant by looking it is you had District III?</p> <p>10 A. We actually had a draft written up, yes, sir.</p> <p>11 Q. And did you do anything else to look into it?</p> <p>12 A. Don't understand.</p> <p>13 Q. Well, did you hold any public hearings or any public</p> <p>14 meetings about?</p> <p>15 A. Yes.</p> <p>16 Q. Adopting emergency zoning ordinances?</p> <p>17 A. Yes, we did.</p> <p>18 Q. Tell us about those meetings.</p> <p>19 A. Well, we had people that were wanting to have the</p> <p>20 wind project and we had people that were not in favor of</p> <p>21 the wind power and we just let them air it out.</p> <p>22 Q. And approximately how many meetings took place</p> <p>23 considering the adoption of emergency zoning ordinances?</p> <p>24 A. One special meeting that was just for public comment</p> <p>25 and then one of our Commission meetings had pretty much a</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">39</p> <p>1 Q. Looking at page 3 of Exhibit 1-22, the Affidavit of</p> <p>2 Peter Pawlowski, do you see that?</p> <p>3 A. Yes, sir.</p> <p>4 Q. And is that that agreement you were just referring</p> <p>5 to?</p> <p>6 MS. AGRIMONTI: Objection. Mischaracterizes the</p> <p>7 document.</p> <p>8 MR. DE HUECK: Go ahead, Reiss.</p> <p>9 Q. What is that document?</p> <p>10 A. That is the document that we approved.</p> <p>11 Q. So this is the document that Charles Mix County</p> <p>12 approved for this project?</p> <p>13 A. Yes, sir.</p> <p>14 Q. When was the first time you seen this document?</p> <p>15 A. At one of the meetings in the -- one of the public</p> <p>16 meetings that we had in the evening. I don't know the</p> <p>17 date.</p> <p>18 Q. Yeah. And did you -- at some point the County</p> <p>19 Commission approved this document.</p> <p>20 A. Correct. At the end of the meeting.</p> <p>21 Q. At the end of the meeting. Have you ever seen this</p> <p>22 document prior to that meeting?</p> <p>23 A. I think I've heard that the document was around.</p> <p>24 Had I read it? No, sir.</p> <p>25 Q. Okay. And from the county's perspective, what does</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">38</p> <p>1 full house but it wasn't designated as just a wind power</p> <p>2 meeting. Those two for sure.</p> <p>3 A little later on we had just strictly a zoning</p> <p>4 meeting which did end up getting wind power comments.</p> <p>5 Q. And you said ultimately the emergency zoning never</p> <p>6 went forward. Did any type of zoning get adopted in</p> <p>7 Charles Mix County?</p> <p>8 A. It has not.</p> <p>9 Q. Is Charles Mix County currently considering adopting</p> <p>10 zoning regulations?</p> <p>11 A. We -- I don't believe the matter will be brought up</p> <p>12 again.</p> <p>13 Q. So for the time being, there's not going to be any</p> <p>14 zoning in Charles Mix County in the near future?</p> <p>15 A. I highly doubt it, sir.</p> <p>16 Q. Did the County Commission make any sort of</p> <p>17 agreements or affirmations about this project?</p> <p>18 A. The county signed a document with Prevailing Winds</p> <p>19 as to where they would have -- how much they would use</p> <p>20 for setbacks. I'm sure you've looked at the document.</p> <p>21 We accepted that document, yes.</p> <p>22 Q. And if you turn to Exhibit 1-22 for me in that</p> <p>23 binder in front of you.</p> <p>24 A. I 22.</p> <p>25 I 22 or just Exhibit 22?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">40</p> <p>1 it mean to approve this document?</p> <p>2 A. Well, it was Prevailing Wind said that they would go</p> <p>3 with these setbacks and distances when they put their</p> <p>4 project up within Charles Mix County. That looked</p> <p>5 acceptable to us.</p> <p>6 Q. And what information did the county rely on to --</p> <p>7 A. We looked --</p> <p>8 Q. To form the conclusion that it looked acceptable?</p> <p>9 A. We looked at other county zoning -- wind power</p> <p>10 zoning ordinances. This has greater distance than some</p> <p>11 for setbacks, less than others. It's between, you know,</p> <p>12 the most severe and the most lenient. The county did not</p> <p>13 have the resources to do their own independent studies.</p> <p>14 Q. And which counties did you look to?</p> <p>15 A. I think we had pretty much a list of every county in</p> <p>16 the state that has zoning on wind power.</p> <p>17 Q. And give some examples of the --</p> <p>18 A. Farther distance was 2 to 3 miles and the least</p> <p>19 distance I believe was 1,000 feet.</p> <p>20 Q. Okay. Aside from just looking at other county</p> <p>21 zoning ordinances, did the county rely on anything else</p> <p>22 in deciding to approve of this document?</p> <p>23 A. No. Not really, sir.</p> <p>24 Q. Okay. And if you go to the noise reference on</p> <p>25 page 2 of the Affidavit, page 4 of Exhibit 1-22, do you</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 41</p> <p>1 see the section that says, "Noise"?</p> <p>2 A. Page 4? Attachment 2 --</p> <p>3 Q. We're on the same exhibit?</p> <p>4 A. Yes, sir.</p> <p>5 Q. And then the last page of that exhibit.</p> <p>6 In looking at the last page of Exhibit 1-22 can you</p> <p>7 locate the noise?</p> <p>8 A. Yes, sir.</p> <p>9 Q. And it says the noise from the wind turbines will</p> <p>10 not exceed 43 dBA at any existing nonparticipating</p> <p>11 residence. Can you give us anymore information on what</p> <p>12 that means?</p> <p>13 A. That is the sound emitted by the turbines, 43</p> <p>14 decibels, 45 decibels.</p> <p>15 Q. And is this the -- strike that.</p> <p>16 From the county's perspective, is there any</p> <p>17 additional information that the Commission should be</p> <p>18 aware of as it relates to noise?</p> <p>19 A. No, sir. This was in a lot of the other zoning</p> <p>20 ordinances as a standard.</p> <p>21 Q. So as you read that noise limitation what happens</p> <p>22 if -- if the noise from the wind turbines goes over 43</p> <p>23 dBA?</p> <p>24 A. As to what happens?</p> <p>25 Q. Would they be in -- essentially violation of this</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 43</p> <p>1 Q. Didn't obligate the county in any way?</p> <p>2 A. Correct.</p> <p>3 MS. AGRIMONTI: I have no further questions.</p> <p>4 MR. DE HUECK: Mr. Fuerniss.</p> <p>5 <u>CROSS-EXAMINATION</u></p> <p>6 <u>BY MR. FUERNISS:</u></p> <p>7 Q. Good morning, Keith.</p> <p>8 A. Good morning.</p> <p>9 Q. A little bit of housekeeping here. You stated that</p> <p>10 you think I'm a client of Mr. Almond's; is that correct?</p> <p>11 A. I guess I don't know that for sure. I know you're</p> <p>12 not -- do not want wind towers around your property.</p> <p>13 Q. Well, would it surprise you to know that he is not</p> <p>14 my attorney and neither Karen's nor Kelly's?</p> <p>15 A. I apologize for making that assumption.</p> <p>16 Q. Just to be clear there's not an attorney in this</p> <p>17 room that's within my pay grade.</p> <p>18 Were you on the County Commissioners when the</p> <p>19 Beethoven project was built?</p> <p>20 A. Yes, I was.</p> <p>21 Q. Was there any kind of similar Affidavit or any kind</p> <p>22 of agreements at that time to do that project?</p> <p>23 A. When that project came in there was no -- very</p> <p>24 little objection to it. I mean, we never had no public</p> <p>25 meetings or nobody wanted one.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 42</p> <p>1 approved limitation?</p> <p>2 A. I would assume so, yes.</p> <p>3 MR. ALMOND: Okay. No further questions.</p> <p>4 MR. DE HUECK: Cross-examination, Ms. Agrimonti.</p> <p>5 MS. AGRIMONTI: Yes. Thank you. Very</p> <p>6 limiteded.</p> <p>7 <u>CROSS-EXAMINATION</u></p> <p>8 <u>BY MS. AGRIMONTI:</u></p> <p>9 Q. Thank you for attending today.</p> <p>10 You referenced public meetings where various</p> <p>11 individuals came and spoke about the possibility of a</p> <p>12 zoning change or adoption of zoning. Do you recall that?</p> <p>13 A. Yes.</p> <p>14 Q. And did you listen to everyone who wanted to speak</p> <p>15 about their concerns with respect to wind turbines?</p> <p>16 A. As much time as we had, yeah. One meeting went on</p> <p>17 all night long I think if we didn't close it down.</p> <p>18 Q. And you considered all those comments in determining</p> <p>19 whether to move forward with emergency zoning?</p> <p>20 A. Yes.</p> <p>21 Q. I 22 we've been talking about the exhibit of -- that</p> <p>22 Mr. Almond was asking you questions about. You agree</p> <p>23 that that is a document that binds only Prevailing Wind</p> <p>24 Park; isn't that correct?</p> <p>25 A. Correct.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 44</p> <p>1 Q. Do you know how --</p> <p>2 A. We did not sign nothing on that project.</p> <p>3 Q. Yeah. The county didn't have?</p> <p>4 A. No.</p> <p>5 Q. Any kind of agreement or statements?</p> <p>6 A. You're correct.</p> <p>7 Q. Okay.</p> <p>8 So would you have any idea of how that project got</p> <p>9 placed within the bounds of Charles Mix County? Have</p> <p>10 you -- I've got to ask one question at a time; right?</p> <p>11 Do you have any idea how it came about that it was</p> <p>12 put where it is?</p> <p>13 A. No. I really don't. I suppose it's where they</p> <p>14 could generate the most wind from, I'm assuming.</p> <p>15 Q. And have you been up there and looked at those</p> <p>16 turbines that are in Charles Mix County?</p> <p>17 A. Up close or from my place that's 40 miles away.</p> <p>18 Q. Up close. I mean, driven by, driven through?</p> <p>19 A. Just off of highway going to trip 18.</p> <p>20 Q. Okay. So that would put you some 3 miles at least</p> <p>21 probably from --</p> <p>22 A. Or 46. I've never drove to any of the towers.</p> <p>23 Q. Okay. And do you recall at both the -- I think when</p> <p>24 you say public input meetings you're mostly talking about</p> <p>25 the regular Commissioner meetings for the most part? You</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 45</p> <p>1 guys did have a couple of special meetings during the</p> <p>2 summer but for the most part these were regularly</p> <p>3 scheduled Commissioner meetings?</p> <p>4 A. Correct.</p> <p>5 Q. Okay. Do you remember particulars or what specifics</p> <p>6 in regards to regulations that the people were asking for</p> <p>7 in a potential zoning ordinance? Some of the numbers</p> <p>8 that were mentioned?</p> <p>9 A. They varied quite a bit, yes, sir.</p> <p>10 Q. But do you remember what some of them were?</p> <p>11 A. Yes. I think I heard a three-quarter-of-a-mile</p> <p>12 setback. I've heard mile setback. I've heard half-mile</p> <p>13 setback. Depends whether you was for or against the</p> <p>14 project.</p> <p>15 Q. Do you remember a particular county zoning ordinance</p> <p>16 that we referenced?</p> <p>17 A. No. I do know that one ordinance -- I don't know</p> <p>18 the exact county. One of them had very far setbacks. I</p> <p>19 do remember that part.</p> <p>20 Q. You're referring --</p> <p>21 A. I don't know which county it was for sure.</p> <p>22 Q. You're probably referring to the Walworth County</p> <p>23 ordinance which has a 2 mile setback?</p> <p>24 A. Could be. I don't know, Sherman. I don't know.</p> <p>25 Q. Well, that was one that was --</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 47</p> <p>1 Commissioner Hanson.</p> <p>2 Staff.</p> <p>3 MS. REISS: Thank you.</p> <p>4 <u>CROSS-EXAMINATION</u></p> <p>5 <u>BY MS. REISS:</u></p> <p>6 Q. Good morning, Mr. Mushitz?</p> <p>7 A. Correct.</p> <p>8 Q. I have just have a couple of questions for you. If</p> <p>9 you could turn your attention to Exhibit 1-22, and that</p> <p>10 would be the Affidavit of the Peter Pawlowski.</p> <p>11 You mentioned in response to Mr. Almond's questions</p> <p>12 that the first time you saw this Affidavit was at the</p> <p>13 Commission meeting; is that correct?</p> <p>14 A. Yes, ma'am.</p> <p>15 Q. Did you speak to Mr. Pawlowski at any time before</p> <p>16 this Affidavit was presented at the Commission meeting?</p> <p>17 Let me clarify. Did you speak to him about the</p> <p>18 terms of this Affidavit?</p> <p>19 A. No.</p> <p>20 Q. Okay. You mentioned I believe in response to</p> <p>21 Mr. Fuerniss's question that the Beethoven project did</p> <p>22 not have a similar Affidavit; is that correct?</p> <p>23 A. Correct.</p> <p>24 Q. Are these affidavits normal practice for Charles Mix</p> <p>25 County?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 46</p> <p>1 A. Uh-huh.</p> <p>2 Q. Thank you, Keith.</p> <p>3 MR. DE HUECK: Ms. Jenkins, any questions?</p> <p>4 <u>CROSS-EXAMINATION</u></p> <p>5 <u>BY MS. JENKINS:</u></p> <p>6 Q. Sir, do you remember me attending one of your</p> <p>7 regular meetings?</p> <p>8 A. Yes, I do.</p> <p>9 Q. Okay. And do you remember what my concerns were?</p> <p>10 A. It was health concerns, I believe, with the wind</p> <p>11 power.</p> <p>12 Q. Okay.</p> <p>13 MS. JENKINS: Thank you.</p> <p>14 MR. DE HUECK: Ms. Pazour.</p> <p>15 <u>CROSS-EXAMINATION</u></p> <p>16 <u>BY MS. PAZOUR:</u></p> <p>17 Q. Good morning, Keith.</p> <p>18 A. Good morning.</p> <p>19 Q. Do you remember me being at the meetings?</p> <p>20 A. Yes, I do. And your daughter.</p> <p>21 Q. Do you remember me giving you literature?</p> <p>22 A. Yes. As far as the health concerns again on wind</p> <p>23 towers, yes.</p> <p>24 MS. PAZOUR: Okay. Thank you.</p> <p>25 MR. DE HUECK: Commission questions.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 48</p> <p>1 A. This is only the two wind projects that ever come in</p> <p>2 so what is normal?</p> <p>3 Q. All right. But there's not another type of project</p> <p>4 that would utilize an Affidavit like this?</p> <p>5 A. No.</p> <p>6 Q. Okay.</p> <p>7 MS. REISS: Okay. No further questions.</p> <p>8 MR. DE HUECK: Commissioner Hanson.</p> <p>9 COMMISSIONER HANSON: Thank you. Good morning,</p> <p>10 Mr. Mushitz -- or Commissioner, I should say.</p> <p>11 THE WITNESS: Either way.</p> <p>12 COMMISSIONER HANSON: Mr. Chairman, were you</p> <p>13 subpoenaed to come here today?</p> <p>14 THE WITNESS: Yes, sir.</p> <p>15 COMMISSIONER HANSON: You spoke -- as you were</p> <p>16 going through the process you said that there were 40,000</p> <p>17 acres that you had no control over in the county.</p> <p>18 And I'm assuming that's reservation property; is</p> <p>19 that correct?</p> <p>20 THE WITNESS: Trust lands.</p> <p>21 COMMISSIONER HANSON: Trust lands. Okay. And</p> <p>22 of course you don't have authority over municipalities</p> <p>23 either, do you?</p> <p>24 THE WITNESS: No, sir.</p> <p>25 COMMISSIONER HANSON: Okay. I think that's all</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 49</p> <p>1 I have. I appreciate your testimony. Thank you.</p> <p>2 MR. DE HUECK: Commissioner Nelson.</p> <p>3 COMMISSIONER NELSON: Thanks for being part of</p> <p>4 the process. No questions.</p> <p>5 MR. DE HUECK: Chair Fiegen.</p> <p>6 CHAIRWOMAN FIEGEN: Thank you.</p> <p>7 MR. DE HUECK: Any redirect.</p> <p>8 MR. ALMOND: Briefly.</p> <p>9 <u>REDIRECT EXAMINATION</u></p> <p>10 <u>BY MR. ALMOND:</u></p> <p>11 Q. You were asked about the public input process, the</p> <p>12 meetings. Was there a meeting, a County Commission</p> <p>13 meeting in which you and Mr. Peter Pawlowski left the</p> <p>14 meeting to go out in the hallway and have a private</p> <p>15 conversation?</p> <p>16 A. Yes, sir.</p> <p>17 Q. Tell us about that private conversation.</p> <p>18 A. Within the meeting maps had been showed of a setback</p> <p>19 map. And, of course, I was over here, Mr. Pawlowski was</p> <p>20 over there. There was so much comment going on I wanted</p> <p>21 a question clarified. We stepped out. I asked him how</p> <p>22 many towers would be affected with a 2,000 foot setback.</p> <p>23 And the lines were real close on paper. He thought two</p> <p>24 and possibly three would be affected the way they were</p> <p>25 presented on the paper at that time.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 51</p> <p>1 the projected tax payments to Charles Mix County might</p> <p>2 come out to, say, per acre or something like that for</p> <p>3 Charles Mix County, taking into consideration all those</p> <p>4 trust lands that aren't taxed?</p> <p>5 MS. AGRIMONTI: Objection.</p> <p>6 THE WITNESS: This is not even relevant to this.</p> <p>7 We're on a whole new ground.</p> <p>8 MR. FUERNISS: Okay. I'll withdraw the question</p> <p>9 it if that's the proper thing to do. Thank you.</p> <p>10 MR. DE HUECK: Ms. Jenkins?</p> <p>11 MS. JENKINS: No questions.</p> <p>12 MR. DE HUECK: Ms. Pazour.</p> <p>13 MS. PAZOUR: I have a question but I would like</p> <p>14 to ask Ms. Edwards because I'm not sure on how to ask it.</p> <p>15 MS. EDWARDS: Can we take 30 seconds. I can't</p> <p>16 give legal advice but I can see what you want to know</p> <p>17 from me.</p> <p>18 MR. DE HUECK: Yep. Go ahead.</p> <p>19 (A short recess is taken.)</p> <p>20 MR. DE HUECK: Ms. Pazour, go ahead.</p> <p>21 <u>CROSS-EXAMINATION</u></p> <p>22 <u>BY MS. PAZOUR:</u></p> <p>23 Q. Did you have any public meetings outside of the</p> <p>24 Commission -- Commissioners meetings with Prevailing</p> <p>25 Winds?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 50</p> <p>1 We came back in the meeting, and I told the meeting</p> <p>2 that that's what we had discussed outside the door.</p> <p>3 Q. Was there any other discussion out in the hallway?</p> <p>4 A. No, sir. I wanted that question clarified.</p> <p>5 Q. Aside from that particular meeting, have you had any</p> <p>6 other conversations with Mr. Pawlowski or anyone else</p> <p>7 outside of a public meeting?</p> <p>8 A. No, sir.</p> <p>9 MR. ALMOND: Okay. Nothing further.</p> <p>10 THE WITNESS: I was invited to a site and didn't</p> <p>11 even go so --</p> <p>12 MR. ALMOND: No further questions.</p> <p>13 MR. DE HUECK: Recross, Prevailing Winds.</p> <p>14 MS. AGRIMONTI: No questions.</p> <p>15 MR. DE HUECK: Mr. Fuerniss?</p> <p>16 <u>RECROSS-EXAMINATION</u></p> <p>17 <u>BY MR. FUERNISS:</u></p> <p>18 Q. Commissioner Hanson brought up the trust lands in</p> <p>19 Charles Mix County.</p> <p>20 How does that affect property taxes in Charles Mix</p> <p>21 County?</p> <p>22 A. There is no taxes on trust land.</p> <p>23 Q. So there's 40,000 acres, give or take, that the</p> <p>24 county receives no income from.</p> <p>25 Did the Commission just for funsies figure out what</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 52</p> <p>1 A. No I stepped out of that meeting with Mr. Peter</p> <p>2 Pawlowski, but no other meetings, other than public</p> <p>3 meetings.</p> <p>4 Q. Like in the beginning of August?</p> <p>5 A. I did not.</p> <p>6 MS. PAZOUR: Okay.</p> <p>7 MR. DE HUECK: With that, Mr. Mushitz.</p> <p>8 THE WITNESS: Mushitz.</p> <p>9 MR. DE HUECK: Mushitz. Thank you for your</p> <p>10 testimony, and you may step down.</p> <p>11 (The witness is excused.)</p> <p>12 MR. DE HUECK: We will move on to Staff's</p> <p>13 witness. He was scheduled today so that's why we're</p> <p>14 breaking the Order for Mr. Almond at this time allowing</p> <p>15 Staff's witness to take the stand.</p> <p>16 MS. EDWARDS: Staff calls David Hessler.</p> <p>17 David Hessler,</p> <p>18 called as a witness, being first duly sworn in the above</p> <p>19 cause, testified under oath as follows:</p> <p>20 <u>DIRECT EXAMINATION</u></p> <p>21 <u>BY MS. EDWARDS:</u></p> <p>22 Q. Mr. Hessler, welcome back to South Dakota. Will you</p> <p>23 please introduce yourself for the record.</p> <p>24 A. Yeah. My name is David Hessler. I'm an acoustical</p> <p>25 consultant with Hessler & Associates and I've been asked</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">53</p> <p>1 by the public utilities Staff to provide impartial</p> <p>2 technical advice on noise for this project.</p> <p>3 Q. Did you submit prefiled testimony in this Docket?</p> <p>4 A. Yes, I did.</p> <p>5 Q. Have you testified before this Commission before?</p> <p>6 A. Two previous times.</p> <p>7 Q. Have you reviewed the other testimony submitted by</p> <p>8 other witnesses in this Docket?</p> <p>9 A. Yes, I have.</p> <p>10 Q. Both direct and rebuttal?</p> <p>11 A. Yes.</p> <p>12 Q. Have you also reviewed all responses to data</p> <p>13 requests?</p> <p>14 A. I believe I've read most of them if not all of them.</p> <p>15 Q. Did you rely upon that information when formulating</p> <p>16 your opinion?</p> <p>17 A. Yes.</p> <p>18 Q. Are you familiar with the testimony of Mr. Howell,</p> <p>19 Chris Howell?</p> <p>20 A. Yes. Mr. Chris Howell, the -- he's the acoustical</p> <p>21 engineer for the project.</p> <p>22 Q. Would you agree that it is -- based upon his</p> <p>23 testimony yesterday would you agree that it is either</p> <p>24 inappropriate or impossible to assess the potential noise</p> <p>25 impact on the -- strike that.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">55</p> <p>1 wind farm in Australia and then replicated that sound in</p> <p>2 a laboratory setting and people with known sensitivities,</p> <p>3 people that lived on the site that were bothered by it</p> <p>4 could tell when this completely inaudible sound was</p> <p>5 played with 100 percent accuracy; whereas, a group of</p> <p>6 other people didn't hear anything.</p> <p>7 Q. So then is it your testimony that certain people</p> <p>8 would be more sensitive than others?</p> <p>9 A. I believe some people do have a sensitivity to the</p> <p>10 pulsations produced by all wind turbines really, every</p> <p>11 model, every size. It's just the nature of the thing</p> <p>12 that it produces a pulse around just under 1 hertz, which</p> <p>13 is extremely low and well below the capability of any</p> <p>14 conventional sound instrument to measure.</p> <p>15 Q. If you had -- based upon your training and</p> <p>16 experience, if you had to guess without anybody talking</p> <p>17 what's the noise level in this room today?</p> <p>18 A. I would say with the fan going it's maybe 40 dBA.</p> <p>19 In fact I have a sound level meter on my phone if you --</p> <p>20 can I?</p> <p>21 Q. I'll take your word for it.</p> <p>22 A. Okay. All right.</p> <p>23 Q. Are you familiar with Mr. Howell's Rebuttal</p> <p>24 Testimony as it relates to the testimony of Mr. Richard</p> <p>25 James?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">54</p> <p>1 What is your over all assessment of the positions</p> <p>2 and arguments advanced by Mr. Howell in his testimony?</p> <p>3 A. Well, I think what you were getting at there for a</p> <p>4 minute was the first point, which is he contends that</p> <p>5 it's impossible to predictor assess the public reaction</p> <p>6 to a project, and so their study focused entirely on</p> <p>7 simply demonstrating whether the project was going to</p> <p>8 meet the 45 dBA Bon Homme County noise limit.</p> <p>9 But they did no work or -- evaluating what the</p> <p>10 predicted sound levels meant or looked into any kind of</p> <p>11 low frequency issues, none of that. So I was critical of</p> <p>12 the -- of Mr. Howell's work in that regard.</p> <p>13 Q. Now just now when you stated their study are you</p> <p>14 referring to that of the Applicant?</p> <p>15 A. Yeah. The Applicant's noise study, which was</p> <p>16 prepared by Mr. Howell.</p> <p>17 Q. Are you familiar with a Mr. Steven Cooper?</p> <p>18 A. Yes.</p> <p>19 Q. And who is Steven Cooper?</p> <p>20 A. He's an acoustical engineer out of Australia who</p> <p>21 with relevance here has recently done some experiments</p> <p>22 that I find very convincing that demonstrate that people</p> <p>23 with certain sensitivities are affected by extremely low</p> <p>24 frequency pulsations from wind turbines.</p> <p>25 He did a blind study where he recorded sound at a</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">56</p> <p>1 A. Yes, I am. And I have to say I agree with</p> <p>2 Mr. Howell on his comments there, that in most instances</p> <p>3 counter to what Mr. James was putting forward.</p> <p>4 Q. How about Mr. Howell's testimony as it rebutted that</p> <p>5 of Mr. Jerry Punch?</p> <p>6 A. I actually did agree with Mr. Howell there because</p> <p>7 what he was talking about was Dr. Punch was recommending</p> <p>8 that the noise limit for the project should be expressed</p> <p>9 in terms of an L_{Amax} statistical noise level.</p> <p>10 That sounds good. That makes sense on paper. But</p> <p>11 that's coming from someone that's never measured a wind</p> <p>12 project.</p> <p>13 If we were to put a sound monitor at the site today</p> <p>14 when there's no project, the L_{max} would go over 40, 45,</p> <p>15 or even 50 a thousand times a day. Every dog bark, plane</p> <p>16 flying, everything would cause an exceedance of that</p> <p>17 level.</p> <p>18 So it's not practical to use that to actually</p> <p>19 measure a complete project.</p> <p>20 Q. Have you read the direct and Rebuttal Testimony of</p> <p>21 Intervenor witness professor Alves-Pereira?</p> <p>22 A. Yes.</p> <p>23 Q. And what is your opinion of that?</p> <p>24 A. Well, her area is physiology and that sort of thing.</p> <p>25 It's out of my area, but I would -- there was another</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 57</p> <p>1 witness, Mark Hopkins, I believe, who reviewed her</p> <p>2 testimony. And he's a physiologist and answered her</p> <p>3 point by point, and I had to agree. I found his</p> <p>4 testimony very compelling.</p> <p>5 Q. Would you be referring to Dr. Mark Roberts?</p> <p>6 A. Mark Roberts. Thank you. I drew a blank there for</p> <p>7 a moment.</p> <p>8 Q. What statistical descriptor would you associate with</p> <p>9 the 40 dBA noise limit?</p> <p>10 A. If there were to be a 40 dBA limit on this project</p> <p>11 or any other project, the only practical descriptor would</p> <p>12 be a long-term average measured over a period of days or</p> <p>13 weeks.</p> <p>14 And the reason for that is that the sound of the</p> <p>15 project varies with wind and atmospheric conditions so a</p> <p>16 short measurement of 10 minutes wouldn't tell you</p> <p>17 anything. The project might not even be operating.</p> <p>18 So what we found from many years of experience</p> <p>19 testing completed projects is that you have to monitor</p> <p>20 for usually two weeks and then try to determine what the</p> <p>21 project alone level is exclusive of the background level.</p> <p>22 The background levels vary significant in these projects.</p> <p>23 As as high as the project many times.</p> <p>24 For example, in our assessments we'll usually</p> <p>25 monitor for about two weeks prior to any construction,</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 59</p> <p>1 to do is we ask the project who has called or complained</p> <p>2 or who's upset about this project in any way, and we're</p> <p>3 going to monitor at their houses.</p> <p>4 Now that -- in every case I can think of that's a</p> <p>5 number between zero and three. Usually there's about</p> <p>6 maybe two people. And most of these projects cover 25</p> <p>7 square miles. They involve hundreds of houses, but</p> <p>8 that's what we find.</p> <p>9 So we measure at those locations, and then I pick</p> <p>10 five to seven other locations that are on the sound map</p> <p>11 the locations of the houses that are receiving the</p> <p>12 maximum sound level and so we set up instruments at all</p> <p>13 of those locations.</p> <p>14 In doing that, we can talk to all of those people.</p> <p>15 So I've heard the grievances of people that don't like</p> <p>16 it, and then I've also talked to the people at all these</p> <p>17 other houses that are receiving sound levels of '46 and</p> <p>18 47 dBA and most people just say it's -- it's nothing.</p> <p>19 You hear it. Nothing.</p> <p>20 So my impression after 15 wind projects of seeing</p> <p>21 that same thing repeated is that there's going to be some</p> <p>22 people very upset. It's going to be a small number.</p> <p>23 There's a few projects that everybody to my knowledge is</p> <p>24 fine with. But most people aren't that bothered. And</p> <p>25 that's kind of the facts on the ground.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 58</p> <p>1 and what we find is that the sound level is directly --</p> <p>2 directly correlates to the wind speed. And so when it's</p> <p>3 windy the sound levels 45, 50 dBA before anything's</p> <p>4 built.</p> <p>5 So when the project comes in you have to be careful</p> <p>6 not just to accept the level that's measured as being</p> <p>7 completely from the project. A lot of times that's only</p> <p>8 one component of it. So the difficulty is separating the</p> <p>9 two, and that's why a long-term measurement campaign is</p> <p>10 needed, supplemented by monitors that are miles from the</p> <p>11 project recording the simultaneous background level.</p> <p>12 It's not an easy thing to do.</p> <p>13 Q. Ballpark number, how many wind farms have you</p> <p>14 evaluated?</p> <p>15 A. Well, one of the Intervenor data requests was</p> <p>16 exactly that question so I had to go back and look.</p> <p>17 We've measured 15 newly operational projects all over the</p> <p>18 country, one in Jamaica, and what we have done in all of</p> <p>19 those cases is performed these two or three-week surveys</p> <p>20 with background monitors, and it's not easy but you can</p> <p>21 tease out what the project level is doing on a long-term</p> <p>22 average basis.</p> <p>23 Now one point I'd like to make about that is when we</p> <p>24 do these tests the methodology is kind of up to me</p> <p>25 because it's never prescribed anywhere. So what I like</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 60</p> <p>1 Q. What is your overall recommendation, having heard</p> <p>2 the testimony and read all of the filings?</p> <p>3 A. Well, the project was designed to the county 45</p> <p>4 limit and is meeting that. I think the highest predicted</p> <p>5 level at anyone's house right now is 41.9.</p> <p>6 Now there's been an extraordinary push back from</p> <p>7 folks that don't want this project so -- you know,</p> <p>8 normally we recommend 45 independent of what the county</p> <p>9 says. Now we think 45 is a fair limit for most projects</p> <p>10 just based on our experience and seeing how many</p> <p>11 complaints there are and what the levels are at those</p> <p>12 houses.</p> <p>13 But, at the same time, we've recommended for many</p> <p>14 years that every project should shoot for an ideal design</p> <p>15 goal of 40. That would serve to much better protect the</p> <p>16 community against complaints and annoyance.</p> <p>17 Now here, because almost all the houses are already</p> <p>18 below 40, it seems to me that it's -- wouldn't be</p> <p>19 inconceivable to modify the project slightly so that --</p> <p>20 so as to achieve the 40 here. I think there's 11 houses</p> <p>21 that are over right now, and many of those are just over</p> <p>22 by a tenth or two tenths of a dB, which isn't</p> <p>23 significant. So I would like to see the project shoot</p> <p>24 for this 40.</p> <p>25 Q. Were you present in the room this morning for all of</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 61</p> <p>1 the testimony?</p> <p>2 A. This morning, yes.</p> <p>3 Q. Did you hear the back and forth about whether there</p> <p>4 may or may not have been a suggestion for a 35 dBA at</p> <p>5 some point?</p> <p>6 A. Yes, I did see that, and I did see a copy of that</p> <p>7 e-mail the day before yesterday. Basically stating that</p> <p>8 the wind turbine developer at that time, that fellow,</p> <p>9 Roland Jurgens, I think, said the 35 was a great idea and</p> <p>10 that would protect everyone.</p> <p>11 Well, that's true. 35's extremely quiet and no one</p> <p>12 would be bothered, but I'm not sure he knew what he was</p> <p>13 advocating for because the setbacks to achieve that would</p> <p>14 be huge and most of the projects I'm familiar with just</p> <p>15 wouldn't be viable with that kind of a limit.</p> <p>16 Q. When you say huge, what are -- what are you talking,</p> <p>17 generally speaking?</p> <p>18 A. Did I say huge?</p> <p>19 They would be on the order of a mile and a half or</p> <p>20 something like that.</p> <p>21 Q. Okay.</p> <p>22 A. And most projects are not that sparsely populated</p> <p>23 that that's doable.</p> <p>24 Q. Okay.</p> <p>25 A. And I would further add I talked about the</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 63</p> <p>1 you weighed in on or had any input on prior to today?</p> <p>2 A. I haven't seen this exact document, but I understood</p> <p>3 from the beginning that the Applicant had committed to</p> <p>4 meeting Bon Homme County 45 noise limit, not only in that</p> <p>5 county but the other two counties in which the project</p> <p>6 was sited.</p> <p>7 MS. EDWARDS: Thank you. No further questions.</p> <p>8 I will tender him for cross.</p> <p>9 MR. DE HUECK: We're going to take a recess at</p> <p>10 this point for our court reporter. Let's come back at</p> <p>11 10:30.</p> <p>12 (A short recess is taken.)</p> <p>13 MR. DE HUECK: We're back in session.</p> <p>14 Mr. Hessler is on the stand and now subject to</p> <p>15 cross-examination.</p> <p>16 And you're still under oath, Mr. Hessler.</p> <p>17 Prevailing Winds, you may proceed.</p> <p>18 MS. SMITH: Thank you.</p> <p>19 <u>CROSS-EXAMINATION</u></p> <p>20 <u>BY MS. SMITH:</u></p> <p>21 Q. Good morning, Mr. Hessler.</p> <p>22 A. Good morning.</p> <p>23 Q. As I understood your written testimony you did not</p> <p>24 take issue with the noise modeling methodology and</p> <p>25 assumptions that were used by Burns & McDonnell in</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 62</p> <p>1 background level a few minutes ago. When the wind is</p> <p>2 blowing, and the wind has to below for the project to</p> <p>3 operate, the background level is fairly high. It's</p> <p>4 between 40 and 50. So to design to 35 would be --</p> <p>5 there's really no need for that. The background level's</p> <p>6 going to cover up the project at that kind of a level.</p> <p>7 All you're going to hear is the wind blowing in the</p> <p>8 trees. There's kind of a bottom limit to how quiet you</p> <p>9 need to make it, and generally speaking we find that's</p> <p>10 around 40. Once you go below that there's diminishing</p> <p>11 returns. You're not getting any further improvement</p> <p>12 really.</p> <p>13 Q. Okay. I'm going to draw your attention to Exhibit A</p> <p>14 33, which I'll provide for you.</p> <p>15 Mr. Hessler, are you familiar with that exhibit?</p> <p>16 Take a minute to look at it.</p> <p>17 (Witness examines document.)</p> <p>18 A. Well, it's the first time I've seen it. Let me just</p> <p>19 look at it for a sec.</p> <p>20 (Witness examines document.)</p> <p>21 A. Okay. Yeah. 45 dBA.</p> <p>22 Q. Can you identify what the title of that exhibit is</p> <p>23 for the record?</p> <p>24 A. The Applicant's proposed conditions.</p> <p>25 Q. Is that an exhibit that you -- or a proposal that</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 64</p> <p>1 preparing their analysis for the project; is that</p> <p>2 correct?</p> <p>3 A. That's correct. They used the same assumptions and</p> <p>4 even modeling software that I used.</p> <p>5 Q. Okay. Thank you. And you also agreed that the</p> <p>6 modeling showed compliance with the Bon Homme County</p> <p>7 requirement of 45 dBA?</p> <p>8 A. That's correct.</p> <p>9 Q. You mentioned a criticism of not taking into account</p> <p>10 community perception. Is that accurate?</p> <p>11 A. That's correct.</p> <p>12 Q. And community perception would be a subjective</p> <p>13 analysis; is that true?</p> <p>14 A. In general, yes. But it is possible to make a</p> <p>15 judgment as to how impacted people are likely to be.</p> <p>16 For example, when we do impact assessments, and</p> <p>17 we've done probably over 70, we do a thorough background</p> <p>18 study for a matter of weeks and correlate the sound level</p> <p>19 to wind speed measured at the top of the met towers to</p> <p>20 get the wind speed at the turbine height and then predict</p> <p>21 the project level under identical wind conditions. And</p> <p>22 it's the differential between what's there now and what's</p> <p>23 going to be there at the project that really determines</p> <p>24 the possible impact.</p> <p>25 Q. And you indicated that ambient noise levels vary</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">65</p> <p>1 from 40 to 50 typically when the wind is blowing in your</p> <p>2 Direct Testimony just now; correct?</p> <p>3 A. That's right. And the background studies that we</p> <p>4 do, we find that just about every site the background</p> <p>5 level ranges from 20 to 50, purely a function of wind</p> <p>6 speed. So when wind is blowing there's a significant</p> <p>7 background noise that's often overlooked by a lot of</p> <p>8 people that are opposed to wind turbines. They think the</p> <p>9 background is 30 dBA or 25 dBA. But that's when it's</p> <p>10 calm and the project is not operating so it's not</p> <p>11 relevant.</p> <p>12 Q. And as far as community perception when you're</p> <p>13 talking about your ideal limits, the concept is to avoid</p> <p>14 complaints; correct?</p> <p>15 A. That's correct.</p> <p>16 Q. Is it true in your testimony that you noted that</p> <p>17 there isn't really a regulatory sound level that would</p> <p>18 satisfy everyone?</p> <p>19 A. Yeah. That's correct. You can never sit back and</p> <p>20 be comfortable and everybody be all right with a wind</p> <p>21 project.</p> <p>22 Q. So someone may complain regardless of how low the</p> <p>23 level is that is set; is that correct?</p> <p>24 A. I have seen instances of that.</p> <p>25 Q. In this case you stated in your testimony, and I</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">67</p> <p>1 operational and you also testified here today that most</p> <p>2 of those fears are found to be unfounded. Is that</p> <p>3 accurate?</p> <p>4 A. That has been my experience, yes.</p> <p>5 Q. What's been proposed on Exhibit A 33 -- and do you</p> <p>6 still have that in front of you? It's that one sheet?</p> <p>7 A. Yes, I do.</p> <p>8 Q. Of the Applicant's proposed conditions?</p> <p>9 A. Yes.</p> <p>10 Q. You indicated you had seen similar language before.</p> <p>11 Is that accurate?</p> <p>12 A. I had seen in the noise study where it summarized</p> <p>13 what the applicable regulations were, which was the 45 in</p> <p>14 Bon Homme County and then the voluntary agreement to that</p> <p>15 in the other two counties.</p> <p>16 Q. You also testified on behalf of the Staff in the</p> <p>17 Crocker Wind Farm Docket and the Dakota Range Wind farm</p> <p>18 dockets; is that right?</p> <p>19 A. That's correct.</p> <p>20 Q. And in those matters there was a condition agreed to</p> <p>21 among Staff at 45 dBA for nonparticipating residences; is</p> <p>22 that true?</p> <p>23 A. That's correct. And I think on one of them the area</p> <p>24 was so sparsely populated that I think all the predicted</p> <p>25 levels were below 40 to begin with so the 45 limit was</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">66</p> <p>1 believe you restated here, that 45 dBA is an appropriate</p> <p>2 reasonably fair noise limit for wind projects at</p> <p>3 nonparticipating residences. Is that accurate?</p> <p>4 A. Yeah. We consider that a reasonable limit under</p> <p>5 normal circumstances. When there's not a lot of</p> <p>6 opposition.</p> <p>7 Now here I would lean more towards our ideal</p> <p>8 recommendation of 40.</p> <p>9 Q. And that's just simply based on complaints that have</p> <p>10 been lodged in advance of the project being constructed?</p> <p>11 A. Those numbers come from our experience at completed</p> <p>12 projects. Like I briefly described, we measure at the</p> <p>13 Complainant locations and a number of other locations so</p> <p>14 we know what the sound level is at the people that are</p> <p>15 complaining and that's why we say it's -- the situation</p> <p>16 is generally okay up to 45, not ideal, but below 40 we</p> <p>17 see very few complaints.</p> <p>18 Q. When you in your own testimony, your written</p> <p>19 testimony, you indicate that a lot of fear and resistance</p> <p>20 to wind projects is created during the development phase</p> <p>21 by largely attributable to highly biased even scary aunt</p> <p>22 I wind websites. Do you remember that testimony?</p> <p>23 A. Oh, yeah. That's absolutely true. All you have to</p> <p>24 do is Google wind turbine noise, and it's horrific.</p> <p>25 Q. And you noted that once those projects are</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">68</p> <p>1 largely irrelevant.</p> <p>2 Q. And on this case it would be reasonable for the</p> <p>3 Commission to impose a limit of 45. That would be a</p> <p>4 reasonable and fair limit in this case as well, would it</p> <p>5 not?</p> <p>6 A. In what I would call normal circumstances it's a</p> <p>7 reasonable and fair limit, but where there's quite a bit</p> <p>8 of opposition, as there obviously is here, I think</p> <p>9 further consideration should be given to that.</p> <p>10 Q. Was there not opposition in the last two dockets?</p> <p>11 A. Not to the extent of this case.</p> <p>12 Q. And you're basing that on simply numbers? Are you</p> <p>13 aware of the number of Intervenor I guess I should ask?</p> <p>14 A. I'm basing it on the amount of time it took me to</p> <p>15 read all the Intervenor submittals.</p> <p>16 Q. So it's based on anticipate tore complaints for the</p> <p>17 project?</p> <p>18 A. Yes.</p> <p>19 Q. With respect to the potential for health effects,</p> <p>20 you referenced an article regarding -- or by Steven</p> <p>21 Cooper; is that correct?</p> <p>22 A. Correct.</p> <p>23 Q. And it talked about the potential for a small</p> <p>24 minority of people to be susceptible to vertigo and</p> <p>25 nausea symptoms due to wind projects; is that true?</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 69</p> <p>1 A. That's correct.</p> <p>2 Q. And are you basing your statements regarding</p> <p>3 potential health effects solely on that article?</p> <p>4 A. That article I found to really put me over the --</p> <p>5 I've read a lot of articles and attended a lot of</p> <p>6 conferences where this issue has been discussed but I</p> <p>7 find that to be pretty unequivocal, that experiment that</p> <p>8 he recently did.</p> <p>9 So to me it's very clear that some people are</p> <p>10 susceptible and are very adversely affected, but it's a</p> <p>11 very small minority.</p> <p>12 Q. You're not making a medical judgment here? You're</p> <p>13 not speaking as a medical practitioner regarding that top</p> <p>14 is that true?</p> <p>15 A. No, not at all. I'm -- in my mind I'm thinking of</p> <p>16 the Shirley wind project in Wisconsin that I went to and</p> <p>17 we did a study there to try to figure out what was</p> <p>18 driving the complaints there, the nausea and the ill</p> <p>19 feeling complaints. And we went to the houses of those</p> <p>20 people, we talked to them, we took measurements. They</p> <p>21 weren't making it up. And so something's going on.</p> <p>22 And what we found in that study was that you could</p> <p>23 detect the wind turbine blade passing frequency, which is</p> <p>24 as I mentioned around 1 hertz but the magnitude of it is</p> <p>25 incredibly small and it's really hard to believe that</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 71</p> <p>1 until they left the project area.</p> <p>2 And but out of the 15 projects we've gone and</p> <p>3 measured that's the only one where that complaint, that</p> <p>4 specific kind of complaint, was made. At all the rest of</p> <p>5 them it was simply the audible noise, thumping noise.</p> <p>6 You could hear it at night. It was bothering me, that</p> <p>7 kind of thing. There was no health complaints at any</p> <p>8 other site.</p> <p>9 Q. And did you listen to Mr. Fuerniss's testimony in</p> <p>10 this matter?</p> <p>11 A. I have not heard -- I believe I read the written</p> <p>12 testimony? Is that what you're referring to?</p> <p>13 Q. Are you aware of the physical symptoms and the</p> <p>14 complaints that Mr. Fuerniss has been -- has been feeling</p> <p>15 the last 18 months? Have you read anything about that or</p> <p>16 heard him testify about that?</p> <p>17 A. No. That's news to me.</p> <p>18 Q. You stated that you believe that the number of</p> <p>19 individuals affected by this inaudible infrasound is</p> <p>20 quite small, and that's based off of the fact that you've</p> <p>21 studied -- what's that based off of?</p> <p>22 A. It's based partially off of the sites that I've been</p> <p>23 to and talked to everyone, but more than that, it's</p> <p>24 there's 90,000 megawatts of wind power in this country</p> <p>25 right now. That's over 50,000 turbines. And the only --</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 70</p> <p>1 that has any effect but I'm convinced from Cooper's work</p> <p>2 that that's what it is.</p> <p>3 Q. So just to make it clear you're convinced based</p> <p>4 solely on Cooper's work that that's the --</p> <p>5 A. I think he finally made the link. Or demonstrated</p> <p>6 the link.</p> <p>7 MS. SMITH: I don't have any further questions.</p> <p>8 MR. DE HUECK: Mr. Almond.</p> <p>9 <u>CROSS-EXAMINATION</u></p> <p>10 <u>BY MR. ALMOND:</u></p> <p>11 Q. Just following up on that last question, what did</p> <p>12 Cooper demonstrate the link between?</p> <p>13 A. That the extremely low frequency pulsations produced</p> <p>14 by wind turbines can be -- they're completely</p> <p>15 inaudible -- can be perceived by people who have a</p> <p>16 sensitivity to it but not by everybody.</p> <p>17 Q. And you believe that study gives credence to the</p> <p>18 complaints of the Shirley Wind individuals and their</p> <p>19 complaints of -- I guess I'll let you say the complaints</p> <p>20 because you're the one that was there but --</p> <p>21 A. Yeah.</p> <p>22 Q. What were the complaints?</p> <p>23 A. That they just felt some funny feeling and had a</p> <p>24 little dizziness and vertigo and just couldn't take it</p> <p>25 and had to leave their houses. They couldn't get relief</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 72</p> <p>1 and we're still talking about Shirley, which was from six</p> <p>2 or seven years ago.</p> <p>3 If this problem were common at all, it would be in</p> <p>4 the forefront of every project's Application and would</p> <p>5 really be a totally disruptive issue.</p> <p>6 Q. So if I'm understanding -- maybe I'll just ask you.</p> <p>7 Are you aware of any literature or research that</p> <p>8 discusses people making the same types of complaints as</p> <p>9 those made in Shirley in other wind farms around the</p> <p>10 world?</p> <p>11 A. Yeah. I'm only familiar with a handful of sites. I</p> <p>12 think Falmouth in Massachusetts. I'm having a hard</p> <p>13 time -- I'm thinking there's just a couple.</p> <p>14 Q. Just so we know about the complaints that were</p> <p>15 taking place in Shirley and that you're saying aren't a</p> <p>16 national or worldwide significant number of, what are</p> <p>17 those complaints specifically?</p> <p>18 A. Well, as I mentioned, they described it as just kind</p> <p>19 of a dizziness, a mild nausea, and it was particularly --</p> <p>20 one woman said right here in this corner of the kitchen</p> <p>21 in that chair it's real bad so I sat there the whole</p> <p>22 night but I couldn't hear anything at all. I couldn't</p> <p>23 measure anything. But, you know, she wasn't just saying</p> <p>24 that. She must have just had a sensitivity to it.</p> <p>25 Q. Are you aware of any studies that have actually</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 73</p> <p>1 measured the number of people that have that sensitivity</p> <p>2 to infrasound?</p> <p>3 A. No. That would be good to know, but, no, I don't</p> <p>4 know of any organized or scientific counting.</p> <p>5 Q. And given this missing link that was found by</p> <p>6 Mr. Cooper, do you anticipate those types of studies will</p> <p>7 start being performed in the near future?</p> <p>8 A. I think work will continue along those lines because</p> <p>9 it's a big issue. And up until that work the discussions</p> <p>10 mainly centered around theories about the inner ear</p> <p>11 and -- but nothing that was demonstrable. But now I've</p> <p>12 found that work to be excellent, and yeah, I would expect</p> <p>13 it to continue.</p> <p>14 Q. And to date aren't most studies talking about wind</p> <p>15 farms and adverse effects, aren't they typically talking</p> <p>16 about annoyance?</p> <p>17 A. Well, there's really two things going on. There's</p> <p>18 audible noise around the mid frequencies, 500 hertz, a</p> <p>19 thousand hertz. That's just the sound of the blades</p> <p>20 squishing, and it sounds like a -- like a washing</p> <p>21 machine, kind of.</p> <p>22 And then there's low frequency, and that's</p> <p>23 completely at the bottom end of the frequency spectrum.</p> <p>24 It's a totally separate issue.</p> <p>25 Q. Yeah. As far as your opinion that you don't believe</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 75</p> <p>1 and study and survey the population they ask them</p> <p>2 basically are you annoyed by the project? Would you</p> <p>3 agree that that's how most studies are created or the</p> <p>4 method most studies that are analyzed for the purposes of</p> <p>5 the peer review stuff?</p> <p>6 A. I would say that was the case some years ago when</p> <p>7 some of the studies in Sweden were -- survey kind of</p> <p>8 studies. That's the way their questions were posed.</p> <p>9 It wasn't until later that this infrasound issue</p> <p>10 started emerging.</p> <p>11 Q. Right. So if people responded they were annoyed,</p> <p>12 they may have been annoyed because of nausea, dizziness,</p> <p>13 whatever or they may have been annoyed because they just</p> <p>14 didn't like it; right?</p> <p>15 MS. SMITH: Objection calls for speculation.</p> <p>16 MR. DE HUECK: Can you rephrase?</p> <p>17 MR. ALMOND: Yeah.</p> <p>18 Q. Based off your review of the studies that have been</p> <p>19 performed and how they've been conducted, isn't it true</p> <p>20 that when they've asked whether or not an individual's</p> <p>21 been annoyed, there's no distinction about where the</p> <p>22 annoyance comes from, whether it's nausea, dizziness,</p> <p>23 vertigo, or just they don't like the project?</p> <p>24 A. Yeah. I guess I would agree with that.</p> <p>25 Q. Can you get Exhibit A 33 back in front of you.</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 74</p> <p>1 had people are affected by the infrasound and the</p> <p>2 sensitivities to it, would you agree that that -- the</p> <p>3 population hasn't really been studied -- or the wind</p> <p>4 farms haven't been studied to actually determine what</p> <p>5 percentage of people are affected by infrasound?</p> <p>6 A. Well, I think when they are affected it's -- it</p> <p>7 becomes known. And the fact that it does not appear to</p> <p>8 be a problem at 95 percent of operating projects tells me</p> <p>9 it must be rare.</p> <p>10 Q. So you're saying you have knowledge that 95 percent</p> <p>11 of projects these complaints of nausea, dizziness,</p> <p>12 vertigo haven't taken place, or you just haven't heard of</p> <p>13 it?</p> <p>14 A. I haven't heard of it.</p> <p>15 Q. Okay. And in the academic literature about adverse</p> <p>16 effects caused by wind turbines, isn't what people are</p> <p>17 asked about annoyance and they aren't specifically asked</p> <p>18 about nausea, dizziness? I mean large studies determine</p> <p>19 population amounts and -- do you understand the question</p> <p>20 I'm asking?</p> <p>21 A. It sounds like you're maybe talking about the Health</p> <p>22 Canada Study. It was a large study about the Canadian</p> <p>23 Health Department.</p> <p>24 Q. Well, most of the studies I guess I have read and</p> <p>25 again correct me if I'm wrong is that when they go out</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 76</p> <p>1 A. Okay.</p> <p>2 Q. And that's the Applicant proposed condition,</p> <p>3 specifically Proposed Condition No. 27. And I want to</p> <p>4 talk to you a little bit about the measurement of this</p> <p>5 condition. And it's over a two-week period; right?</p> <p>6 A. That's how long we normally measure for because then</p> <p>7 we're assured of getting periods of high wind, calm wind,</p> <p>8 different atmospheric conditions.</p> <p>9 Q. Have some of your colleagues suggested a method, an</p> <p>10 on off compliance test?</p> <p>11 A. I don't know about colleagues but we do that</p> <p>12 ourselves.</p> <p>13 Q. What's an on off compliance test?</p> <p>14 A. When the wind is blowing and the project is</p> <p>15 operating at or near capacity, in many cases we'll get to</p> <p>16 the test location and then radio in for them to turn off</p> <p>17 all the turbines and then take measurements of what's</p> <p>18 happening without the project.</p> <p>19 And I will add it is amazing that it sounds the</p> <p>20 same.</p> <p>21 Q. Would you agree that that would maybe be a better</p> <p>22 way to measure compliance with a 45 or a 40 or whatever</p> <p>23 noise standard?</p> <p>24 A. To my mind it's a more -- it's a simpler more</p> <p>25 unequivocal way of doing it. The problem is that a lot</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 77</p> <p>1 of projects aren't happy about turning off the turbines.</p> <p>2 Q. But it's for a short amount of time to get the</p> <p>3 measurements; right?</p> <p>4 A. Yeah. I know. That's what I tell them.</p> <p>5 Q. Earlier you were testifying about how the background</p> <p>6 noise, specifically noise caused by the wind, often masks</p> <p>7 the noise created from the turbines.</p> <p>8 Do you recall that testimony?</p> <p>9 A. Yes. That's what I was just alluding to on these on</p> <p>10 and off tests. When you arrive at the site it sounds</p> <p>11 tremendously loud. I'm thinking of one case in</p> <p>12 particular. And they turned off all the turbines. The</p> <p>13 level was the same. It sounded exactly the same. It was</p> <p>14 just the trees around the house blowing.</p> <p>15 Q. And in terms of complaints from those individuals</p> <p>16 living around projects regarding wind turbine noise, in</p> <p>17 your experience have you found most often the complaints</p> <p>18 come at night?</p> <p>19 A. Yeah. Yeah. It's --</p> <p>20 Q. Rather than --</p> <p>21 A. It's audible at night and I can hear it and it's</p> <p>22 bothering me and never heard anything about a daytime</p> <p>23 issue.</p> <p>24 Q. And is there a reason we would expect more</p> <p>25 complaints to happen at night?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 79</p> <p>1 A. No. Actually to get truly stable conditions you</p> <p>2 need very low wind speeds to stratify the atmosphere</p> <p>3 thermal lie. But in stable conditions it's warmer above</p> <p>4 so that the speed of sound is faster so it refracts the</p> <p>5 sound waves so they travel more easily.</p> <p>6 But in windy conditions that kind of atmosphere can</p> <p>7 exist and windy conditions are when turbines run.</p> <p>8 Q. Is it common for the atmospheric conditions to exist</p> <p>9 where it's calm at ground level but there are strong</p> <p>10 enough winds at the height of a turbine that the wind</p> <p>11 turbine's still operational?</p> <p>12 MS. EDWARDS: I'm going to object simply because</p> <p>13 we did not proffer him as a meteorological expert.</p> <p>14 MR. DE HUECK: I'm going to overrule your</p> <p>15 objection, allow you to answer.</p> <p>16 A. That does happen, but I wouldn't call it common. I</p> <p>17 think it happens seasonal lie, more commonly than other</p> <p>18 times, but it's not an every day or every week</p> <p>19 occurrence, I don't think.</p> <p>20 Q. And in a given year how frequently?</p> <p>21 A. It depends on the site and everything else.</p> <p>22 Q. And under that scenario the sound around a residence</p> <p>23 would be -- the sound created from the wind at least</p> <p>24 would be relatively quiet or nonexistent because the wind</p> <p>25 wouldn't be blowing at ground level; right?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 78</p> <p>1 A. Well, people are trying to sleep and want it to be</p> <p>2 quiet.</p> <p>3 Q. What about the atmospheric conditions that</p> <p>4 frequently exist at night? Can that lead or is that</p> <p>5 perhaps an explanation for why we see more complaints at</p> <p>6 night?</p> <p>7 MS. SMITH: Objection. Vague. I don't know</p> <p>8 what he means by atmospheric conditions that frequently</p> <p>9 occur at night.</p> <p>10 MR. DE HUECK: Either do I, but maybe</p> <p>11 Mr. Hessler does.</p> <p>12 A. Yeah. Yeah. At night sometimes there's temperature</p> <p>13 inversions and things that enhance or allow sound to</p> <p>14 propagate more easily. But it's not every night.</p> <p>15 Sometimes that happens.</p> <p>16 But, no. I don't think that's the reason. It's</p> <p>17 just at night people have the expectation of quiet. If</p> <p>18 they have the windows open and they hear -- it sounds</p> <p>19 like a washing machine going, they don't like it.</p> <p>20 Q. What are stable atmospheric conditions?</p> <p>21 A. That's when it's cold or above the service warmer --</p> <p>22 excuse me. I always get this mixed up. It's hot above</p> <p>23 and cold below.</p> <p>24 Q. And in stable atmospheric conditions is the wind</p> <p>25 typically stronger the higher you go up?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 80</p> <p>1 A. Yeah. That scenario is brought up in every project.</p> <p>2 That happens occasionally, but I wouldn't base the entire</p> <p>3 design on that or anything.</p> <p>4 Q. And during these very quiet ground levels and if --</p> <p>5 MR. ALMOND: Well, you can strike that, Cheri.</p> <p>6 Q. If you have a rural community like we have here in</p> <p>7 this project and if those conditions exist, what would</p> <p>8 you expect would be the largest generator of noise?</p> <p>9 A. It would depend on how far away you're observing the</p> <p>10 turbines. If you're very far away, the turbine sound</p> <p>11 signal's so weak that it doesn't make any difference. If</p> <p>12 you're very close at a 1,000 foot setback, then you'd</p> <p>13 notice. You'd notice it more strongly.</p> <p>14 Q. And at what distance would you be able to start</p> <p>15 noticing the turbines?</p> <p>16 A. I can't say.</p> <p>17 Q. Can you give us a rough distance?</p> <p>18 A. Are you asking when they first become fairly audible</p> <p>19 over the background as you approach a project, for</p> <p>20 instance?</p> <p>21 Q. Yes.</p> <p>22 A. I'm going to say -- it's hard to put a specific</p> <p>23 number on. When we do operational surveys we put</p> <p>24 monitors that are minimum of two miles away from the</p> <p>25 nearest turbine to get the background noise, and that's</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 81</p> <p>1 what we get. There's no turbine influence at that level.</p> <p>2 And so maybe a mile. You might be able to discern</p> <p>3 the project under certain conditions.</p> <p>4 Q. In changing gears here, during your testimony</p> <p>5 earlier you said that one and a half mile setbacks</p> <p>6 basically -- generally make projects not viable. Do you</p> <p>7 recall that testimony?</p> <p>8 A. Yes. Yes.</p> <p>9 Q. Have you analyzed this project to determine whether</p> <p>10 or not a mile and a half setback is viable for the</p> <p>11 project?</p> <p>12 A. No.</p> <p>13 Q. Okay. And have you seen any evidence in the record</p> <p>14 that suggested that if anyone tried to implement a mile</p> <p>15 and a half setback to this project?</p> <p>16 A. No.</p> <p>17 Q. So just as a general notion, mile and a half</p> <p>18 setbacks aren't typically that viable?</p> <p>19 A. Yeah. Most project sites are fairly densely</p> <p>20 populated and there's just not that much room between</p> <p>21 houses.</p> <p>22 Q. Do you think it would be more viable if you were to</p> <p>23 separate a mile and a half setback or distinguish a mile</p> <p>24 and a half setback for nonparticipants versus</p> <p>25 participants?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 83</p> <p>1 waivers existed wouldn't give preferential treatment to</p> <p>2 certain people, would it?</p> <p>3 A. I'm not sure I follow the waiver aspect of that</p> <p>4 question. What waiver?</p> <p>5 Q. Well, if an individual can waive that setback, for</p> <p>6 example. In this project I don't know if you're that</p> <p>7 familiar with it but certain individuals have waived</p> <p>8 setback requirements. Have you seen that?</p> <p>9 A. Not here, but I know of that.</p> <p>10 Q. You're aware of the wind industry there are</p> <p>11 agreements where individuals waive setback requirements?</p> <p>12 A. Yeah.</p> <p>13 MS. EDWARDS: Objection. This is outside the</p> <p>14 scope of his direct. He didn't testify about setbacks.</p> <p>15 MR. DE HUECK: Sustained.</p> <p>16 MR. ALMOND: In his direct this witness has</p> <p>17 testified about proposed regulations. He's given</p> <p>18 opinions on some distances, setback distances, et cetera.</p> <p>19 I think talking to him about setback distances</p> <p>20 in this hearing and setback distances with other</p> <p>21 projects, especially given that he's testified at other</p> <p>22 projects are what he's using as support -- partially as</p> <p>23 support for some of his opinions, is fair game to talk</p> <p>24 with him about his experience with those setbacks.</p> <p>25 MR. DE HUECK: Which I think you've done, and</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 82</p> <p>1 A. I would like to see that. In fact, I thought about</p> <p>2 advocating for that here, but that would create a</p> <p>3 precedent for all future projects. All to do is be an</p> <p>4 Intervenor and you can get all kind of elbow room so it's</p> <p>5 not really a practical suggestion.</p> <p>6 Q. But you thought about advocating for a mile and a</p> <p>7 half setback?</p> <p>8 A. 2 mile.</p> <p>9 Q. You thought about advocating for a 2 mile setback</p> <p>10 for --</p> <p>11 A. For Intervenor but that's not a practical</p> <p>12 suggestion.</p> <p>13 Q. Well, if there was a waiver system that allowed</p> <p>14 nonparticipants to waive the setback requirement, what</p> <p>15 would be impractical about it?</p> <p>16 A. Yeah. I'm not sure I follow the question. But what</p> <p>17 I was suggesting was that for those that were clearly</p> <p>18 unhappy with this project, I thought it was a good idea</p> <p>19 if the project -- if we could appeal to the project to</p> <p>20 try to increase -- to maximize those setback distances</p> <p>21 for those individuals that -- on further reflection you</p> <p>22 can't give special treatment to certain people. It's</p> <p>23 just -- it would set such a precedent that it would</p> <p>24 happen in every future project.</p> <p>25 Q. But a situation in which a two mile setback with</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 84</p> <p>1 now we've moved into some sort of abstract personal</p> <p>2 feeling regarding outside the scope of Direct Testimony.</p> <p>3 Q. In your past experience looking at wind projects,</p> <p>4 are you aware of -- are you of good neighbor agreements?</p> <p>5 Do you know what that term is?</p> <p>6 MS. SMITH: Objection. This is also outside the</p> <p>7 scope of his testimony.</p> <p>8 MR. DE HUECK: Correct.</p> <p>9 Q. With the Applicant's medical experts there was a lot</p> <p>10 of discussion about that Massachusetts study. Are you</p> <p>11 familiar with the Massachusetts study?</p> <p>12 A. Which Massachusetts study?</p> <p>13 Q. Talking about health effects of wind turbines, the</p> <p>14 Massachusetts government got a panel together to study</p> <p>15 wind turbines. Are you familiar with that Massachusetts</p> <p>16 study?</p> <p>17 MS. SMITH: Objection. This is outside the</p> <p>18 scope of his testimony as well. He's not testifying as a</p> <p>19 health expert.</p> <p>20 MR. ALMOND: I'm merely asking if he's familiar</p> <p>21 with the study.</p> <p>22 MR. DE HUECK: Are you familiar with the study?</p> <p>23 THE WITNESS: Somewhat.</p> <p>24 Q. And we heard from Dr. Roberts and Dr. Ellenbogen</p> <p>25 that study the Massachusetts government got everyone</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 85</p> <p>1 together and studied wind farms and the purpose of which</p> <p>2 was to see what regulations should be put in place.</p> <p>3 My question to you because nobody else has been able</p> <p>4 to answer it is what is Massachusetts regulations as far</p> <p>5 as noise limits on wind farms?</p> <p>6 A. The Massachusetts noise -- state noise limit is to</p> <p>7 measure the background L90 statistical. That's the near</p> <p>8 minimum background level. And then the project can be</p> <p>9 10 above that.</p> <p>10 So it starts at a very low level, and then they have</p> <p>11 a big adder. It's unusual.</p> <p>12 Q. So whatever the L90 level; the project can go 10</p> <p>13 above that?</p> <p>14 A. That's right.</p> <p>15 Q. How far does the type of infrasound and low</p> <p>16 frequency noise that Steven Cooper was studying travel?</p> <p>17 A. That's a good question. It travels very far.</p> <p>18 Miles.</p> <p>19 Q. Miles?</p> <p>20 A. Yeah.</p> <p>21 Q. Again, shifting gears, going back to this Shirley</p> <p>22 project that you've studied, what was the regulatory</p> <p>23 limit in that Shirley project?</p> <p>24 A. I don't recall. And the reason is it was irrelevant</p> <p>25 to the problems there. They were merely about the low</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 87</p> <p>1 firms, some with kind of known opposition views.</p> <p>2 Q. So just so I understand correctly, the Wisconsin</p> <p>3 Public Service Commission was considering whether or not</p> <p>4 to approve a wind farm project. And before it was doing</p> <p>5 that -- before it would do that you recommended that we</p> <p>6 should go study this other project?</p> <p>7 A. That's right. And what I expected to find was that</p> <p>8 the low frequency signal was extremely strong at that</p> <p>9 site or something odd was happening there. But the</p> <p>10 signal was detected but at incredibly low amplitude.</p> <p>11 Q. I just handed you a document titled The Cooperative</p> <p>12 Measurement Survey and Analysis of Low Frequency Sound</p> <p>13 and Infrasound at the Shirley Wind Farm in Brown County,</p> <p>14 Wisconsin.</p> <p>15 Is this the report that was generated following the</p> <p>16 study of the Shirley Wind Farm we've been talking about?</p> <p>17 A. I think this was the final version. There was a lot</p> <p>18 of drafts.</p> <p>19 Q. And if you turn to page 8, please.</p> <p>20 A. Okay.</p> <p>21 Q. What ultimately did you recommend to the Wisconsin</p> <p>22 Public Service Commission in terms of a noise limit?</p> <p>23 A. I don't really remember recommending much of</p> <p>24 anything. We couldn't really determine what was going on</p> <p>25 at that site.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 86</p> <p>1 frequency content, which isn't represented or captured in</p> <p>2 any way by the A-weighted limit.</p> <p>3 Q. If I were to give you the report that was generated</p> <p>4 from that project, would that help refresh your</p> <p>5 recollection?</p> <p>6 A. As to what the A-weighted limit was?</p> <p>7 Q. Yeah.</p> <p>8 A. I think it's in the report. I don't know if it was</p> <p>9 mentioned.</p> <p>10 Q. After conducting your study in Shirley did you give</p> <p>11 a recommendation? What was the body that was overlooking</p> <p>12 the Shirley project, the governmental body?</p> <p>13 A. The Wisconsin Public Service Commission. By the</p> <p>14 way, that study was -- the whole impetus of that study</p> <p>15 was from my recommendation to study it during a hearing</p> <p>16 for another wind project. They planned to use the same</p> <p>17 turbines and people from the Shirley site were at this</p> <p>18 hearing saying, you know, look at our site. You know,</p> <p>19 watch out and don't let this happen again.</p> <p>20 So I said, well, it sounds like, you know, we need</p> <p>21 to investigate what's going on at Shirley, so that was</p> <p>22 the impetus for the study and that it was, I think,</p> <p>23 funded by the Public Service Commission.</p> <p>24 And it was a very unique test in that it was done</p> <p>25 cooperatively by four different acoustical consulting</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 88</p> <p>1 Q. Do you see the third paragraph where it says Hessler</p> <p>2 associates recommends approval of the Application if the</p> <p>3 following noise condition is placed on approval?</p> <p>4 A. Okay. Oh, that's right. Yeah. We -- this number</p> <p>5 comes from talking with Paul Schomer who was one of the</p> <p>6 other guys there.</p> <p>7 Yeah. It's 39 and a half is the number in here,</p> <p>8 which is essentially 40 or the 40 limit that we've been</p> <p>9 recommending all along as an ideal goal.</p> <p>10 Q. I want you to flip to page 9. Is that your</p> <p>11 signature there on the bottom?</p> <p>12 A. Halfway down, yes.</p> <p>13 MR. ALMOND: At this time I'd like to offer and</p> <p>14 move for the admission of Exhibit I 36, the document</p> <p>15 entitled Cooperative Measurement Survey and Analysis of</p> <p>16 Low Frequency and Infrasound at the Shirley Wind Farm in</p> <p>17 Brown County.</p> <p>18 MR. DE HUECK: Any objection?</p> <p>19 MS. SMITH: No objection.</p> <p>20 MS. EDWARDS: No objection.</p> <p>21 MR. DE HUECK: And I have no objection other</p> <p>22 than I think maybe next time hand a copy to me. That</p> <p>23 would be good.</p> <p>24 MR. ALMOND: Very sorry.</p> <p>25 MR. DE HUECK: No. It's okay.</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 89</p> <p>1 So I 36, is that what you said?</p> <p>2 MR. ALMOND: Yeah.</p> <p>3 MR. DE HUECK: Will be admitted. Thank you.</p> <p>4 Q. Let's step away from the Shirley project.</p> <p>5 I want to talk a little bit about what you started</p> <p>6 with Ms. Edwards talking about in terms of the community</p> <p>7 response to a project. Do you remember that part of your</p> <p>8 testimony?</p> <p>9 A. Yes.</p> <p>10 Q. And there are ways in which to gauge how a</p> <p>11 community's going to respond to a project when it comes</p> <p>12 to noise and how that noise is going to affect the</p> <p>13 community; right?</p> <p>14 A. I believe so, yeah.</p> <p>15 Q. And are those -- and do the ANSI standards talk</p> <p>16 about what calculations should be done to gauge community</p> <p>17 response to a project?</p> <p>18 A. There is an ANSI standard that addresses that, but</p> <p>19 it wasn't written with wind turbines in mind. It was</p> <p>20 picturing some coal plant or a gas turbine or something,</p> <p>21 which is a much simpler situation.</p> <p>22 Our approach is, as I went through before, was to do</p> <p>23 an initial survey, find out what the background is going</p> <p>24 to be at the wind speeds required to operate the project,</p> <p>25 and then see how the predictions under those same wind</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 91</p> <p>1 conducted.</p> <p>2 MR. ALMOND: It's an ultimate conclusion</p> <p>3 opinion. Experts are offered to provide ultimate</p> <p>4 conclusions, ultimate opinions. That's what I'm asking</p> <p>5 him to do.</p> <p>6 MR. DE HUECK: But not as to whether or not they</p> <p>7 will be in compliance with a particular law.</p> <p>8 MR. ALMOND: I have not asked him about a law.</p> <p>9 I've asked him a question.</p> <p>10 MR. DE HUECK: It sounds like it.</p> <p>11 Ask again, Reiss. Or maybe --</p> <p>12 MR. ALMOND: Cheri, can you just repeat the</p> <p>13 question so we can hear what I asked again.</p> <p>14 (Reporter reads back the last question.)</p> <p>15 MR. DE HUECK: So asking if it will comply with</p> <p>16 the law.</p> <p>17 Can you --</p> <p>18 MR. ALMOND: I have not referenced the law. I'm</p> <p>19 not asking if it complies with the law. I'm asking that</p> <p>20 question.</p> <p>21 MS. EDWARDS: I guess I would just object as</p> <p>22 vague and ask maybe the inquirer to be more clear on the</p> <p>23 social condition.</p> <p>24 MS. SMITH: And I'm going to object because it</p> <p>25 is --</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 90</p> <p>1 speeds compare. And depending on that differential, you</p> <p>2 can get an idea of whether it's going to be very audible</p> <p>3 or inaudible.</p> <p>4 Q. Has that type of study been conducted for this</p> <p>5 project?</p> <p>6 A. No. No. That's completely missing from the</p> <p>7 Applicant's noise study.</p> <p>8 Q. And you would like to see that type of study in</p> <p>9 order to gauge the community's response to a project;</p> <p>10 correct?</p> <p>11 A. I think it's the duty of the engineer to do that. I</p> <p>12 don't know why it keeps getting left out of these. This</p> <p>13 is the third one in a row.</p> <p>14 Q. And without doing that, do you think we're able to</p> <p>15 gauge whether or not this project's going to injure the</p> <p>16 social condition of those living in it?</p> <p>17 MS. SMITH: Objection. Calls for a legal</p> <p>18 conclusion.</p> <p>19 MR. ALMOND: It's a question.</p> <p>20 MR. DE HUECK: Well, you're basically asking it</p> <p>21 will comply with that regulation.</p> <p>22 MR. ALMOND: And experts are capable of</p> <p>23 testifying to that.</p> <p>24 MS. SMITH: He's not a legal expert he's here to</p> <p>25 talk about sound studies in his analysis that he's</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 92</p> <p>1 MR. ALMOND: I'll rephrase the question.</p> <p>2 MS. SMITH: May I object?</p> <p>3 It's basically stating 49-41B-22.1 -- or 2.</p> <p>4 Excuse me. And so he's basically asking him to opine on</p> <p>5 the statute compliance.</p> <p>6 MR. DE HUECK: Yes. So let's sustain the</p> <p>7 objection.</p> <p>8 Ask another question.</p> <p>9 Q. How the community responds to a project deals with</p> <p>10 the social well-being of the community; right?</p> <p>11 MS. SMITH: Objection. That's not why he was</p> <p>12 brought here to testify, on the social feelings of the</p> <p>13 community.</p> <p>14 MR. ALMOND: He's been testifying about</p> <p>15 community response I'm just trying to figure out why</p> <p>16 we're curious about the community response and why it's</p> <p>17 important to look at that. He's offered opinions that</p> <p>18 this Applicant should have done that. I'm curious as to</p> <p>19 why.</p> <p>20 MR. DE HUECK: Just go ahead and answer this</p> <p>21 one.</p> <p>22 A. Well, when I do an assessment I think the purpose of</p> <p>23 it is to assess what's going to happen, not just to find</p> <p>24 out if it's going to be in compliance with some</p> <p>25 regulatory limit. That's one paragraph from our 26-page</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 93</p> <p>1 report normally.</p> <p>2 No. I think you want to model the project, see what</p> <p>3 the sound levels are going to be at people's houses. And</p> <p>4 I always say I think -- I think there's going to be a</p> <p>5 problem or I think it's a low probability of complaints,</p> <p>6 a high probability, whatever it is goes into my report.</p> <p>7 My clients aren't often happy with my reports, but</p> <p>8 that's the purpose of an assessment.</p> <p>9 Q. All right. Shifting gears again, you've reviewed</p> <p>10 the modeled limits provided by Burns & McDonnell;</p> <p>11 correct? Mr. Howell?</p> <p>12 A. Yeah. I looked at the -- at the noise prediction,</p> <p>13 the sound contour map, yes.</p> <p>14 Q. Yeah. That was a poorly asked question.</p> <p>15 A. I knew what you were talking about.</p> <p>16 Q. The predicted sound measurements.</p> <p>17 A. Yeah.</p> <p>18 Q. Would you agree that the modeled levels can have</p> <p>19 spikes in the order of 15 to 20 dBA above the model</p> <p>20 levels?</p> <p>21 A. Yes.</p> <p>22 Q. So if you're looking at a modeled level of 35, you</p> <p>23 could experience spikes up to 55 dBA?</p> <p>24 A. Well, not 20, but -- yeah. Wind turbine noise is</p> <p>25 highly variable. And depending on, you know, the wind's</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 95</p> <p>1 2010 that was published in the noise control engineering</p> <p>2 journal January 2011.</p> <p>3 MR. ALMOND: At this point I'd like to move for</p> <p>4 the admission of Exhibit I 37.</p> <p>5 MS. EDWARDS: No objection from Staff.</p> <p>6 MR. DE HUECK: Any objection?</p> <p>7 MS. SMITH: No objection.</p> <p>8 MR. DE HUECK: It will be admitted as I 37.</p> <p>9 Q. Can you turn to page 97 of that paper for me. What</p> <p>10 is that table 1 at the top of that page?</p> <p>11 A. It's titled typical worldwide wind turbine noise</p> <p>12 limits.</p> <p>13 Q. And it looks like the different jurisdictions are</p> <p>14 all outside the United States in that table. Would you</p> <p>15 agree?</p> <p>16 A. They are, yes.</p> <p>17 Q. And if you flip back to the previous page, it states</p> <p>18 "wind turbine development in usual even countries and</p> <p>19 other parts of the world has been proceeding for some</p> <p>20 time now while widespread development has only started in</p> <p>21 the U.S. within the last five years or so do you see that</p> <p>22 language?</p> <p>23 A. Yes. Uh-huh.</p> <p>24 Q. So would you agree that it would be appropriate to</p> <p>25 look to other jurisdictions and European and other</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 94</p> <p>1 not blowing in a nice laminar manner, it's turbulent, it</p> <p>2 changes all the time.</p> <p>3 That's why in every test you can only test over a</p> <p>4 long-term average. You can't capture every exceedance.</p> <p>5 Q. Well, the on/off condition test we don't need to</p> <p>6 measure over a long period of time; correct?</p> <p>7 A. No. No. Most of the time the noise is fairly</p> <p>8 steady but it does -- it certainly does vary over time.</p> <p>9 Q. Have you written a paper on recommended noise level</p> <p>10 design goals for wind turns?</p> <p>11 A. Yes.</p> <p>12 Q. And what was the purpose of that paper?</p> <p>13 A. To recommend noise design goals, which namely are 45</p> <p>14 under most normal circumstances and an ideal target of</p> <p>15 40.</p> <p>16 Q. And you didn't attach that paper to your testimony,</p> <p>17 did you?</p> <p>18 A. No. I don't think so.</p> <p>19 (Exhibit 37 is marked for identification.)</p> <p>20 Q. I'm going to hand you what has been marked as</p> <p>21 Exhibit I 37. What is exhibit -- what is -- I just</p> <p>22 handed you what has been marked Exhibit I 37. What is</p> <p>23 that?</p> <p>24 A. You know, it's an article that I wrote in</p> <p>25 collaboration with my dad who's also in the company in</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 96</p> <p>1 countries to see what's going on when it comes to wind</p> <p>2 regulations?</p> <p>3 A. Yeah. That's why we did that, this paper.</p> <p>4 Q. Precisely.</p> <p>5 And looking at table 1 for one example, for example,</p> <p>6 at the very top is Alberta, Canada. It says, "Criteria</p> <p>7 values, 50D/40N. What does that mean, the 50D/40N?</p> <p>8 A. 50 during the day, and 40 at night.</p> <p>9 Q. And the D and N, is that what it means for the</p> <p>10 entire list of --</p> <p>11 A. Yeah.</p> <p>12 Q. Are you aware of any regulations on this project</p> <p>13 that deal with infrasound or low frequency noise?</p> <p>14 A. No. There are none on this project or any other</p> <p>15 project I can think of.</p> <p>16 MR. ALMOND: Thank you, Mr. Hessler. I don't</p> <p>17 have any other questions for you.</p> <p>18 THE WITNESS: All right. Thank you.</p> <p>19 MR. DE HUECK: Mr. Fuerniss.</p> <p>20 <u>CROSS-EXAMINATION</u></p> <p>21 <u>BY MR. FUERNISS:</u></p> <p>22 Q. Hello, Mr. Hessler. You and I have one thing in</p> <p>23 common. At least we both have had the privilege to work</p> <p>24 with our fathers in the business that's kind of a neat</p> <p>25 thing don't you think?</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 97</p> <p>1 A. I think it's great. I just have one question. This</p> <p>2 goes way back earlier in your testimony. You talk about</p> <p>3 some people being much more sensitive than others.</p> <p>4 Does that sensitivity -- can that increase with</p> <p>5 prolonged exposure, or do you have a level of sensitivity</p> <p>6 and that's it or --</p> <p>7 A. I'm not sure that's really known or understood. I</p> <p>8 think I've seen papers speculating or thinking that maybe</p> <p>9 the more exposure the more sensitivity would develop.</p> <p>10 But I don't know myself.</p> <p>11 MR. FUERNISS: Thank you.</p> <p>12 THE WITNESS: Sure.</p> <p>13 MR. DE HUECK: Ms. Jenkins.</p> <p>14 <u>CROSS-EXAMINATION</u></p> <p>15 <u>BY MS. JENKINS:</u></p> <p>16 Q. Yes. I have some questions. On your Direct</p> <p>17 Testimony, your prefiled I was looking at your resume and</p> <p>18 at the very end of that section is you talked about a</p> <p>19 project in Maine? Freedom, Maine?</p> <p>20 A. Was it Clinton, Maine?</p> <p>21 Q. Freedom.</p> <p>22 A. Freedom.</p> <p>23 Q. It was called the Beaver Ridge Wind Project. Maybe</p> <p>24 let's find the exhibit. It's Exhibit D M H-1 in his --</p> <p>25 MR. ALMOND: S 3.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 99</p> <p>1 A. Okay.</p> <p>2 Q. Maybe they built it and sold it. I'm not sure.</p> <p>3 Starting to sound familiar?</p> <p>4 A. Go on.</p> <p>5 Q. Well, my understanding that there were four</p> <p>6 different -- I believe it was four, might have been three</p> <p>7 different residences that were experiencing either health</p> <p>8 concern or not being able to sleep on their top floor.</p> <p>9 And so a sound study was done there, and that must be</p> <p>10 this study that you peer reviewed?</p> <p>11 A. What I recall is it was a noise study prepared for</p> <p>12 the permitting Application, and I just reviewed it and</p> <p>13 commented on its shortcomings or good parts. That's all</p> <p>14 I remember about it really.</p> <p>15 Q. Okay. The project was built in 2008, and the</p> <p>16 study -- your peer review was in 2013.</p> <p>17 A. Okay.</p> <p>18 Q. Still nothing?</p> <p>19 A. Yeah. That just goes to show how many wind turbine</p> <p>20 projects I've been mixed up in.</p> <p>21 Q. Okay.</p> <p>22 A. Yeah. I'm not recalling the situation you're</p> <p>23 talking about with people having problem -- I don't</p> <p>24 remember anything about that.</p> <p>25 Q. Okay. The reason it came up was -- when I saw you</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 98</p> <p>1 MS. EDWARDS: S 3.</p> <p>2 A. Okay. All right. It's pretty bad when I have to be</p> <p>3 reminded of my own resume. Yeah. Yeah. I remember that</p> <p>4 project. That was in the town of Clinton, Maine, I</p> <p>5 believe.</p> <p>6 Q. Can you just tell a little bit about what your -- it</p> <p>7 looks like you appeared before the Maine State Government</p> <p>8 of energy and utilities committee. It says a peer review</p> <p>9 of operational sound testing by others:</p> <p>10 A. Oh, yeah. I remember that one now. Yeah. I was</p> <p>11 engaged by the state, very similar to this case, to look</p> <p>12 at somebody else's Application, the noise study for an</p> <p>13 Application for this wind project and give my opinion on</p> <p>14 it.</p> <p>15 Q. And do you remember any specifics like the size of</p> <p>16 the project?</p> <p>17 A. I think it was fairly small. All I remember was the</p> <p>18 panel. It looked like a bunch of satisfy captains up</p> <p>19 there in Maine.</p> <p>20 Q. Can I refresh your memory?</p> <p>21 A. Please do. The whole project is kind of vague to me</p> <p>22 now.</p> <p>23 Q. Okay. I believe it was three turbines?</p> <p>24 A. Yeah.</p> <p>25 Q. By patriot renewables?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 100</p> <p>1 were going to testify, I was looking for your most recent</p> <p>2 note on your resume, and that was in 2014. And so I</p> <p>3 researched it a little bit?</p> <p>4 A. Yeah.</p> <p>5 Q. And the reason I bring it up now is that you said</p> <p>6 that it was just a handful of people that are having</p> <p>7 health concerns. And in this -- in my research I just</p> <p>8 went to the --</p> <p>9 MS. SMITH: I'm going to object. At this point</p> <p>10 it sounds like Ms. Jenkins is testifying. Unfortunately,</p> <p>11 I think we have to interrupt.</p> <p>12 MR. DE HUECK: Yeah. Go ahead, Staff.</p> <p>13 MS. EDWARDS: I guess since it's my witness I</p> <p>14 should probably attempt to weigh in.</p> <p>15 Because we are a neutral party I attempt to</p> <p>16 afford a great deal of latitude. I would say this is</p> <p>17 impeachment but going down that track going a little too</p> <p>18 far.</p> <p>19 MR. DE HUECK: So, Ms. Jenkins, it is as if</p> <p>20 you're introducing your own testimony as to what you</p> <p>21 think happened out in Maine into the record now so we</p> <p>22 want to avoid that.</p> <p>23 Additionally the witness has basically told you</p> <p>24 he's got no clue and doesn't look very successful in</p> <p>25 remembering it.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 101</p> <p>1 MS. JENKINS: Okay. So I'll just summarize</p> <p>2 that, that you earlier said that you have witnessed only</p> <p>3 a handful of people with health effects, complaints, and</p> <p>4 out of all the projects in the United States.</p> <p>5 A. Yeah.</p> <p>6 Q. And you don't remember this project, your latest one</p> <p>7 that you reviewed. I'm sorry. I'm not trying to be</p> <p>8 unkind. I I'm just trying to --</p> <p>9 A. No. You have every right. I'm so sorry I can't</p> <p>10 remember that project.</p> <p>11 Q. Okay.</p> <p>12 A. It was a very small project and I think I just</p> <p>13 looked over someone's work and testified for 10 minutes</p> <p>14 on it. I never went to the site or anything. I don't</p> <p>15 know too much about it really.</p> <p>16 Q. So to do a sound study or to peer review a sound</p> <p>17 study you don't need to see the site or know the</p> <p>18 complaints or anything?</p> <p>19 A. I'm fairly certain that this study had nothing to do</p> <p>20 with the complaints. I don't remember anything about</p> <p>21 that. I would remember that. If there was problems,</p> <p>22 somebody went out, did a survey, tried to understand the</p> <p>23 problems. That doesn't ring any bells at all to me.</p> <p>24 Yeah. I'd have to pull out the file for this</p> <p>25 project, and I just don't remember it.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 103</p> <p>1 turbines are. You know, it's supposed to explain it to</p> <p>2 the degree where you don't have to go out there and find</p> <p>3 out for yourself.</p> <p>4 Now this report was very vague on that. The sound</p> <p>5 contour map was printed on a White paper, there was no</p> <p>6 map. I couldn't tell where the houses were, whose house</p> <p>7 was which, so it was a shortcoming of the study.</p> <p>8 Q. Okay. And you don't remember testifying before the</p> <p>9 board or at that hearing -- before the Maine State</p> <p>10 Government Energy, Utilities, and Technology Committee on</p> <p>11 behalf of Patriot Renewables and the Beaver Ridge Wind</p> <p>12 project in 2014?</p> <p>13 A. Yeah. I remember being there and I remember what</p> <p>14 the room looked like but I forgot what the substance of</p> <p>15 the testimony was about.</p> <p>16 Q. Okay. So you don't really remember the case?</p> <p>17 A. I don't remember the case. It was --</p> <p>18 MS. JENKINS: Okay. Thank you.</p> <p>19 MR. DE HUECK: Ms. Pazour.</p> <p>20 MS. PAZOUR: No.</p> <p>21 MR. DE HUECK: That will bring us over here to</p> <p>22 Commission questions. I'm down here with Commissioner</p> <p>23 Nelson. I have a quick question if that's okay.</p> <p>24 Help me understand this because the Cooper</p> <p>25 study's got me thinking. And I think I recall you saying</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 102</p> <p>1 MR. DE HUECK: Ms. Jenkins, do you actually have</p> <p>2 a copy of what it is you're referring to?</p> <p>3 MS. JENKINS: Well, I could go to the website</p> <p>4 where the -- where the people in the community were</p> <p>5 attempting to get their sound levels up to the state</p> <p>6 level.</p> <p>7 MR. DE HUECK: Okay. I think we have just a bit</p> <p>8 of confusion going on. I'm not sure. But I think we</p> <p>9 should just move on.</p> <p>10 MS. JENKINS: Okay. Let me just make sure</p> <p>11 there's nothing else I can ask.</p> <p>12 MR. DE HUECK: Go ahead.</p> <p>13 (Pause.)</p> <p>14 Q. Okay. I think my last question would be just to</p> <p>15 understand the process, if you do a sound study you don't</p> <p>16 necessarily -- or peer review a sound study, you don't</p> <p>17 necessarily have to go to the project site?</p> <p>18 A. No. Like in this case there wasn't a whole lot of</p> <p>19 need to go to the site.</p> <p>20 Q. And can you tell me how you can deduce that if you</p> <p>21 don't remember the project?</p> <p>22 A. Well, the noise study is supposed to explain and</p> <p>23 show you what the site is like. Like in our reports we</p> <p>24 put a site description. We have maps. We show what's</p> <p>25 going on at the site, where the houses are, where the</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 104</p> <p>1 that often -- whether on or off, the wind turbines, the</p> <p>2 sound can be the same just due to the wind itself.</p> <p>3 So a noisy night, you could turn off the</p> <p>4 turbines and you're still going to be at, say, 45 dBA</p> <p>5 just based on the wind itself. And the turbines don't</p> <p>6 run unless it's windy; correct.</p> <p>7 THE WITNESS: That's absolutely correct. It was</p> <p>8 surprising even to me.</p> <p>9 MR. DE HUECK: Yeah. That is. So does wind</p> <p>10 itself carry these sound we can't hear, infrasounds?</p> <p>11 THE WITNESS: They're not carried on the wind.</p> <p>12 They just radiate out from the source.</p> <p>13 MR. DE HUECK: So could tell wind itself be the</p> <p>14 source of infrasound?</p> <p>15 THE WITNESS: No. For example, in the Shirley</p> <p>16 study we used very specialized instrumentation to be able</p> <p>17 to detect the blade passing frequency. And that's every</p> <p>18 time a blade goes bit tower of the three blades so that</p> <p>19 the frequency of that is about .7 to 1 hertz. And that</p> <p>20 was detectable.</p> <p>21 And I think it's the repeated pulsations of</p> <p>22 that, those waves going out, that some people are</p> <p>23 sensitive to. It's like on a boat, you know, and satisfy</p> <p>24 sick. Just kind of that low rocking. I think it's</p> <p>25 related to that.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 105</p> <p>1 MR. DE HUECK: I understand that it could be</p> <p>2 related to that. But so does the wind -- let's say we</p> <p>3 remove the turbines and we still have -- it's a windy</p> <p>4 night and could infrasounds from the wind --</p> <p>5 THE WITNESS: No. No. It takes this specific</p> <p>6 source to generate it. No. Wind noise is very</p> <p>7 broadband.</p> <p>8 MR. DE HUECK: Okay. Thank you.</p> <p>9 THE WITNESS: Okay.</p> <p>10 COMMISSIONER NELSON: Thank you, Mr. Hessler for</p> <p>11 being here to help us sort this out.</p> <p>12 THE WITNESS: Always a pleasure.</p> <p>13 COMMISSIONER NELSON: Looking at your Direct</p> <p>14 Testimony on page 8, there was a question about -- I</p> <p>15 think Mr. Fuerniss had recommended that sound levels be</p> <p>16 measured using satisfy weighted sound levels, and you</p> <p>17 said, no, no, no, that that would be inappropriate.</p> <p>18 So my ultimate question is how is infrasound</p> <p>19 measured? What is the scale? What is the</p> <p>20 instrumentation? Have you done it? Help me understand</p> <p>21 all of that.</p> <p>22 THE WITNESS: Yeah. No. That's a very good</p> <p>23 question.</p> <p>24 You know, it's extremely difficult to even</p> <p>25 detect. That's why there's no practical way to put a</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 107</p> <p>1 hard to pick up.</p> <p>2 COMMISSIONER NELSON: And so you have attempted</p> <p>3 to measure it. Is that --</p> <p>4 THE WITNESS: Oh, yes.</p> <p>5 COMMISSIONER NELSON: Do I take it from your</p> <p>6 testimony that using the Shirley example that you weren't</p> <p>7 comfortable that you accurately captured what was going</p> <p>8 on?</p> <p>9 THE WITNESS: Yeah. You could see a little</p> <p>10 blip, but it was so small that we said how is this a</p> <p>11 problem. It's orders and orders of magnitude below the</p> <p>12 threshold of human perception. But evidently it's the --</p> <p>13 the frequency of the pulses that go out apparently have</p> <p>14 an effect.</p> <p>15 COMMISSIONER NELSON: Within the last week I saw</p> <p>16 a presentation on the folks that are trying to capture</p> <p>17 neutrinos and when I read through this I for some reason</p> <p>18 thought of that. And we're trying to capture something</p> <p>19 that's apparently very difficult.</p> <p>20 THE WITNESS: Yeah. It is.</p> <p>21 COMMISSIONER NELSON: Did you read through</p> <p>22 Dr. Roberts's Rebuttal Testimony?</p> <p>23 THE WITNESS: I did read through it, yes.</p> <p>24 Q. Could you pull out Exhibit A5-1, which is Exhibit 1</p> <p>25 attached to his Rebuttal Testimony.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 106</p> <p>1 regulatory limit on it. C-weighting only goes down to 10</p> <p>2 hertz, and this is happening at less than 1 hertz. So</p> <p>3 it's off the chart. So C-weighting is not going to</p> <p>4 capture it or do anything.</p> <p>5 How it is measured is to use very specialized</p> <p>6 low frequency microphones that can measure down to less</p> <p>7 than 1 hertz and very specialized instrumentation. It's</p> <p>8 also complicated by the fact that whenever you try to</p> <p>9 measure sound in windy conditions the wind blowing over</p> <p>10 the microphone creates a false signal, and that happens</p> <p>11 in the low end of the frequency spectrum. So it's very</p> <p>12 easy for any kind of measurement to get completely</p> <p>13 covered up by nonrelated, self-generated noise. Very</p> <p>14 difficult to measure.</p> <p>15 So there's no way I could think of to place a</p> <p>16 regulation or a limit on it.</p> <p>17 COMMISSIONER NELSON: So we've heard reference</p> <p>18 to dB(G). Is that the measurement that is used for</p> <p>19 infrasound?</p> <p>20 THE WITNESS: It can be. That's essentially not</p> <p>21 putting any weighting on the frequency spectrum, not</p> <p>22 subtracting some number. But it's very very difficult in</p> <p>23 practical terms to even detect. In that Shirley</p> <p>24 constituted we had to measure in the middle of the night,</p> <p>25 inside the houses, out of any wind. And even then it was</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 108</p> <p>1 COMMISSIONER NELSON: Yes. A 5-1. And if you</p> <p>2 could go to page 10.</p> <p>3 THE WITNESS: Okay.</p> <p>4 COMMISSIONER NELSON: In the lower left corner</p> <p>5 there's a bullet point, and this is talking about the</p> <p>6 results of some work that was done in Germany. And that</p> <p>7 bullet point says, "At a distance of 700 meters from the</p> <p>8 wind turbines it was observed by means of measurements</p> <p>9 when the turbine was switched on the measured infrasound</p> <p>10 level did not increase or only increased to a limited</p> <p>11 extent."</p> <p>12 And then it says infrasound was generated mainly</p> <p>13 by the wind and not by the turbines.</p> <p>14 There's two things here that contradict what you</p> <p>15 have said already today. And I'm trying to sort this</p> <p>16 out. I mean, at some point infrasound has to dissipate.</p> <p>17 This study seems to indicate that by 700 meters it has</p> <p>18 dissipated. I heard you testify today that infrasound</p> <p>19 travels for "miles."</p> <p>20 So that's my first question.</p> <p>21 THE WITNESS: Okay.</p> <p>22 COMMISSIONER NELSON: Help me understand how far</p> <p>23 this travels.</p> <p>24 THE WITNESS: Well, it can travel for long</p> <p>25 distances. Not always. The conditions have to favor it</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 109</p> <p>1 and so on.</p> <p>2 COMMISSIONER NELSON: So help me -- unpack that.</p> <p>3 THE WITNESS: Yeah. Well, I can see in the</p> <p>4 picture here, in the lower left picture titled C they've</p> <p>5 got a black dome sitting on the ground on a white circle.</p> <p>6 Do you see that?</p> <p>7 COMMISSIONER NELSON: Yes.</p> <p>8 THE WITNESS: That is a method that we use to</p> <p>9 measure wind turbines outdoors where the microphone is</p> <p>10 laying horizontally on this reflective surface and then</p> <p>11 this huge wind screen is put over it.</p> <p>12 Now that only works to a certain extent, and it</p> <p>13 does not allow measurements down at one hertz. That's</p> <p>14 all covered -- even with this set up the measurements are</p> <p>15 blown away by wind self-generated wind noise. Because</p> <p>16 I've used this exact equipment before.</p> <p>17 That's why they say all they measured was wind.</p> <p>18 Because you really can't pick it up. But no. I think it</p> <p>19 can travel 700 meters or more under other circumstances.</p> <p>20 Let me see. At Shirley one of the houses was</p> <p>21 very far from any turbines, miles away. We did measure</p> <p>22 inside of that house out of the wind to avoid this</p> <p>23 contamination. I don't think we were able to detect</p> <p>24 anything at that house, though.</p> <p>25 COMMISSIONER NELSON: So I'm --</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 111</p> <p>1 be heard without that sound changing the ambient dBA</p> <p>2 level?</p> <p>3 THE WITNESS: Yes. If the sound has a</p> <p>4 distinctive character to it, then you can identify and</p> <p>5 pick it out even though the magnitude of it, whether it's</p> <p>6 on or off may be about the same.</p> <p>7 COMMISSIONER NELSON: Like a wind turbine.</p> <p>8 THE WITNESS: Yeah. Which has a -- that washing</p> <p>9 machine sound. Yeah.</p> <p>10 COMMISSIONER NELSON: So we had -- well,</p> <p>11 Ms. Jenkins, Intervenor, testified yesterday, again</p> <p>12 contrary to what I heard from you this morning, that her</p> <p>13 house is 3 miles away from a wind turbine and inside of</p> <p>14 her house she can hear the wind turbine 3 miles away.</p> <p>15 THE WITNESS: That's surprising to me.</p> <p>16 COMMISSIONER NELSON: Okay. So we'll set that</p> <p>17 aside. But it would be -- let's say you're outside. It</p> <p>18 may be possible to actually hear a wind turbine because</p> <p>19 of the unique sound even though it doesn't raise the dBA</p> <p>20 level. Is that accurate?</p> <p>21 THE WITNESS: Right. If you're able to identify</p> <p>22 that distinctive sound and you know what you're listening</p> <p>23 for and so on.</p> <p>24 COMMISSIONER NELSON: Just so I'm clear,</p> <p>25 changing again, you've recommended for this project an</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 110</p> <p>1 THE WITNESS: That doesn't --</p> <p>2 COMMISSIONER NELSON: -- going to press you a</p> <p>3 little harder because this is terribly important to me.</p> <p>4 So somewhere between 700 meters and your quote, "miles",</p> <p>5 this dissipates. So help me understand what's going to</p> <p>6 determine how far it goes and what causes it to dissipate</p> <p>7 and how can we quantify that?</p> <p>8 THE WITNESS: It travels a long distance. I</p> <p>9 can't put a number on it for you. These are the kind of</p> <p>10 frequencies that like elephants communicate with each</p> <p>11 other over huge distances, if you've ever heard about</p> <p>12 that. This is as low as it gets in terms of frequency.</p> <p>13 So in theory it takes a very long time. Now how</p> <p>14 far, I don't know. Can't help you.</p> <p>15 COMMISSIONER NELSON: Well, ultimately I have to</p> <p>16 make a decision here based upon how far this could travel</p> <p>17 and how far it's going to affect folks, if it affects</p> <p>18 folks. I mean, that's a whole nother question.</p> <p>19 THE WITNESS: Right.</p> <p>20 COMMISSIONER NELSON: I'm trying to just figure</p> <p>21 out how far does it actually go.</p> <p>22 THE WITNESS: I wish I could give you a figure</p> <p>23 on that. I know it would be useful to you.</p> <p>24 COMMISSIONER NELSON: Okay. Thank you for that.</p> <p>25 Shifting gears just a little bit. Can a sound</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 112</p> <p>1 ideal design goal of 40 dBA and that would be measured</p> <p>2 over the two-week period that the Applicant has proposed;</p> <p>3 is that correct?</p> <p>4 THE WITNESS: Right. I don't know of any other</p> <p>5 way to do it.</p> <p>6 COMMISSIONER NELSON: You talked earlier about</p> <p>7 the fact that that might impact 11 different receptors</p> <p>8 based on their sound study. I just quickly looked at</p> <p>9 their revised sound study, and it looks like it would</p> <p>10 only impact two of the nonparticipants.</p> <p>11 Did you separate out participants and</p> <p>12 nonparticipants as you looked at that.</p> <p>13 THE WITNESS: At least in my copy it doesn't</p> <p>14 distinguish between who was who.</p> <p>15 COMMISSIONER NELSON: And were you looking at</p> <p>16 the revised -- the latest sound study?</p> <p>17 THE WITNESS: Yes. I saw one Intervenor house</p> <p>18 identified in the table in the back but that's the only</p> <p>19 one. And that's what I was looking for when I wrote my</p> <p>20 Direct Testimony. I wanted to know what the levels were</p> <p>21 at the Intervenor's house but I couldn't tell which house</p> <p>22 was which.</p> <p>23 COMMISSIONER NELSON: I think -- I hate to let</p> <p>24 you go but I think that's all -- only because what I</p> <p>25 really want to know I haven't found out but that's all</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 113</p> <p>1 the questions I've got. Thank you.</p> <p>2 THE WITNESS: You're welcome. Sorry I couldn't</p> <p>3 help you with that one.</p> <p>4 MR. DE HUECK: Chair Fiegen. No questions.</p> <p>5 Commissioner Hanson, any questions?</p> <p>6 COMMISSIONER HANSON: Yes, I do.</p> <p>7 Good almost afternoon, Mr. Hessler. You came</p> <p>8 out swinging in your remarks at the beginning. At least</p> <p>9 on page 3 you faulted the Applicant for the graphical</p> <p>10 presentation, called it fairly primitive, and said you</p> <p>11 can't even distinguish -- identify where the specific</p> <p>12 residence are.</p> <p>13 You faulted the study for focusing entirely on</p> <p>14 the noise limit of 45 dBA rather than assessing,</p> <p>15 addressing in any way. So you said, Focusing entirely on</p> <p>16 the dBA and not assessing or addressing in any way the</p> <p>17 other aspects, potentially low frequency and sound</p> <p>18 emissions. And I appreciate the questions that</p> <p>19 Commissioner Nelson asked in regard to that and the</p> <p>20 others.</p> <p>21 I'm curious. You said -- I also appreciate the</p> <p>22 way you tried to be fair. I think that you placed a lot</p> <p>23 of weight on the other side of the scale as well, almost</p> <p>24 to the point to which you seemed to favor wind farms and</p> <p>25 wanted to support them and so I -- I'm trying to figure</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 115</p> <p>1 me I'm wrong without --</p> <p>2 Are you familiar with kids in school who carry</p> <p>3 phones and they have the frequency dialed so that people</p> <p>4 over 40 or 50 years old cannot hear the frequency but</p> <p>5 they can?</p> <p>6 THE WITNESS: I did hear about that.</p> <p>7 COMMISSIONER HANSON: And that's fairly typical.</p> <p>8 So kids would be more sensitive -- would one assume than</p> <p>9 adults would to the challenges that low frequency would</p> <p>10 have from wind turbines? I mean that's just one premise</p> <p>11 but --</p> <p>12 THE WITNESS: Well, it's -- the phone thing is</p> <p>13 ultrasound. It's very high frequency sound, and that is</p> <p>14 usually the first thing to go as people age. So that's</p> <p>15 why there's a built in advantage there to that whole</p> <p>16 concept.</p> <p>17 But we're talking about the other end of the</p> <p>18 frequency spectrum, and that typically does not decay</p> <p>19 with age.</p> <p>20 COMMISSIONER HANSON: Interesting. So higher</p> <p>21 frequency, have you studied that from wind turbines,</p> <p>22 from --</p> <p>23 THE WITNESS: No. There's no high frequency.</p> <p>24 COMMISSIONER HANSON: There's no high frequency.</p> <p>25 THE WITNESS: No. Most of the noise, the</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 114</p> <p>1 out where that scale lands but --</p> <p>2 You said you sat in a home I believe it was in</p> <p>3 Wisconsin, was it, and listened -- sat there all night</p> <p>4 or -- I don't know if it was all night --</p> <p>5 THE WITNESS: Hours.</p> <p>6 COMMISSIONER HANSON: And that the husband could</p> <p>7 not hear it, you could not hear it, but the wife could</p> <p>8 hear it.</p> <p>9 THE WITNESS: That's right.</p> <p>10 COMMISSIONER HANSON: I don't want to sound</p> <p>11 misogynistic here, but isn't it somewhat typical</p> <p>12 especially on a farm that work with machinery -- even</p> <p>13 though wives work beside their husbands on farms and</p> <p>14 such, is that men typically lose their hearing a little</p> <p>15 bit before women do?</p> <p>16 THE WITNESS: Well, this wasn't audible sound</p> <p>17 from the project. It was just a sensitivity to a feeling</p> <p>18 of low pressure, low frequency pulsations. Nobody could</p> <p>19 hear anything. Everybody admitted that. It was the</p> <p>20 sensing of it.</p> <p>21 COMMISSIONER HANSON: Interesting.</p> <p>22 My wife is 220 miles away and she can hear my</p> <p>23 thoughts right now.</p> <p>24 THE WITNESS: I know. Mine too.</p> <p>25 COMMISSIONER HANSON: She'll call me up and tell</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 116</p> <p>1 churning sound, is about 500 hertz to 1,000 hertz.</p> <p>2 That's in the middle of the audible frequency range.</p> <p>3 Above that there's no significant noise.</p> <p>4 COMMISSIONER HANSON: Interesting. Appreciate</p> <p>5 that.</p> <p>6 You spoke also at adverse health effects such as</p> <p>7 sleep disturbance and vertigo which really can be</p> <p>8 crippling to people from the standpoint of going through</p> <p>9 their lives.</p> <p>10 THE WITNESS: Yeah.</p> <p>11 COMMISSIONER HANSON: What about children with</p> <p>12 ADHD? Have you studied any of that or familiar at all</p> <p>13 with those effects?</p> <p>14 THE WITNESS: No. I don't know about that but I</p> <p>15 wouldn't be surprised.</p> <p>16 COMMISSIONER HANSON: You wouldn't be surprised</p> <p>17 what.</p> <p>18 THE WITNESS: If they were sensitive to it or</p> <p>19 affected by it.</p> <p>20 COMMISSIONER HANSON: You state about the very</p> <p>21 small minority of the people and that it is extremely</p> <p>22 rare, small handful of sites, quite rare, et cetera.</p> <p>23 Again, very small. And yet it's very real. At least you</p> <p>24 express that it's very real.</p> <p>25 So in balancing that are we to assume that for</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 117</p> <p>1 the greater good some people are going to suffer?</p> <p>2 THE WITNESS: Yeah. That's -- that's up to you</p> <p>3 guys. Yeah. Well, just to reiterate, you know, if this</p> <p>4 commonly happened, it would be all over the news. It</p> <p>5 would be well understood, and everyone would know that a</p> <p>6 new wind project was going to cause this.</p> <p>7 But that's not the case. It's only occurred at</p> <p>8 certain specific sites out of many, many, many projects.</p> <p>9 So based on that alone, I'm concluding that it must be a</p> <p>10 rare sensitivity.</p> <p>11 COMMISSIONER HANSON: Commissioner Nelson would</p> <p>12 love to sit and chat with you an extended period of time,</p> <p>13 enjoy the conversation and what we're learning here.</p> <p>14 For folks who have lived out in the country for</p> <p>15 a long long time and just simply enjoy the -- enjoy the</p> <p>16 sound of the wind going through the trees, granted</p> <p>17 turbines may be at a similar volume but of a different</p> <p>18 pitch and so they hear it instead of the -- it starts to</p> <p>19 irritate them.</p> <p>20 For those folks who live out in the country I'm</p> <p>21 going to assume they would be far more susceptible to</p> <p>22 hearing noises and problems and being discomforted by</p> <p>23 them than folks who live in the city.</p> <p>24 THE WITNESS: Well, every wind project that I</p> <p>25 can think of that we worked on has been in a rural area.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 119</p> <p>1 THE WITNESS: I think people end up getting used</p> <p>2 to it like your railroad, but I don't know. I've never</p> <p>3 done any follow up study to see if people are still upset</p> <p>4 about it years later. I don't know.</p> <p>5 COMMISSIONER HANSON: All right. Thank you very</p> <p>6 much for your testimony. Appreciate it. And enjoyed it.</p> <p>7 Thank you.</p> <p>8 THE WITNESS: Okay.</p> <p>9 COMMISSIONER NELSON: And an additional</p> <p>10 question. If I'm standing a mile away from an operating</p> <p>11 wind turbine, I can hear the whoosh and I know what it</p> <p>12 is. I know where the whoosh is coming from.</p> <p>13 If you're measuring infrasound or attempting to</p> <p>14 measure infrasound, how can you tell the origin of it?</p> <p>15 Or can you?</p> <p>16 THE WITNESS: Well, this infrasound has a</p> <p>17 distinctive frequency signature. It would be a .7 hertz,</p> <p>18 which corresponds to the -- how often the blades go by</p> <p>19 the tower. So you would look -- you would see it in the</p> <p>20 industry.</p> <p>21 COMMISSIONER NELSON: Thank you.</p> <p>22 THE WITNESS: Yeah.</p> <p>23 MR. DE HUECK: Well, I think -- Reece, how long</p> <p>24 is your -- well, okay. Do you have -- how long would</p> <p>25 your redirect be? How long -- a while? Should we break</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 118</p> <p>1 COMMISSIONER HANSON: Right.</p> <p>2 THE WITNESS: Probably very similar to this.</p> <p>3 COMMISSIONER HANSON: So is my assumption</p> <p>4 correct that folks who live out in the country are going</p> <p>5 to be bothered more by noise -- by a new introduction of</p> <p>6 a new noise than folks in the city, for instance?</p> <p>7 THE WITNESS: Oh, yeah. Definitely.</p> <p>8 COMMISSIONER HANSON: I grew up three houses</p> <p>9 away from a railroad track, and I can sleep through the</p> <p>10 horns and a thunderstorm and everything else but a clock</p> <p>11 ticking on the wall or a water dripping really bothers</p> <p>12 the heck out of me.</p> <p>13 So with that type of a challenge I can go move</p> <p>14 that clock. I can fix the water faucet do. We suggest</p> <p>15 ear plugs for the folks out in the country?</p> <p>16 THE WITNESS: No. And, as I mentioned, there's</p> <p>17 always -- I can't -- there might have been one or two</p> <p>18 that there were no reported complaints. But there's</p> <p>19 always a few people that are bothered, and they're really</p> <p>20 bothered, really bothered.</p> <p>21 COMMISSIONER HANSON: In your experience, do</p> <p>22 most of the people who are bothered at first adapt to it?</p> <p>23 We're talking about the people who are really bothered.</p> <p>24 Do they ever adjust to it or do they, as you suggested,</p> <p>25 some people move?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 120</p> <p>1 for lunch? Okay. It's 12:07. 1:30 we come back?</p> <p>2 MR. ALMOND: As we discussed earlier this</p> <p>3 morning we were hoping to have the telephonic witnesses</p> <p>4 start right after lunch so we can get them set up during</p> <p>5 the lunch break. If we don't want to finish I get that</p> <p>6 we can take a break but --</p> <p>7 MR. DE HUECK: Well, okay. That will work.</p> <p>8 MR. ALMOND: I don't have very much.</p> <p>9 MR. DE HUECK: Okay. Let's go ahead and do some</p> <p>10 redirect and recross.</p> <p>11 MS. EDWARDS: All right.</p> <p>12 <u>REDIRECT EXAMINATION</u></p> <p>13 <u>BY MS. EDWARDS:</u></p> <p>14 Q. Mr. Hessler, you stated there is a lot of opposition</p> <p>15 to this project. Was that based off of your knowledge of</p> <p>16 other projects you've worked on?</p> <p>17 A. Yeah. I would say there was a high level of</p> <p>18 apprehension about this project just by the sheer volume</p> <p>19 of all the testimony and Intervenor witnesses and so on</p> <p>20 compared to other projects.</p> <p>21 Q. You also stated once this morning that Mr. Cooper</p> <p>22 had finally demonstrated a link. Did you have reason to</p> <p>23 believe prior to that study that link was already there,</p> <p>24 or was this all new to you?</p> <p>25 A. Prior to that study I thought something was</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 121</p> <p>1 happening but wasn't entirely convinced what was going</p> <p>2 on, and that study kind of put me to the other side where</p> <p>3 it's pretty clear that those pulsations can be perceived</p> <p>4 by certain people. I mean, I thought that before, but</p> <p>5 there was never any evidence, although there's been many,</p> <p>6 many studies and papers about it.</p> <p>7 Q. So with that in mind and with your testimony in</p> <p>8 response to Commissioner questions that it's a fairly</p> <p>9 small number of people, would you -- in the project that</p> <p>10 you've worked on have you seen it just -- people be</p> <p>11 irreparably split in the community and just fight in the</p> <p>12 streets forever or --</p> <p>13 A. Yeah. It is very did I advice I have, yeah. Almost</p> <p>14 all projects, especially before they're built. At this</p> <p>15 stage there's a lot of dread and apprehension about it.</p> <p>16 That's mostly attributed to -- attributable to the</p> <p>17 internet sites.</p> <p>18 Q. In response to Ms. Jenkins's questions about that</p> <p>19 study in I believe it was Maine?</p> <p>20 A. Yeah.</p> <p>21 Q. There was some confusion about what your role was.</p> <p>22 Could there have been another sound expert that was</p> <p>23 involved that would answer what she was getting at and</p> <p>24 that was outside of your role?</p> <p>25 A. Well, what I do know about that is it was somebody</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 123</p> <p>1 of nausea, dizziness, et cetera that you talked about</p> <p>2 Shirley or attributed to this infrasound, that there are</p> <p>3 wind farms all around the country, you've studied 15 of</p> <p>4 them or maybe more but you haven't heard many complaints.</p> <p>5 Wouldn't you expect that the number of complaints</p> <p>6 might be skewed if there are confidentiality provisions</p> <p>7 and certain contractual provisions that would prevent</p> <p>8 people from living around turbines from making such</p> <p>9 complaints?</p> <p>10 MS. SMITH: Objection. This is outside the</p> <p>11 scope of his testimony.</p> <p>12 MR. DE HUECK: I agree.</p> <p>13 A. I would say that I've seen cases --</p> <p>14 MR. DE HUECK: Dr. Hessler, I'm sorry. Don't</p> <p>15 answer the question.</p> <p>16 THE WITNESS: Okay.</p> <p>17 Q. Your opinion on the quantity of people affected by</p> <p>18 infrasound is based off of those -- is based off</p> <p>19 complaints that people have made; correct?</p> <p>20 A. It is based off of our experience at Shirley and our</p> <p>21 experience at all other projects where we did not hear</p> <p>22 about that, and the fact that I have -- I'm not aware of</p> <p>23 any other projects where that was an issue, out of 50,000</p> <p>24 wind turbines out there in this country.</p> <p>25 Q. Are you aware of your other projects whether or not</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 122</p> <p>1 else's work that I was asked to look at. I didn't do the</p> <p>2 study or anything. I just was commenting on it.</p> <p>3 Q. Do you recall based upon the noise assessments you</p> <p>4 reviewed what the max dBA was at a receptor?</p> <p>5 A. You mean what was the highest predicted on any other</p> <p>6 project?</p> <p>7 Q. This project.</p> <p>8 A. On this project. Okay. Right now I believe it's</p> <p>9 41.9, which I would call 42.</p> <p>10 Q. Would you expect 42 dBA would, in your experience,</p> <p>11 cause people to change their daily lives and behavior?</p> <p>12 A. Hard to say. That's a pretty low level getting down</p> <p>13 towards the ideal point of 40. But there's still a</p> <p>14 possibility of complaints in between 40 and 45 there's a</p> <p>15 definite possibility of complaints.</p> <p>16 MS. EDWARDS: Thank you very much. I have no</p> <p>17 further questions.</p> <p>18 MR. DE HUECK: Recross. Prevailing Winds.</p> <p>19 MS. SMITH: No, I don't have any. Thank you.</p> <p>20 MR. DE HUECK: Mr. Almond.</p> <p>21 MR. ALMOND: Briefly.</p> <p>22 <u>RECROSS-EXAMINATION</u></p> <p>23 <u>BY MR. ALMOND:</u></p> <p>24 Q. I think you were talking with Commissioner Hanson</p> <p>25 about the number of complaints with the physical symptoms</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 124</p> <p>1 anyone was prohibited from making complaints I don't</p> <p>2 know, but my understanding is that participants --</p> <p>3 MS. SMITH: Objection. This is speculation.</p> <p>4 THE WITNESS: Yeah. Yeah. I would agree with</p> <p>5 that.</p> <p>6 MR. ALMOND: Based on that, I don't have any</p> <p>7 other questions for you, Mr. Hessler.</p> <p>8 MR. DE HUECK: Mr. Fuerniss.</p> <p>9 <u>RECROSS-EXAMINATION</u></p> <p>10 <u>BY MR. FUERNISS:</u></p> <p>11 Q. Yes. Commissioner Nelson is trying to get at the</p> <p>12 bottom of how far this could go, the infrasound</p> <p>13 especially.</p> <p>14 Could that be affected or enhanced by more or less</p> <p>15 hilly terrain, valleys, so forth? Would that make a</p> <p>16 difference?</p> <p>17 A. In theory if the turbine were on a hilltop and there</p> <p>18 was a value I in between and your house or some point of</p> <p>19 observation was on the next hill, you would -- there</p> <p>20 would be a loss of ground absorption attenuation because</p> <p>21 of the value I in between so the sound would get over</p> <p>22 there more than it would over flat ground.</p> <p>23 However, I don't think ground absorption has any</p> <p>24 real effect at that low end of the frequency spectrum.</p> <p>25 So now that I've reasoned it out in my head as I was</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 125</p> <p>1 talking, I would say it doesn't make too much difference.</p> <p>2 Q. Okay. When you're talking 40 dBA or 45 dBA, which</p> <p>3 metric are you using? Are you talking L90?</p> <p>4 A. Well, that's interesting you should say that because</p> <p>5 that is the descriptor that we use to actually try to</p> <p>6 measure an operating project because it filters out cars</p> <p>7 going by and sporadic contaminating events and gets out</p> <p>8 the underlying steady -- and it is more or less steady</p> <p>9 sound level.</p> <p>10 So we use the L90 at houses and then the L90 miles</p> <p>11 away as a background, and then we subtract the two to get</p> <p>12 what is the project doing. And if you try to use any</p> <p>13 other statistical like the average, the Leq or the L10 or</p> <p>14 the Lmax, you're getting progressively worse in your</p> <p>15 ability to detect the project alone and you're only</p> <p>16 detecting other things that are unrelated to the project.</p> <p>17 Q. Okay.</p> <p>18 A. That was a good question.</p> <p>19 Q. Would it be appropriate to recommend different</p> <p>20 levels for time of day, daytime, evening, nighttime?</p> <p>21 A. Well, the trouble with that, it's not practical to</p> <p>22 change the noise emissions in the project. They are what</p> <p>23 they are 24 hours a day. There's no way to substantially</p> <p>24 change the sound at night, for instance, to lower it,</p> <p>25 other than possibly putting some or all of the units in a</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 127</p> <p style="text-align: center;"><u>RECROSS-EXAMINATION</u></p> <p>1</p> <p>2 BY MS. JENKINS:</p> <p>3 Q. I'm sorry, but I missed. The Shirley Wind Farm when</p> <p>4 you visited that, what year was that?</p> <p>5 A. 2010 -- it's right here. December 24, 2012.</p> <p>6 Q. Thank you. Can infrasound be measured inside a</p> <p>7 house?</p> <p>8 A. That's probably the only place it can be measured.</p> <p>9 Q. Okay.</p> <p>10 A. Because you're out of the elements there.</p> <p>11 Q. And was your -- the main project that I mentioned</p> <p>12 earlier, was your role at that project the same as your</p> <p>13 role is here? Did you review this sound study?</p> <p>14 A. I reviewed a sound study. What it was about, I</p> <p>15 can't recall. I'm taking it off my resume.</p> <p>16 Q. I'm sorry. You could just refresh your memory</p> <p>17 because you might need it again.</p> <p>18 A. I'll have to pull the folder out back at the office.</p> <p>19 Big embarrassment.</p> <p>20 Q. Yeah. When you do a sound study or when a sound</p> <p>21 study is ordered is it done at a certain time of year or</p> <p>22 how do you choose when you're going to do a sound study?</p> <p>23 A. You typically want to do them during the cold</p> <p>24 weather season of the year when the leaves are off the</p> <p>25 trees just to minimize the contamination from leaves</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 126</p> <p>1 low noise mode.</p> <p>2 But the improvement in doing that isn't all that</p> <p>3 dramatic, in my experience.</p> <p>4 Q. Are there some jurisdictions that do, in fact,</p> <p>5 require different levels from day and night?</p> <p>6 A. Yeah. Many, many ordinances are -- expresses day</p> <p>7 night. But when it comes to wind turbines you just have</p> <p>8 to take the nighttime level as the design and forget</p> <p>9 about the daytime. Because like I said, the sound level</p> <p>10 is the sound level, and you don't have any control over</p> <p>11 it really.</p> <p>12 Q. Okay. One last question. Are you familiar with</p> <p>13 bone attached hearing aids and if you are -- one question</p> <p>14 at a time.</p> <p>15 Are you familiar with those?</p> <p>16 A. I'm familiar with hearing aids. My wife really</p> <p>17 relies on them but I'm not an expert on it.</p> <p>18 Q. Okay. So you wouldn't be able to address that for</p> <p>19 us then?</p> <p>20 A. I don't think so.</p> <p>21 MR. FUERNISS: Thank you.</p> <p>22 MR. DE HUECK: Ms. Jenkins.</p> <p>23 MS. JENKINS: Just a couple questions.</p> <p>24</p> <p>25</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 128</p> <p>1 rattling and -- and summertime you get crickets and all</p> <p>2 kinds of stuff that messes up the measurements. So</p> <p>3 during the winter.</p> <p>4 Q. Okay. When you do a sound study is there -- do you</p> <p>5 get a report from the -- like the operation maintenance</p> <p>6 facility of how the wind turbines are operating, meaning</p> <p>7 are they operating at the speed of the conditions or are</p> <p>8 they -- do you have proof of that?</p> <p>9 A. Yeah. We get a log of what the megawatt output was</p> <p>10 for all the units as a function of time over the survey</p> <p>11 so we can identify if there's any down for maintenance or</p> <p>12 anything else.</p> <p>13 Q. And can you tell whether they're operating at the</p> <p>14 normal level they would when they just do it on their</p> <p>15 own?</p> <p>16 A. Yeah. Because we also get the wind speed throughout</p> <p>17 the survey and once the wind speed gets above usually 7</p> <p>18 meters per second, they're at full power.</p> <p>19 Q. Okay. I think there's just one more.</p> <p>20 MS. JENKINS: No. I have no more questions.</p> <p>21 Thank you.</p> <p>22 THE WITNESS: All right. You're welcome.</p> <p>23 MR. DE HUECK: Ms. Pazour.</p> <p>24</p> <p>25</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 129</p> <p>1 <u>RECROSS-EXAMINATION</u></p> <p>2 BY MS. PAZOUR:</p> <p>3 Q. I have a question for you. Like infrasounds next to</p> <p>4 a wind turbine, like with somebody that's sensitive to</p> <p>5 noise, would that be more bother some for them?</p> <p>6 A. If that person had this particular sensitivity that</p> <p>7 we've been talking about, then yes.</p> <p>8 Q. Like somebody with like a -- like a hearing aid.</p> <p>9 A. No. No. I don't think that would make any</p> <p>10 difference.</p> <p>11 Q. With the ear or nothing?</p> <p>12 A. Huh-uh.</p> <p>13 MS. PAZOUR: Okay.</p> <p>14 MR. DE HUECK: Did you have anymore questions?</p> <p>15 CHAIRWOMAN FIEGEN: She can just word it, and</p> <p>16 you'll make a decision.</p> <p>17 MR. DE HUECK: Just throw it out there. Throw</p> <p>18 it out there.</p> <p>19 Q. I guess is it possible between infrasounds and</p> <p>20 reversible systems that the inner ear could feel</p> <p>21 infrasounds?</p> <p>22 A. That sounds like a question for one of those doctors</p> <p>23 mixed up in this thing.</p> <p>24 MS. PAZOUR: Okay.</p> <p>25 MR. DE HUECK: Okay. Mr. Hessler, thank you for</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 131</p> <p>1 experience?</p> <p>2 A. My name is Richard James. I go by the name Rick for</p> <p>3 all practical and business persons, Rick James. I'm an</p> <p>4 acoustician who has been working in the field of</p> <p>5 measurement noise and the impact of noise on people since</p> <p>6 the late '60s, officially 1972 after I formed a new</p> <p>7 company.</p> <p>8 I started working for Chevrolet motor division and</p> <p>9 left them to form my own company in 1972.</p> <p>10 In the intervening years my companies -- and I had</p> <p>11 two -- became the consultants who were considered the</p> <p>12 subject matter experts for noise to corporations like</p> <p>13 General Motors, good year, Anheuser-Busch, major</p> <p>14 corporations who had both employee issues and who desired</p> <p>15 to keep their names out of the newspaper for noise</p> <p>16 complaints with community noise.</p> <p>17 So my focus has always been on how do you design a</p> <p>18 new project or how do you operate a project so as to</p> <p>19 minimize the adverse impacts on a community and on</p> <p>20 workers although it's less of an issue here. And I am</p> <p>21 very much a pro business acoustician but my focus is not</p> <p>22 on getting the project done one way or the other. It's</p> <p>23 getting a project done that's compatible with a host</p> <p>24 community.</p> <p>25 In 2006 due to some serious health issues with my</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 130</p> <p>1 your testimony. You're excused.</p> <p>2 (The witness is excused.)</p> <p>3 MR. DE HUECK: We'll break for lunch and plan on</p> <p>4 getting things rocking at 1:45.</p> <p>5 (A lunch recess is taken.)</p> <p>6 MR. DE HUECK: Welcome back, everyone. We're</p> <p>7 going to get back in our proper order. We're back in</p> <p>8 session in EL18-026. I guess we are missing an</p> <p>9 Intervenor but I'm sure she'll be here soon. And we'll</p> <p>10 let Reiss continue with his case in chief and call his</p> <p>11 next witness.</p> <p>12 MR. ALMOND: Intervenors call Rick James.</p> <p>13 MR. DE HUECK: Mr. James, we can see you up</p> <p>14 there on the Skype TV. And welcome to South Dakota James</p> <p>15 James thank you.</p> <p>16 MR. DE HUECK: My name is Adam de Hueck. I'm</p> <p>17 the hearing examiner for this proceeding and I'm going to</p> <p>18 go ahead and swear you in.</p> <p>19 (The oath is administered by Mr. de Hueck.)</p> <p>20 MR. DE HUECK: You are sworn in. Go ahead,</p> <p>21 Mr. Almond.</p> <p>22 <u>DIRECT EXAMINATION</u></p> <p>23 BY MR. ALMOND:</p> <p>24 Q. Mr. James, can you introduce yourself to the</p> <p>25 Commission and briefly describe your education and</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 132</p> <p>1 heart, my partner and I closed my old company, James</p> <p>2 Anderson and associates and I decided that I would go</p> <p>3 into semi retirement. Shortly thereafter, actually</p> <p>4 almost immediately there after I started getting calls</p> <p>5 from people in Michigan where wind projects had been</p> <p>6 proposed. One of those wind projects is actually one</p> <p>7 that Mr. Hessler worked on back in the late 2000s.</p> <p>8 My first analysis of that was these machines don't</p> <p>9 belong in quiet rural areas. They're going to cause a</p> <p>10 problem. And I presented that to the County</p> <p>11 Commissioners but they decided to build the project my</p> <p>12 way.</p> <p>13 Since then I have focused mainly on wind turbine</p> <p>14 noise, although I do other types of complaint driven</p> <p>15 noise generally as an expert related to hearings like</p> <p>16 this or lawsuits. I don't seek out just general</p> <p>17 business. At 70 years old I need a little bit of time</p> <p>18 off.</p> <p>19 Over the past 10 years I've really become very</p> <p>20 interested in one issue of why is it that wind turbines</p> <p>21 which don't produce high levels of audible noise as</p> <p>22 measured on a dBA scale generate so much complaints and</p> <p>23 why are we seeing symptoms such as dizziness, tinnitus,</p> <p>24 migraines, pressure, odd sensations that have nothing to</p> <p>25 do with audible sound? And so that's led me into the</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 133</p> <p>1 area of kind of going into detail into infrasound.</p> <p>2 Q. I think that's a good recap of your experience</p> <p>3 unless you want to add anything in addition to that that</p> <p>4 you think --</p> <p>5 A. Well, I was just going to add one thing. In 2009 I</p> <p>6 had an opportunity to use very high end acoustical</p> <p>7 equipment, and that was the first time we managed to</p> <p>8 measure the infrasound pulses from wind turbines.</p> <p>9 The measurement methods that I used were the same</p> <p>10 ones that the Shirley Wind study team used. And since</p> <p>11 then I have focused basically on that type of</p> <p>12 measurement, along with micro barometers.</p> <p>13 So I'll open it up for any of your questions,</p> <p>14 Mr. Reiss.</p> <p>15 Q. Thank you, Mr. James. Did you prepare prefiled</p> <p>16 testimony in this matter?</p> <p>17 A. Yes, I did.</p> <p>18 Q. And that prefiled testimony has been marked as</p> <p>19 Exhibit I-1. I understand you want to make a change to</p> <p>20 that testimony?</p> <p>21 A. Yes, I do.</p> <p>22 Q. And what change to the testimony do you want to</p> <p>23 make?</p> <p>24 A. This is on page 1, line 24. The question is, "what</p> <p>25 experiences have you had that qualify you as an and it</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 135</p> <p>1 in response to questions raised by PUC Staff?</p> <p>2 A. Yes, they are.</p> <p>3 Q. At least responses next to your name?</p> <p>4 A. Yes.</p> <p>5 Q. And if I were to ask you all of the questions that</p> <p>6 are included in your prefiled testimony, as well as those</p> <p>7 questions that the PUC Staff asked you, would you give</p> <p>8 the same answers today?</p> <p>9 A. Yes, I would.</p> <p>10 MR. ALMOND: At this time I'd move for the</p> <p>11 admission of Exhibit I-1 as well as exhibits I-1 A</p> <p>12 through F.</p> <p>13 MS. EDWARDS: No objection from Staff.</p> <p>14 MR. DE HUECK: I'll hear any objection from</p> <p>15 Prevailing Wind.</p> <p>16 MS. SMITH: No objection.</p> <p>17 MR. DE HUECK: So admitted, Mr. Almond.</p> <p>18 Q. Mr. James, were you listening in to the testimony</p> <p>19 from earlier this morning?</p> <p>20 A. I was able to hear parts of it.</p> <p>21 Q. And there was some discussion about the measurement</p> <p>22 of infrasound, how to do it, et cetera. Have you ever</p> <p>23 measured infrasound?</p> <p>24 A. Yes, I have.</p> <p>25 Q. And how far have you measured infrasound -- let me</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 134</p> <p>1 currently reads health expert in cases involving wind</p> <p>2 turbine noise."</p> <p>3 I would ask that the words "a health" be scratched</p> <p>4 out and be replaced with "an acoustical." So it would</p> <p>5 read what experiences have you had that qualify you as an</p> <p>6 acoustical expert in cases involving wind turbine noise.</p> <p>7 Q. Are there any other changes to your prefiled</p> <p>8 testimony that you'd like to make?</p> <p>9 A. None that are substantive.</p> <p>10 Q. And long with your prefiled testimony were there</p> <p>11 exhibits attached to that?</p> <p>12 A. Yes, there were. There were five exhibits.</p> <p>13 Q. I count six?</p> <p>14 A. Six. Excuse me.</p> <p>15 Q. And those have been marked as Exhibits 1-1 A through</p> <p>16 F.</p> <p>17 A. That's correct.</p> <p>18 Q. And during the course of this proceeding did you</p> <p>19 have an opportunity to respond to some questions raised</p> <p>20 by the PUC Staff via a data request?</p> <p>21 A. Yes, I did.</p> <p>22 Q. And I don't know if you have Exhibit I-34 in front</p> <p>23 of you.</p> <p>24 A. Yes, I do.</p> <p>25 Q. Okay. And are those the responses that you provided</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 136</p> <p>1 ask you a different question.</p> <p>2 Have you ever measured infrasound generated by a</p> <p>3 wind turbine?</p> <p>4 A. Yes, I have. Very specifically I understand turbine</p> <p>5 from a sound as contrasted to other types of infrasound</p> <p>6 from wind. Low frequency trucks, et cetera.</p> <p>7 Q. And in your -- how many times have you measured</p> <p>8 infrasound generated by wind turbines?</p> <p>9 A. I probably measured infrasound in over 50 homes</p> <p>10 ranging from projects here in the U.S., ridge top</p> <p>11 projects out west to -- in Oregon, New York,</p> <p>12 Massachusetts, Maine, West Virginia, Michigan, Wisconsin,</p> <p>13 Illinois. Pretty much almost all of the states.</p> <p>14 And those measurements are always inside a home</p> <p>15 because it is almost impossible to get an accurate</p> <p>16 infrasound measurement outside of a home.</p> <p>17 Q. And in your experience -- and I think a question was</p> <p>18 asked earlier, approximately how far infrasound from a</p> <p>19 wind turbine can travel, can you answer that question?</p> <p>20 A. Yes. And if you'd give me permission, I'd like to</p> <p>21 reference one of my exhibits, which gives a visual</p> <p>22 depiction, and that is -- I guess it would be my Exhibit</p> <p>23 5, which was three pages of densely annotated color</p> <p>24 charts.</p> <p>25 Q. And I think you're referring to what your Exhibit 6</p>

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<p>1 was which was Exhibit I-1 F. And it's a three-page</p> <p>2 exhibit with colorful graphs. Is that what you're</p> <p>3 referring to?</p> <p>4 A. That's what I'm referring to, yes. Colorful graphs.</p> <p>5 Q. Okay.</p> <p>6 A. Pictures.</p> <p>7 If we could look at page 3 of that exhibit, I'll</p> <p>8 explain it because I'm sure that it's not</p> <p>9 self-explanatory to most people.</p> <p>10 These two graphs, the top one and the bottom one,</p> <p>11 represent measurements using a micro barometer and that's</p> <p>12 an instrument designed specifically to measure infrasound</p> <p>13 that was left in a home. In both cases -- the one on top</p> <p>14 represents a home that's actually the same home that</p> <p>15 Mr. Hessler was talking about, R-1 from Shirley Wind,</p> <p>16 where the people living in it were very sensitive to the</p> <p>17 infrasound, and the top one shows a period of about, oh,</p> <p>18 let's say 12 hours or so from the left to the right.</p> <p>19 The bottom one is a home 4 miles away over much of</p> <p>20 the same period. If you look at the big circle with --</p> <p>21 the big white circle with the dashes, those two correlate</p> <p>22 to the same time period.</p> <p>23 What we're looking at in the top graph, you'll see</p> <p>24 these horizontal bands of light blue lines. Those are</p> <p>25 the spikes or the tones produced by the wind turbine</p>	<p>1 miles infrasound inside a home is measurable, and the</p> <p>2 occupant of that home, the reason we were there was</p> <p>3 reporting to the Brown County board of health that she</p> <p>4 was suffering headaches whenever the wind turbines</p> <p>5 operated.</p> <p>6 Now when I investigated the home I found that it was</p> <p>7 impossible to see the wind turbines from their home.</p> <p>8 They're actually down in a little valley with a hill</p> <p>9 separating them from the wind turbines so there wasn't</p> <p>10 even a line of sight.</p> <p>11 My point here is that people who say that wind</p> <p>12 turbine noise blends in with the background, infrasound</p> <p>13 or that it's not measurable beyond a short distance,</p> <p>14 really that's a result of them not having the right tools</p> <p>15 and not having the right analysis methods, properly</p> <p>16 analyzed a simple instrument like a micro barometer</p> <p>17 produces very clear graphs.</p> <p>18 And this has now become a norm within measuring wind</p> <p>19 turbine from a sound micro barometers are the preferred</p> <p>20 tool because of their simplicity and the durability of</p> <p>21 infrasound sonic microphone is very delicate, very</p> <p>22 expensive. A micro barometer is durable enough you can</p> <p>23 drive a truck over it if you need to.</p> <p>24 So that's my explanation for how far. And also to</p> <p>25 show just how clearly wind turbine from a sound can be</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 138</p> <p>1 blade as it passes in front of the tower, releasing the</p> <p>2 energy causing a pulse. And when we look at it over</p> <p>3 compressed into like a 12-hour window they begin to look</p> <p>4 like narrow bands. This is actually specific enough in</p> <p>5 this case you can see where the solid circle is on the</p> <p>6 top, you can see the waive. And that shows that the wind</p> <p>7 turbines that were being measured were changing in RPM.</p> <p>8 So we can trace -- using this kind of a method we</p> <p>9 can trace very specifically the sound from a wind turbine</p> <p>10 as contrasted to other sounds.</p> <p>11 If we look over at the right-hand side of that</p> <p>12 graph, just to the right of the white solid circle, we</p> <p>13 see a period where wind turbines aren't operating. And</p> <p>14 so the comparison between what's happening in the home</p> <p>15 when the wind turbines are operating within that dashed</p> <p>16 circle and then when they're not is dramatic. We see</p> <p>17 that there's no longer any tones. There's also a lot</p> <p>18 less scatter on the bottom, the red and yellow spikes</p> <p>19 along the bottom.</p> <p>20 We come down to the bottom graph, this shows a home</p> <p>21 for the same period of time roughly four miles away. And</p> <p>22 we can see within the dashed circle there that even at 4</p> <p>23 miles these horizontal bands which represent the wind</p> <p>24 turbine tones are still distinctive.</p> <p>25 So what this shows is that even at a distance of 4</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 140</p> <p>1 defined when properly measured.</p> <p>2 Q. And have you had the opportunity to review that</p> <p>3 German study that was attached to Dr. Roberts's Direct</p> <p>4 Testimony?</p> <p>5 A. Yes, I did.</p> <p>6 Q. That discussed the measurement of infrasound and</p> <p>7 seemed to suggest that infrasound dissipated at 700</p> <p>8 meters?</p> <p>9 A. Yes.</p> <p>10 Q. Do you have a response for that?</p> <p>11 A. Yes. And I believe this corresponds fairly well</p> <p>12 with what Mr. Hessler said this morning.</p> <p>13 When you have a microphone outside, any air movement</p> <p>14 over that microphone will generate what's called pseudo</p> <p>15 noise. It looks like noise but it's really just the air</p> <p>16 movement causing the microphone diagram to move. So it's</p> <p>17 not surprising that they were doing tests outside and</p> <p>18 couldn't find any difference between the wind turbines on</p> <p>19 or off because they weren't measuring -- they weren't</p> <p>20 measuring wind turbine infrasound. They weren't</p> <p>21 measuring ambient wind turbine sound or nonwind turbine</p> <p>22 sound. They were really just measuring the artifact of</p> <p>23 wind blowing over the microphone.</p> <p>24 This is a common mistake. I've seen it in</p> <p>25 Australian studies I've seen it in others. The other</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 141</p> <p>1 mistake in that report is that they started with the</p> <p>2 premise that unless the sound pressure levels were</p> <p>3 sufficient to be audible -- this is the threshold of</p> <p>4 audibility -- that they weren't of any significance.</p> <p>5 And what we have found in fact we've known since the</p> <p>6 1980s when Dr. Neal Kelly first did an experiment using</p> <p>7 pressure pulsations what we found is when the infrasound</p> <p>8 is pulsed, when it occurs as a whoomp whoomp whoomp</p> <p>9 although you feel it rather than hearing it, that the</p> <p>10 human vestibular system can pick that up.</p> <p>11 And the sensations when they're picked up, when</p> <p>12 people have that sensitivity -- we can get into</p> <p>13 Dr. Schomer's paper later that explains how that happens.</p> <p>14 But when the vestibular system is triggered the body</p> <p>15 tends to produce nausea. It's an impact caused by the</p> <p>16 eyes are giving a certain input. The body sensations</p> <p>17 don't pick up movement. But we have vestibular data</p> <p>18 saying something's moving.</p> <p>19 The end result of that is people get dizzy or they</p> <p>20 get nauseous or they have headaches.</p> <p>21 Q. Thank you, Mr. James.</p> <p>22 Q. Are you familiar with the Steven Cooper study that</p> <p>23 we've been discussing quite a bit this morning?</p> <p>24 A. Yes. I've worked with Steven Cooper since my first</p> <p>25 paper in 2010 demonstrating how to measure the infrasound</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 143</p> <p>1 feel it you can't hear it. I mean, if you can't hear it,</p> <p>2 you can't feel it.</p> <p>3 The problem here is Dr. Kelly moved him wrong four</p> <p>4 years after he made that statement. But that concept of</p> <p>5 that infrasound has to exceed the thresholds of</p> <p>6 audibility has been promoted very heavily through other</p> <p>7 acousticians who have picked up on it, not done the</p> <p>8 proper research and have repeated test after after test</p> <p>9 saying well I've tested wind turbines in Australia and</p> <p>10 they don't exceed the threshold of audibility so there</p> <p>11 can't be any problem.</p> <p>12 But there is a problem. In fact, the German paper</p> <p>13 you referenced earlier made an interesting comment. They</p> <p>14 said they noticed some tones it the very low frequent</p> <p>15 infrasound but those didn't matter. Actually those are</p> <p>16 the ones that matter. So that whole German paper and</p> <p>17 many of the others that are similar to it have</p> <p>18 consistently ignored the place where the problem is,</p> <p>19 looked at places where the problem is not and then</p> <p>20 concluded there is no problem, which whether for the</p> <p>21 purposes of pleasing a client or through improper</p> <p>22 research has led to the confusion we have.</p> <p>23 We know that -- we know that infrasonic pulses can</p> <p>24 be perceived. My home office where I'm sitting right now</p> <p>25 is on the flight path between Detroit and Lansing for</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 142</p> <p>1 sonic pulses. Steve modeled his study at Cape</p> <p>2 Bridgewater after the design that we used at Shirley and</p> <p>3 at other studies.</p> <p>4 I also helped him in his analysis of his data and</p> <p>5 I'm quite familiar with it.</p> <p>6 Q. And did you hear testimony from Mr. Hessler this</p> <p>7 morning that said once he saw this Cooper study it really</p> <p>8 linked up in his opinion the issue of infrasound and the</p> <p>9 complaints related there to? I guess can you just expand</p> <p>10 on that or comment on that and how that relates to</p> <p>11 everything you've just been talking to about infrasound?</p> <p>12 A. Okay. Yes. I can expand upon it.</p> <p>13 As I said back in the 1980s Dr. Neal Kelly working</p> <p>14 for the Department of energy and NASA did a study of</p> <p>15 early model wind turbines and the complaints of -- the</p> <p>16 similar complaints of dizziness, nausea, tinnitus,</p> <p>17 headaches, et cetera, and he concluded that it was from</p> <p>18 an infrasound sonic pulse caused by the blade passing in</p> <p>19 front of the tower.</p> <p>20 The wind industry was aware of that. It was</p> <p>21 presented at conferences but has chosen instead to argue</p> <p>22 and do so very effectively that unless the pressure</p> <p>23 pulses exceed the threshold of audibility that they can't</p> <p>24 be perceived. The source of that is an acoustician in</p> <p>25 Brittain called Dr. Jeff Leventhal who said if you can't</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 144</p> <p>1 helicopters. The Governor comes in and out of this area</p> <p>2 all the time. I can hear that helicopter coming thump</p> <p>3 thump thump of its blades long before it's audible.</p> <p>4 I've had many people who were combatants in either</p> <p>5 Vietnam or the Iraq wars who said they can also feel</p> <p>6 infrasound long before it's audible. With people --</p> <p>7 I wrote a paper in 2012 often sick building</p> <p>8 syndrome, the other evidence, when people are in large</p> <p>9 buildings and the large high-rise buildings, knowledge</p> <p>10 worker high-rise offices, if the fan is a little bit out</p> <p>11 of balance, it causes a pulse and people begin to make</p> <p>12 the same complaints.</p> <p>13 Acousticians who have dealt with these low frequency</p> <p>14 problems over the years have no problem understanding why</p> <p>15 people in homes in wind projects are having complaints.</p> <p>16 It's the acousticians who have not dealt with that who</p> <p>17 seem to be causing the confusion.</p> <p>18 Q. Thank you, Mr. James. I want to switch topics now</p> <p>19 away from infrasound and focus -- talk a little bit more</p> <p>20 on your prefiled testimony, page 3 and the ANSI standard</p> <p>21 ASA S 12.9 and this notion of modeling the community's</p> <p>22 response to a new project.</p> <p>23 And I think we heard some testimony earlier from</p> <p>24 Mr. Hessler so if you could just explain how that concept</p> <p>25 ties into this project.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 145</p> <p>1 A. Well, there are standards that we follow as 2 acoustical professionals to try to guide our work. One 3 of them is the standard ANSI ASA -- I'm reading line 69 4 of page 3, S 12.9 part 4, noise assessment and prediction 5 of long-term community response. 6 This is a standard designed, for example, when I was 7 designing noise for new automotive plants that I would 8 refer to as a way to determine what would be the type of 9 levels that would be acceptable. 10 That standard includes a caution in part 4 of 11 appendix F that says F 3.4.4 "in newly created situations 12 especially when the community not familiar with the sound 13 source in question higher community annoyance can be 14 expected and that difference is worth up to 5 dB." 15 Also if there's in quiet rural communities there's a 16 greater expectation for piece and quiet worth 10 17 decibels. And if you take the two factors and for a 18 project like Prevailing Winds both would apply what this 19 is saying is that guidelines that would be compatible in 20 the Suburban environment for example 45 dBA need to be 21 reduced either by 10 or 5 dB to result in the same level 22 of annoyance for a quiet rural environment. 23 And it's this part of -- it's this part of our 24 professional standards that seem to be routinely ignored 25 by people like Mr. Howell. We can't quibble -- we can't</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 147</p> <p>1 Q. And what are the -- what's your opinion in terms of 2 this area and the ambient measurements of the area? 3 A. Well, I looked at the table that Mr. Howell 4 presented. I know he summarizes it as ranging from 21 to 5 45 dB. And the only columns on those that are of 6 significance for background sound are those labeled L90, 7 the 90th percentile. The LEQs are of little use for 8 anticipating annoyance. But he says the range is 21 to 9 45. 10 Well, 45 dB is an outlier. There's no way that a 11 normal, rural community background sound would be that 12 high. But if we look at the table for trends we can see 13 that even at 10 o'clock in the morning, 5 o'clock in the 14 afternoon, and at midnight the sound levels in most of 15 those measurement sites were between 22 dB and maybe 28, 16 29 dBA. And that's what I find in rural communities. 17 The other thing is that that includes the sound of 18 normal wind. Not high winds. And then I heard 19 Mr. Hessler this morning talking about wind noise masking 20 wind turbines. That's not the time when people have 21 their complaints. They complain about it when it's a 22 quiet night, no wind at the ground and the wind turbines 23 overhead are whooshing away. 24 So this background sound level issue is critical. 25 We know that if -- we know that if the project was</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 146</p> <p>1 equate annoyance potential for a community that is rural, 2 residential to one that is more adjusted to noise. If 3 people come to the wind turbine project, then they have 4 no expectation of quiet. But they move there with the 5 expectation of peace and quiet. The project's coming to 6 them. Therefore, the burden should be on the project 7 developer to not increase annoyance. 8 And levels of 40, 45 dBA, as I show in my testimony 9 with the Health Canada will result in about one out of 10 every 10 people -- one out of every 15 people people 11 being highly annoyed. And highly annoyed means they're 12 annoyed enough that over a long-term we have health 13 effects, whether the annoyance is due to sleep or due to 14 dizziness or nausea, whatever the high annoyance may be, 15 the result is that over periods of weeks or months it 16 leads to deteriorating health. 17 And that's what this whole section of ANSI is trying 18 to avoid. When you have people whose live style is for 19 quiet -- they sleep with their windows open. They enjoy 20 the outdoors, then a new noise source that may have been 21 more than acceptable in an urban environment or Suburban 22 environment becomes a serious source of complaints. 23 Q. And have you seen the ambient measurements taken for 24 this project area? 25 A. Yes, I have.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 148</p> <p>1 designed to not increase that level significantly then 2 we'd have few complaints but we see a project here that 3 looks like it's going to raise the levels anywhere from 4 10 dB or higher at many of these homes and that is -- 5 that is just a prescription for complaints once the 6 project is permitted and operating. There will be 7 complaints. 8 Q. And just to be fair, you've never been to the 9 project area, have you? 10 A. No, I haven't but I've been to many similar projects 11 in Iowa, Illinois, Indiana. All over the -- principally 12 east of the Mississippi. But I've also been involved in 13 projects out in Oregon. And in many of these cases 14 because they were parts of formal proceedings I was privy 15 to the data that the opposing parties' acousticians had 16 taken and able to re-analyze it. 17 And based upon what I have seen in those studies and 18 what I can see about Prevailing Winds, I think I have a 19 reasonably good understanding of the Prevailing Wind 20 project. 21 Q. And you said there was no way that one measurement 22 was 45 -- and to be fair to Mr. Howell you don't know 23 exactly what was there next to that measuring tool. 24 There could have been a grain elevator or something like 25 that. But you're exaggerating when you say no way;</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 149</p> <p>1 right?</p> <p>2 A. Well, no way that that's a background sound. A</p> <p>3 truck could have driven by that had a bad muffler. When</p> <p>4 we're taking averages with a sound level meter a single</p> <p>5 loud noise has a very significant impact.</p> <p>6 So let's say the sound level was 30 and a truck</p> <p>7 drives by at 55 but it's only there for a minute, that</p> <p>8 could easily give you a 45 average over the limit or an L</p> <p>9 90 could mean that they parked the truck and was there</p> <p>10 for the full 90 percent of the time.</p> <p>11 Either way a 45 dBA sound level at -- in a rural</p> <p>12 community means that something not related to the</p> <p>13 background sounds -- background sounds are those things</p> <p>14 you hear from a distance they're not the things up close.</p> <p>15 They're when you walk outside at night you can hear</p> <p>16 the barking dog in your neighbor's farm a quarter mile or</p> <p>17 a half-mile away. Those sounds that you hear are the</p> <p>18 background sound and that's what our auditory system uses</p> <p>19 as the basis for assessing annoyance. It's always</p> <p>20 comparing the sound it's hearing to those quiet periods.</p> <p>21 And that's why when you put a noise source into a quiet</p> <p>22 community you can expect complaints.</p> <p>23 Q. And the question was raised earlier about whether or</p> <p>24 not once a noise source is introduced to a quiet area if</p> <p>25 the area will just get used to that noise source. Can</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 151</p> <p>1 infrasound is very small? Did you hear that testimony?</p> <p>2 A. Yes. Yes, I did.</p> <p>3 Q. Do you want to respond to that?</p> <p>4 A. Well, many of the projects that I've studied are</p> <p>5 projects that Mr. Hessler and his father developed. And</p> <p>6 while he may not be aware that complaints occurred, I am</p> <p>7 constantly in contact, usually as the recipient of</p> <p>8 e-mails saying here's another day when I couldn't take</p> <p>9 it.</p> <p>10 What happens in the communities -- in the Wisconsin</p> <p>11 communities in the middle of the state have had wind</p> <p>12 projects now for almost 10 years. A, the complaints have</p> <p>13 not stopped. B, the complaints have increased. And, C,</p> <p>14 the reason why nobody does anything about it is once a</p> <p>15 project is permitted no one has the funds to contest it.</p> <p>16 In Brown County, for example, they declared a 2 and</p> <p>17 a half mile radius around Shirley Wind as a human health</p> <p>18 hazard. That's a Wisconsin legal definition for an area</p> <p>19 that has a problem and they want to notify the public.</p> <p>20 When the operator of Shirley Wind was asked to</p> <p>21 respond to that they just denied that there was any</p> <p>22 problem. That denial has gone on now for almost eight</p> <p>23 years leaving the Brown County board of health having</p> <p>24 monthly meetings on noise and concluding that even the</p> <p>25 city of Green Bay and the town of -- the County of Brown</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 150</p> <p>1 you respond or answer that question?</p> <p>2 A. Yeah. I can respond to that. I'll first respond</p> <p>3 with a study that was done in Britain back in the 2000s</p> <p>4 in which they found that given time, complaints don't</p> <p>5 decrease. They increase. Or the people become so</p> <p>6 resolved to the fact that no one will listen to their</p> <p>7 complaints that they what I say suffer in silence. Or</p> <p>8 they abandon their homes.</p> <p>9 Ontario where there are many projects designed to</p> <p>10 meet a 40 dBA criteria now have abandoned homes all over</p> <p>11 the rural communities because people have just left them.</p> <p>12 Or they were elderly and when they passed away the family</p> <p>13 just left them to deteriorate.</p> <p>14 Having the experience of dealing with people who are</p> <p>15 the -- who are living in wind projects and who find</p> <p>16 something objectionable, I call them the complainant, has</p> <p>17 made me really sensitive to how the ANSI standards about</p> <p>18 expectation of peace and quiet come into play. And so --</p> <p>19 I'll see if that answered your question.</p> <p>20 Q. Thank you, Mr. James.</p> <p>21 Were you listening in when Mr. Hessler opined on the</p> <p>22 number of people who have complained about infrasound or</p> <p>23 complained about the symptoms that they believe were</p> <p>24 caused by infrasound and that he believes that the number</p> <p>25 of people who -- you know, who have that sensitivity to</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 152</p> <p>1 do not have the funds to pursue a lawsuit against the</p> <p>2 utility.</p> <p>3 So what answer is there? The answer is it needs to</p> <p>4 be done right the first time. Once that project is</p> <p>5 permitted, if the complaints occur, there is no solution</p> <p>6 that is economically viable, and the I am balancing of</p> <p>7 funding between the operators and the local communities</p> <p>8 or for that matter a complainant trying to file a lawsuit</p> <p>9 is so unbalanced that there will be very little chance of</p> <p>10 success.</p> <p>11 Get it right the first time or you live with it</p> <p>12 forever.</p> <p>13 Q. And have you seen how the Applicant wants this</p> <p>14 project to be measured in order to comply with a 45 dBA</p> <p>15 limitation? Have you seen that?</p> <p>16 A. I don't know if I remember. I heard Mr. Hessler</p> <p>17 talking this morning about several weeks worth of</p> <p>18 measurement and an average level or something like that.</p> <p>19 Q. Yeah. The measurement is over a two week level.</p> <p>20 A. Yes. That completely misses the point annoyance.</p> <p>21 Is not about a long-term average --</p> <p>22 MS. SMITH: I'm going to object. I'm not sure</p> <p>23 what the witness has seen what is being asked. And I</p> <p>24 would also say is going far beyond the scope of the</p> <p>25 Direct Testimony.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 153</p> <p>1 MR. DE HUECK: I was thinking the same thing,</p> <p>2 that we're having new Direct Testimony introduced on</p> <p>3 today's date. Though I appreciate you fleshing out some</p> <p>4 of the unanswered questions just as the Applicant does</p> <p>5 when they call a witness as well. This one just talks a</p> <p>6 lot more.</p> <p>7 So just keep in mind that we don't need new</p> <p>8 filed testimony today orally. And, additionally, if you</p> <p>9 could clarify how sound will be measured for this project</p> <p>10 before we go any farther.</p> <p>11 Q. Do you have access to Exhibit A 33, the PUC's web</p> <p>12 portal in front of you?</p> <p>13 A. I will pull it up here. Prefiled exhibits. It's</p> <p>14 A --</p> <p>15 Q. 33. It's proposed condition --</p> <p>16 A. A 33. Okay. Proposed conditions.</p> <p>17 Q. Yep. Number 27. If you could read that quickly,</p> <p>18 please.</p> <p>19 A. Okay. That was basically what I understood.</p> <p>20 Q. And if you could explain whether you believe that's</p> <p>21 an appropriate way to measure any limitation on noise and</p> <p>22 why or why not.</p> <p>23 A. That is not an appropriate way to measure wind</p> <p>24 turbine noise. The reason being that if you measure over</p> <p>25 a period of at least two weeks the average level will</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 155</p> <p>1 A whoosh when you describe it means that there is a</p> <p>2 sound that rises and then falls. What we should be</p> <p>3 trying to do is eliminate that whooshing sound by</p> <p>4 controlling how much it can rise. And in our Michigan</p> <p>5 cases which I think Dr. Punch referenced we said 45 dBA.</p> <p>6 Q. I think you've answered the question.</p> <p>7 And I've got to push back on you here a little bit</p> <p>8 because if you read Condition No. 27, it actually I think</p> <p>9 calls to not take into account when the wind turbines are</p> <p>10 operational.</p> <p>11 If you can look at line 4.</p> <p>12 A. Yes, it does. But wind turbines operate over a</p> <p>13 broad range.</p> <p>14 Mr. Hessler, for example, in his Narooft (check)</p> <p>15 document said that measurements will be plus or minus 5</p> <p>16 dB around the predicted mean. So there will be periods</p> <p>17 during that two weeks where that wind turbine -- let's</p> <p>18 say it was 40 -- is running at 35, and there will be</p> <p>19 periods where it's running at 45. And the complaint</p> <p>20 times are when it's running at 45, not the average over</p> <p>21 those times.</p> <p>22 If we were going to use an Leq or an average as a</p> <p>23 criteria, it should be a short-term average, a 10 minute</p> <p>24 average, because anything else is not looking at the</p> <p>25 characteristic we're trying to control, which is the</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 154</p> <p>1 always be low because there's periods when the wind</p> <p>2 turbines don't operate.</p> <p>3 And the condition that we're trying -- or the</p> <p>4 characteristic of wind turbines that cause annoyance have</p> <p>5 nothing to do with the long-term average. They have to</p> <p>6 do with short-term fluctuations. If for example we did a</p> <p>7 long-term average and it came out to 40 dBA Leq but we</p> <p>8 then looked at how the sound fluctuated around that, we</p> <p>9 would see that there were periods when it might have been</p> <p>10 55, periods where it might have been 35. It's these</p> <p>11 fluctuations above and below the average that cause the</p> <p>12 annoyance, cause sleep disturbance and are the root of</p> <p>13 the complaints.</p> <p>14 So using a long-term measurement as a criteria is</p> <p>15 essentially an open door to the project creating</p> <p>16 annoyance and there being no method whatsoever then to</p> <p>17 ask for mitigation because over a two-week period it will</p> <p>18 always average less than 45, particularly if we're</p> <p>19 looking at a project that was designed where we now say</p> <p>20 the maximum levels are 42, let's say dBA Leq.</p> <p>21 It's the fluctuation that is important, and that's</p> <p>22 why in my testimony I referenced the use of Lmax or an</p> <p>23 L10 or some other measurement that looks at the peaks.</p> <p>24 When someone describes a wind turbine -- and Mr. Howell</p> <p>25 did -- a whooshing sound.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 156</p> <p>1 fluctuating low frequency noise.</p> <p>2 MR. ALMOND: Thank you, Mr. James. I don't have</p> <p>3 anymore direct for you. We will turn this witness over</p> <p>4 for cross.</p> <p>5 MR. DE HUECK: Mr. James, I'm now going to turn</p> <p>6 you over for cross-examination, and we'll begin with the</p> <p>7 Applicant, Prevailing Winds.</p> <p>8 THE WITNESS: Okay.</p> <p>9 MR. DE HUECK: We're just going to move our</p> <p>10 video camera over to the attorney who will be questioning</p> <p>11 you.</p> <p>12 (The camera is adjusted.)</p> <p>13 THE WITNESS: I have no audio on this end.</p> <p>14 MS. SMITH: I think we're all just very quiet</p> <p>15 Mr. Hessler -- or Mr. James. I apologize.</p> <p>16 <u>CROSS-EXAMINATION</u></p> <p>17 <u>BY MS. SMITH:</u></p> <p>18 Q. Mr. James, my name is Mollie Smith. You will see</p> <p>19 me. I'm raising my hand, if you can see me. I'm over</p> <p>20 here.</p> <p>21 Do you have anyone in the room with you?</p> <p>22 A. No, I don't.</p> <p>23 Q. And do you have any documents in front of you other</p> <p>24 than your filed exhibits or the filed exhibits in this</p> <p>25 case?</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 157</p> <p>1 A. No, I do not.</p> <p>2 Q. You haven't conducted any acoustic modeling related</p> <p>3 to the Prevailing Winds project; is that correct?</p> <p>4 A. No, I have not.</p> <p>5 Q. And I would -- that was not part of the scope of</p> <p>6 your work why you were retained?</p> <p>7 A. No, it was not.</p> <p>8 Q. And you also did not conduct any analysis of</p> <p>9 existing sound levels at the project site; is that</p> <p>10 correct?</p> <p>11 A. That is correct. I relied upon the information from</p> <p>12 Mr. Howell.</p> <p>13 Q. And you did not conduct any site specific surveys of</p> <p>14 either low frequency or infrasound for the project area.</p> <p>15 Is that also correct?</p> <p>16 A. I relied upon the information from Mr. Howell's</p> <p>17 reports.</p> <p>18 Q. In your testimony you indicate that the purpose of</p> <p>19 your testimony is to provide your opinion regarding</p> <p>20 appropriate thresholds for audible and inaudible wind</p> <p>21 turbine sound at nonparticipating properties; is that</p> <p>22 correct?</p> <p>23 A. That would be fair to say, yes.</p> <p>24 Q. So given, as you just noted that you didn't conduct</p> <p>25 any site-specific studies, you're relying solely on the</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 159</p> <p>1 they live near a neighbor who wishes to host wind</p> <p>2 turbines. This position influences my response to this</p> <p>3 question."</p> <p>4 There's no citation here for any source to support</p> <p>5 that statement, is there?</p> <p>6 A. Just my belief that I've grown up in the</p> <p>7 United States where property rights are protected by the</p> <p>8 government.</p> <p>9 Q. So that's your personal opinion?</p> <p>10 A. I think that's personal and legal.</p> <p>11 Q. You're not testifying as a medical expert, is that</p> <p>12 true?</p> <p>13 A. That's correct.</p> <p>14 Q. And you're not a licensed physician. Is that also</p> <p>15 correct?</p> <p>16 A. That would be obvious, yes.</p> <p>17 Q. And you are not testifying as an economics expert.</p> <p>18 Is that also true?</p> <p>19 A. That's correct.</p> <p>20 Q. And you're not testifying as a psychology expert.</p> <p>21 Is that also true?</p> <p>22 A. Only to the extent that acousticians are cross</p> <p>23 trained in both health and psychology because otherwise</p> <p>24 when you investigate complaints you are hampered.</p> <p>25 I have 45 years of investing complaints, and I've</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 158</p> <p>1 information that's either provided by others in this</p> <p>2 Docket -- you're not relying on your own data for the</p> <p>3 project; correct?</p> <p>4 A. As I explained earlier, I have studied many projects</p> <p>5 similar conditions with similar wind turbines, and I</p> <p>6 relied upon that plus Mr. Howell's data.</p> <p>7 Q. Okay. In your testimony you indicate that you</p> <p>8 believe the noise limit should be imposed at the property</p> <p>9 line; is that correct?</p> <p>10 A. That's correct. The reason for that is so that</p> <p>11 the --</p> <p>12 Q. You did not cite -- excuse me.</p> <p>13 You didn't cite any specific data to support that,</p> <p>14 did you, in your testimony? Did you cite any specific</p> <p>15 data in your testimony to support that statement?</p> <p>16 A. I stated that -- yes, I did, in my testimony.</p> <p>17 Q. Can we go to your testimony, please.</p> <p>18 MR. ALMOND: Can the witness be allowed to</p> <p>19 answer the questions without being interrupted.</p> <p>20 MR. DE HUECK: Everything's fine as is.</p> <p>21 A. Page 6, line 174?</p> <p>22 Q. Yes. And so I'm looking at the first lines -- 175</p> <p>23 through 177. It says "I am a strong supporter of</p> <p>24 property rights and believe that noise that exceeds known</p> <p>25 safe levels should not be imposed on people just because</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 160</p> <p>1 learned a lot about people and psychology that would not</p> <p>2 be tossed in a court. So, yes, I have some background,</p> <p>3 but it's experience.</p> <p>4 Q. It's experience. You're not a licensed</p> <p>5 psychologist?</p> <p>6 A. That's right.</p> <p>7 Q. And yet in your testimony you provide statements</p> <p>8 regarding health effects from wind turbines. Is that</p> <p>9 true?</p> <p>10 A. That is correct. Because as an acoustician I've</p> <p>11 been trained to read medical journals to interpret them</p> <p>12 for my purposes.</p> <p>13 Q. Object. I didn't ask -- you offered health effects</p> <p>14 testimony in your written testimony; is that true?</p> <p>15 A. Only those within the scope of my profession.</p> <p>16 Q. Are your opinions based on complaints that you have</p> <p>17 heard from people?</p> <p>18 A. My opinions are based upon complaints and my own</p> <p>19 personal experiences.</p> <p>20 Q. And again, you're not a medical doctor; is that</p> <p>21 true?</p> <p>22 A. That's true. But I don't see the relevance to your</p> <p>23 question.</p> <p>24 Q. So you have not conducted a medical examination on</p> <p>25 any of the people that have provided complaints to you;</p>

ROUGH DRAFT -- DO NO QUOTE! 161	ROUGH DRAFT -- DO NO QUOTE! 163
<p>1 is that also a fair statement?</p> <p>2 A. No. But I've reviewed the medical records that the</p> <p>3 doctors provided.</p> <p>4 Q. I only asked you if you --</p> <p>5 Did you rely on other people's work for this as</p> <p>6 well, other people's studies for your opinions?</p> <p>7 A. Yes. The reports from medical doctors who have</p> <p>8 examined my clients.</p> <p>9 Q. Would you agree that anyone who is relying on other</p> <p>10 people's work that the -- what they're relying on has to</p> <p>11 also be credible?</p> <p>12 A. That is true. But that's the -- that's the purpose</p> <p>13 of an expert to make that decision --</p> <p>14 Q. I'm just going to ask you, Mr. James, if you can</p> <p>15 just answer my question because I don't -- you'll have</p> <p>16 your opportunity to elaborate if your counsel so chooses</p> <p>17 to ask you additional questions.</p> <p>18 You provided some exhibits with your testimony; is</p> <p>19 that correct?</p> <p>20 A. That is correct.</p> <p>21 Q. And I believe -- and I may have not the same</p> <p>22 numbering so I will try to look at the versions that are</p> <p>23 online. Mine are sort of 5 and 6 to your testimony,</p> <p>24 which may be -- I'll see if I can find yours.</p> <p>25 So I think it is listed as maybe I 1 E and I 1 F.</p>	<p>1 A. Indirectly it does.</p> <p>2 Q. It does not directly address health effects, does</p> <p>3 it?</p> <p>4 A. The recommendation from Dr. Schomer included the</p> <p>5 consideration of health effects. He mentions the Health</p> <p>6 Canada Study, which is about health effects --</p> <p>7 Q. Does this paper itself address health effects? Not</p> <p>8 the citations? Does the paper itself address health</p> <p>9 effects? Do they offer any opinions on health effects in</p> <p>10 this document?</p> <p>11 A. Without having to read it very carefully, I'll say</p> <p>12 it was not directly about health effects. It was about</p> <p>13 the criteria needed to prevent them.</p> <p>14 Q. If we look then at the noise wind farms article so</p> <p>15 that would be 2 or B to your --</p> <p>16 A. Okay.</p> <p>17 Q. If you could turn to the last page in that article.</p> <p>18 And I -- hold on. I think it would be actually page 13.</p> <p>19 A. Yes.</p> <p>20 Q. Make sure I'm looking at the correct one here.</p> <p>21 So if we look under conclusions at the -- I'm going</p> <p>22 to read the last sentence of the first paragraph under</p> <p>23 the conclusion. It says, "Unfortunately then for</p> <p>24 policymakers there appears to be no proportional</p> <p>25 relationship between wind turbine noise levels and health</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 162</p> <p>1 It may also be 5 and 6 on yours. I have two different</p> <p>2 labels.</p> <p>3 A. Okay. Just give me the titles. I'll be able to go</p> <p>4 from there.</p> <p>5 Q. Let's see here.</p> <p>6 So I believe that 5 -- what I'm looking at is -- one</p> <p>7 was one that you referenced previously with the colored</p> <p>8 charts, so I think that was the last exhibit to your</p> <p>9 testimony.</p> <p>10 A. Okay.</p> <p>11 Q. Then the one right before that one, which also has a</p> <p>12 wind turbine and a chart.</p> <p>13 A. Those are the two you're looking at now?</p> <p>14 Q. Yes.</p> <p>15 A. Okay.</p> <p>16 Q. Neither of those exhibits address health effects; is</p> <p>17 that correct?</p> <p>18 A. They explain the --</p> <p>19 Q. Do they address health effects?</p> <p>20 A. No, they're not on health effects. No, they're not.</p> <p>21 Q. Okay. Thank you. And if you look back one exhibit,</p> <p>22 so that would be 3 or D, I believe -- so this is a</p> <p>23 possible criterion for wind farms.</p> <p>24 A. Okay.</p> <p>25 Q. That also does not address health effects, does it?</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 164</p> <p>1 as these outcome factors will be influenced by</p> <p>2 characteristics associated with both the noise and the</p> <p>3 listener."</p> <p>4 Is that accurate?</p> <p>5 A. That is an accurate way of stating a complex set of</p> <p>6 relationships, not just --</p> <p>7 Q. I'm just asking if that is an accurate recitation of</p> <p>8 the statement in the article.</p> <p>9 A. It can't be answered yes or no.</p> <p>10 Q. Are those the words on the page?</p> <p>11 A. Those are the words on the page, yes.</p> <p>12 Q. And if you'll turn then to Exhibit 4, this may also</p> <p>13 be D. This is called a theory to explain some</p> <p>14 physiological effects of the infrasonic emissions at some</p> <p>15 wind farm sites.</p> <p>16 A. Okay. I'm going to that now.</p> <p>17 Q. And if you'll look at pages 1,364 I think it is,</p> <p>18 Section 6, it says, "Additional research and data</p> <p>19 collection recommendations."</p> <p>20 A. Okay.</p> <p>21 Q. If you look under that it says, "research to date</p> <p>22 does not tend to just study the effects on humans</p> <p>23 reported anecdotally in what is probably a minority of</p> <p>24 wind farms."</p> <p>25 Is that an accurate statement?</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 165</p> <p>1 A. I think Dr. Schomer believed that at the time he</p> <p>2 wrote the paper. Since then he's seen Steve Cooper's --</p> <p>3 Q. I'm just asking about the --</p> <p>4 (Discussion off the record.)</p> <p>5 MS. SMITH: Mr. de Hueck, for Cheri's sake and</p> <p>6 mine, could you direct the witness to please answer my</p> <p>7 questions.</p> <p>8 MR. DE HUECK: Yes.</p> <p>9 Mr. James, I know you want to elaborate on every</p> <p>10 single question that's asked of you, but in order for our</p> <p>11 court reporter to adequately capture this, we can't talk</p> <p>12 over each other. And I believe Ms. Smith would just like</p> <p>13 you to specifically answer her questions as asked.</p> <p>14 Thank you.</p> <p>15 THE WITNESS: Okay.</p> <p>16 Q. Mr. James, in that section under additional research</p> <p>17 and data collection recommendations they're actually</p> <p>18 making recommendations for additional research to do</p> <p>19 regarding reports; is that correct?</p> <p>20 A. That is correct.</p> <p>21 Q. And they provide even a test case in their Appendix</p> <p>22 A; is that true?</p> <p>23 A. That is correct.</p> <p>24 Q. Mr. James, you've been retained as an expert witness</p> <p>25 in other proceedings; is that correct?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 167</p> <p>1 it.</p> <p>2 Q. Can you turn to page 11 of the case.</p> <p>3 A. I assume these are numbered sequentially?</p> <p>4 Q. Yes. I believe it's in the lower right-hand corner</p> <p>5 that you'll see the number.</p> <p>6 A. Yes.</p> <p>7 Q. And if you'll look at the very last two sentences of</p> <p>8 the page -- so the initial -- you'll see a 13. It says</p> <p>9 James. And that James, is that you that it's reference?</p> <p>10 A. Yes, it is. Yes.</p> <p>11 Q. I'll read the bottom. It says, "He has a long</p> <p>12 career studying the noise and sound pressure produced by</p> <p>13 industrial wind turbines. However, he is not a doctor or</p> <p>14 epidemiologist. As a result, he does not have the</p> <p>15 training to opine that the infrasound and audible noise</p> <p>16 created by wind turbines activates physiological</p> <p>17 mechanisms in the body which produce adverse health</p> <p>18 effects."</p> <p>19 Do you see that language?</p> <p>20 A. Yes, I do.</p> <p>21 Q. And we were discussing the information that had been</p> <p>22 submitted. The Court also noted that the documentation</p> <p>23 that you were relying on for your opinions was also not</p> <p>24 credible; is that true?</p> <p>25 A. I don't -- I don't remember that specifically. Can</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 166</p> <p>1 A. That is correct.</p> <p>2 Q. I believe you mentioned that you participated in a</p> <p>3 case in Oregon; is that true?</p> <p>4 A. That's correct.</p> <p>5 Q. So would that be Williams versus Invenergy, LLC?</p> <p>6 A. That is correct.</p> <p>7 Q. I'm going to -- Ms. Agrimonti is going to send</p> <p>8 you -- and maybe we can hand this out too.</p> <p>9 Give us just a second, Mr. James. We're just</p> <p>10 handing out -- and Ms. Agrimonti is sending to you what</p> <p>11 I'm referencing as Exhibit A 36.</p> <p>12 And, Mr. James, if you can let me know when you</p> <p>13 receive it.</p> <p>14 A. I have it up in front of me.</p> <p>15 Q. Okay. And this is an Opinion and Order from United</p> <p>16 States District Court, District of Oregon case; is that</p> <p>17 true?</p> <p>18 A. That is correct.</p> <p>19 Q. From 2016?</p> <p>20 A. That is correct.</p> <p>21 Q. In this case were you excluded from testifying</p> <p>22 regarding the causal health effects from wind turbines?</p> <p>23 A. I was excluded from testifying to the cause and</p> <p>24 effect of wind turbines only to the extent of not having</p> <p>25 supporting literature because we weren't able to submit</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 168</p> <p>1 you point to that?</p> <p>2 Q. Certainly. So if we look first at -- let's stay on</p> <p>3 the same page. I believe you had referenced in your</p> <p>4 earlier testimony a Dr. Kelly; is that true?</p> <p>5 A. That's right. I referred to him earlier in my</p> <p>6 testimony today, Dr. Neal Kelly.</p> <p>7 Q. And so if we look down at the bottom of page 11 over</p> <p>8 on the left-hand column towards -- at the very bottom,</p> <p>9 the bottom paragraph, it says, "However, like James's</p> <p>10 other sources, the Kelly study has significant scientific</p> <p>11 shortcomings. First, Kelly takes data from only seven</p> <p>12 subjects. He admits that the experiment would have to be</p> <p>13 repeated with a much larger number of evaluators</p> <p>14 population to confirm his results as scientific</p> <p>15 knowledge. Moreover, there's no evidence that Kelly's</p> <p>16 study was published in a reputable scientific journal or</p> <p>17 that it was subject to any manner of peer review."</p> <p>18 And I'll skip down to the last sentence. "The study</p> <p>19 does not support the proposition that wind turbine</p> <p>20 infrasound is capable of producing broader adverse health</p> <p>21 effects, including anxiety, panic attacks, and</p> <p>22 sleeplessness."</p> <p>23 Is that accurate?</p> <p>24 A. That's what it says.</p> <p>25 Q. And if you'll turn back to the prior page, there's a</p>

1 reference to the Cape Bridgewater study as well. And I
 2 believe that's on page 10. Do you see that?
 3 A. That is correct. Yes.
 4 Q. If you look at page 9, it also addresses the Cape
 5 Bridgewater study and Mr. Schomer's review of the Cape
 6 Bridgewater study on pages 8 and 9. Do you agree?
 7 A. I agree there's that -- they're talking about it but
 8 what are you pointing to?
 9 Q. If you look at the bottom of page 8, it says "The
 10 Court agrees with defendants that the Schomer documents
 11 do not represent reliable scientific knowledge which
 12 James may use as a foundation for his expert
 13 conclusions."
 14 Is that accurate? It's at the bottom of page 8.
 15 MR. ALMOND: Objection. Vague. Are you asking
 16 if it's -- the statement's accurate, or you're accurately
 17 reading the statement or --
 18 MS. SMITH: Yes. I apologize. I should be
 19 clearer.
 20 Q. Am I accurately reading the statement on the bottom
 21 of page 8?
 22 A. You're accurately reading it. I don't agree with
 23 the Court's agreement, but that's fine. Dr. Schomer is
 24 the Emeritus Director of the Acoustical Society of --
 25 Q. I think that's all. I just needed to know if I read

1 it correctly.
 2 Mr. James, have you been excluded or had your
 3 testimony in part excluded in any other cases?
 4 A. Not in any significant manner other than issues
 5 where it treads into medical.
 6 Q. So any -- would it be fair to say that you have been
 7 disqualified as an expert from testifying regarding
 8 health effects?
 9 A. Only those that are medical. Not health effects
 10 that are visually confirmable.
 11 Acousticians have to be able to listen to the
 12 complaints --
 13 Q. I'm just going to stop you there.
 14 MS. SMITH: And I would say that at this point I
 15 would move to strike any testimony by Mr. James regarding
 16 health effects attributable to wind turbines.
 17 MR. DE HUECK: I'll allow Mr. Almond to respond
 18 and Staff if you so wish.
 19 MR. ALMOND: Yeah. In Mr. James's Direct
 20 Testimony, written Direct Testimony, he discusses an
 21 acoustician's responsibility to be aware of vague health
 22 effects -- the general health effects caused by certain
 23 wind turbines, facilities, et cetera when looking at
 24 projects.
 25 Specifically he talks about -- I mean, it's all

1 throughout his background in his prefiled testimony.
 2 Certainly he can't make any medical diagnosis. He's not
 3 doing so here. I don't think he's given the opinion that
 4 he's making any diagnoses or anything like that.
 5 So I'd need to know exactly what opinion it is
 6 or what statement Mr. James has made that Ms. Smith is
 7 looking to strike, I guess.
 8 MS. SMITH: Mr. James is making assertions of a
 9 causal relationship between wind turbines and health
 10 effects. He is not qualified to do so. He is not --
 11 As his own testimony, he is not a medical
 12 doctor. He's not an epidemiologist. He's not a
 13 psychologist. There's no basis for him. The literature
 14 he's relying on is not supportive of that either, as
 15 we're seeing. He doesn't have any basis to make those
 16 statements.
 17 MR. DE HUECK: Go ahead, Staff.
 18 MS. EDWARDS: As much as I would like to speed
 19 it along, I would argue it goes to weight, not
 20 admissibility, and it's an issue that's -- I would intend
 21 to brief in my prehearing brief -- posthearing.
 22 MR. DE HUECK: Just in terms of Mr. Fuerniss
 23 Mr. Jenkins and Ms. Pazour, I'm assuming you're in
 24 agreement with Mr. Almond?
 25 Ms. Smith, I'm going to agree with you. He

1 should not be testifying about any health effects or
 2 rendering any expert opinion regarding medical causation
 3 or -- along the lines of what you've stated.
 4 However, I'm concerned what is it that we're
 5 going to strike and who's responsible for pointing that
 6 out? Certainly it's not Cheri to go back through the
 7 transcript and strike it out. So how do we actually deal
 8 with figuring out what statements need to be stricken?
 9 To some degree I'd like to allow some of the
 10 exhibits he relies on because they're based on
 11 infrasound. Not necessarily saying I want to allow it to
 12 show that it's causing health effects, but the guy's an
 13 expert in infrasound and measuring that type of stuff as
 14 an acoustician -- thank you.
 15 MS. SMITH: I can address the exhibits.
 16 From my read of the exhibits, I don't believe
 17 that those would support the causation assertion anyway.
 18 So to the extent that I'm not -- I don't have a problem
 19 with the exhibits themselves coming in, but his
 20 testimony -- and I would be happy to propose in a written
 21 format -- take his testimony and strike the portions that
 22 I believe should be stricken and provide that tomorrow.
 23 MR. DE HUECK: Let's do that.
 24 MS. SMITH: Would that be appropriate?
 25 MR. DE HUECK: That would be appropriate. So

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 173</p> <p>1 I'm going to go ahead and sustain your objection and your 2 motion to strike, grant that, and we'll figure it out at 3 that point in time.</p> <p>4 MS. SMITH: All right. Thank you.</p> <p>5 MR. DE HUECK: And then also I'd like to 6 prohibit any -- oh, Commissioner Hanson.</p> <p>7 COMMISSIONER HANSON: No. I was waiting for 8 you. I was just signaling you that I had something to 9 say pertaining too before you made your final decision 10 here.</p> <p>11 I think that he certainly should be allowed to 12 provide us with his opinion of observable health effects. 13 Certainly not any medical. And I'm parsing it here, but 14 even I would be able to say that Commissioner Nelson was 15 obviously happy to hear something because that's 16 observable.</p> <p>17 I wouldn't be able to say what physical reaction 18 he had within his body, any medical effects from it and 19 hearing or things of that nature, but anyone can talk 20 about the health effects that are observable, readily 21 observable.</p> <p>22 So I know that makes it more difficult.</p> <p>23 MR. DE HUECK: It doesn't make it too much more 24 difficult. I just don't want to get into the gray water 25 of allowing an expert testifier to enter into lay witness</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 175</p> <p>1 A. The term I used was pseudo noise, I believe. When 2 air -- microphone on a sound level meter is very, very 3 sensitive. If air moves over that microphone and causes 4 a false sound, pseudo noise.</p> <p>5 That's why we put these foam balls on top of the 6 microphones, to try to block that wind. Infrasound goes 7 right through the foam balls. So any movement of air 8 around the microphone generates a false signal, 9 particularly in the infrasonic range.</p> <p>10 So when they're measuring outside even after they 11 take all of their cautions with foam balls, it's very 12 common to see no difference between wind turbine on or 13 off just because what they're really measuring is the air 14 moving over the diaphragm.</p> <p>15 And then Mr. Hessler, I think, agrees with me on 16 this. The proper place to take an infrasound measurement 17 if you want to avoid that is inside the home where the 18 complainant says when I sit in this chair I feel these 19 sensations.</p> <p>20 Q. Okay. Earlier you stated that one out of 15 people 21 are -- and correct me if I misstate this. Are at risk of 22 being annoyed; is that correct?</p> <p>23 A. Yes. The Health Canada Study found that when the 24 model sound levels were 35 dBA and below, 2 percent of 25 the population were highly annoyed. Between 35 and 40,</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 174</p> <p>1 testimony and start elaborating on matters of common 2 knowledge because that's not why he's been here to 3 testify.</p> <p>4 COMMISSIONER HANSON: Excellent.</p> <p>5 MR. DE HUECK: So, with that, where did we leave 6 off? You're in the middle of cross-examination.</p> <p>7 MS. SMITH: That probably concludes my 8 cross-examination at this point.</p> <p>9 MR. DE HUECK: So we'll move over to 10 Mr. Fuerniss. Did you have cross-examination?</p> <p>11 MR. FUERNISS: No.</p> <p>12 MR. DE HUECK: Ms. Jenkins.</p> <p>13 MS. JENKINS: No.</p> <p>14 MR. DE HUECK: Ms. Pazour?</p> <p>15 MS. PAZOUR: No.</p> <p>16 MR. DE HUECK: Staff.</p> <p>17 MS. EDWARDS: Yes.</p> <p>18</p> <p>19 <u>CROSS-EXAMINATION</u></p> <p>20 <u>BY MS. EDWARDS:</u></p> <p>21 Q. Earlier you stated that you were discussing I 22 believe it was somebody else's study, that there were 23 other types of infrasound from wind that needed to be 24 parsed out.</p> <p>25 Did I understand that right?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 176</p> <p>1 10 percent were highly annoyed. And between 45 and 2 above, 14 percent and higher.</p> <p>3 That's where I got my numbers from and that's from 4 the Health Canada Study and there was a chart in my 5 testimony graphing those results.</p> <p>6 Q. Okay. So you anticipated my next question and 7 answer which was where did the number come from.</p> <p>8 Would you say that the majority of your experience 9 with wind turbine noise and its effects on people comes 10 from firsthand observations and measurements at 11 operational projects?</p> <p>12 A. For my own?</p> <p>13 Q. Correct. Firsthand.</p> <p>14 A. Yes. Yes. But I've corroborated that. I have a 15 number of colleagues who do similar work and we compare 16 our notes, we compare our findings and we compare our 17 methodologies.</p> <p>18 Q. Have you ever --</p> <p>19 A. And we corroborate each other's work.</p> <p>20 Q. Okay. Have you ever conducted a sound monitoring 21 survey of at least one week at an operational wind 22 project?</p> <p>23 A. No. Because I find it pointless. If you -- if you 24 aren't standing at the microphone -- or standing in the 25 area where the microphone is located so you can hear at</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 177</p> <p>1 your own ears -- that's called an observed measurement --</p> <p>2 then you have no idea what caused the high as, the lows,</p> <p>3 the in-betweens.</p> <p>4 Unobserved monitoring, which is what is used for two</p> <p>5 week measurements, requires an awful lot of guesswork</p> <p>6 afterwards. Whereas, if you're on site and you're</p> <p>7 measuring the sound, you have your own senses to</p> <p>8 corroborate the meter's measurements. You know whether</p> <p>9 there's wind. You know whether there's insects. You</p> <p>10 know whether a car went, by dogs barked. And, therefore,</p> <p>11 observed measurements are the preferred measurement in</p> <p>12 acoustics, as codified in ANSI 12.93, measurements with</p> <p>13 an observer present. And I focus on that kind of</p> <p>14 measurement.</p> <p>15 As to whether that measurement represents other</p> <p>16 conditions, I rely upon operational data for the noise</p> <p>17 source, whether it's a wind turbine or a machine in a</p> <p>18 factory, to let me know other times when that noise might</p> <p>19 have been in a similar operating mode.</p> <p>20 Q. Have you ever worked on a wind turbine project for</p> <p>21 any group or individual that was not opposed to or</p> <p>22 complaining about the project?</p> <p>23 A. No. And that is because when I wrote my first paper</p> <p>24 in 2008 the wind industry decided I was persona non</p> <p>25 grata. They don't hire consultants that recommend 35</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 179</p> <p>1 was also -- I was also appointed by the PSC to do a peer</p> <p>2 review of that test, and I submitted that to the PSC with</p> <p>3 data showing the pulsations in all three homes, although</p> <p>4 strongest at the home R-1, I believe, the N's farmhouse</p> <p>5 that Mr. Hessler also focuses on.</p> <p>6 Q. You just said you were appointed by the PSC. You</p> <p>7 were hired by the Commission?</p> <p>8 A. Part -- yeah. Part of the agreement between the PSC</p> <p>9 and my clients to have access to their house was that I</p> <p>10 have access to all of the data from the test that</p> <p>11 Schomer, Hessler, Rand, and Walker conducted and have</p> <p>12 that for my own review and then report back to the PSC on</p> <p>13 what I found.</p> <p>14 Q. Was the PSC your client?</p> <p>15 A. No. The client was the Intervenor but the PSC was</p> <p>16 the coordinator for the -- I guess for initializing the</p> <p>17 project. And my clients would not allow anyone in their</p> <p>18 homes unless I had an opportunity to review the work of</p> <p>19 the study team.</p> <p>20 Q. But you did not actually participate in the study;</p> <p>21 correct?</p> <p>22 A. No. Because since they were my clients I had</p> <p>23 already done testing in the homes. I knew what would be</p> <p>24 found. It would have been inappropriate for me to be one</p> <p>25 of the testers. Everyone would have said it was biased.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 178</p> <p>1 Leq. I don't even get the offers.</p> <p>2 Q. Thank you.</p> <p>3 On page 7 of your Direct Testimony you refer to a</p> <p>4 sound study that was carried out at the Shirley Wind Farm</p> <p>5 in Brown County, Wisconsin.</p> <p>6 Are you familiar with what I'm talking about?</p> <p>7 A. Oh, yes. That was at my client's home.</p> <p>8 Q. You indicated that this same study alluded to by</p> <p>9 Mr. David Hessler who just testified for PUC Staff in his</p> <p>10 Direct Testimony -- is that correct?</p> <p>11 A. That is correct.</p> <p>12 Q. You --</p> <p>13 A. That's the same study -- when he made the suggestion</p> <p>14 to the Public Service Commission that a study be done my</p> <p>15 clients contacted me, the attorney for them contacted me,</p> <p>16 and we developed the protocols and we selected the</p> <p>17 acousticians and Hessler & Associates is one of the</p> <p>18 companies that I recommended be involved in that test</p> <p>19 along with Schomer, Walker, and Rand.</p> <p>20 Q. You also indicate that you -- you also indicate that</p> <p>21 you essentially orchestrated the study and developed the</p> <p>22 test protocol for it; correct?</p> <p>23 A. Yes. The test protocol was based on my 2011 or 2012</p> <p>24 paper showing the need for certain types of instruments</p> <p>25 and measurement techniques to detect the infrasound. I</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 180</p> <p>1 MS. EDWARDS: Thank you, Mr. James. No further</p> <p>2 questions.</p> <p>3 THE WITNESS: Okay. Thank you.</p> <p>4 MR. DE HUECK: Okay, Mr. James. This is where</p> <p>5 we go to Commission questions, meaning the Commissioners</p> <p>6 get to cross-examine you so while Katlyn comes up here to</p> <p>7 move the camera down to Chairman Fiegen I'll just go</p> <p>8 ahead and kickoff with the only question that I have.</p> <p>9 And it is you've testified a lot and reported to</p> <p>10 a lot of commissions and governments across the</p> <p>11 United States. You've done that in situations such as</p> <p>12 this when the wind farm has yet to be built; correct.</p> <p>13 THE WITNESS: That is correct.</p> <p>14 MR. DE HUECK: And so are you aware of any</p> <p>15 Commission or government that has created a condition to</p> <p>16 encapsulate your theories on infrasound?</p> <p>17 THE WITNESS: Infrasound is still something that</p> <p>18 hasn't been addressed in any regulatory setting.</p> <p>19 And there's a reason for that. Before we</p> <p>20 started putting wind turbines in quiet rural areas there</p> <p>21 was never a source of infrasound that caused pulsations</p> <p>22 so it's not studied. It hasn't been studied. The</p> <p>23 funding is not available and it is just now as with</p> <p>24 Mr. Cooper's work we're beginning to develop the methods</p> <p>25 where we can duplicate the sensations in a laboratory.</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 181</p> <p>1 It's very much an unstudied area, but it's one that from 2 my point of view should be a major concern since the 3 people who are affected are severely affected.</p> <p>4 Some of my clients, for example, the people that 5 owned the house that Mr. Hessler tested in, have left it. 6 That house has sat vacant for years. And they only 7 return when there's a need to do another test.</p> <p>8 MR. DE HUECK: Okay. Thank you.</p> <p>9 So to date you're not aware of any permit being 10 denied based on infrasound?</p> <p>11 THE WITNESS: Not infrasound specifically.</p> <p>12 MR. DE HUECK: Okay. Thank you. And now I'm 13 going to move over to Chairman Fiegen to allow her to 14 cross-examine you.</p> <p>15 CHAIRWOMAN FIEGEN: So it seems like you have 16 been in the field for a while, although in the U.S. -- 17 you know, wind development has really increased the last, 18 I don't know, five to 10 years. I mean, if you look at 19 the chart, it certainly has increased quickly. Yet 20 there's not a lot of research done and so do people 21 mostly -- do people in the U.S. mostly look at research 22 in foreign countries and has -- and I know I can't 23 introduce new evidence so -- yeah. I guess that's my 24 question.</p> <p>25 THE WITNESS: I guess to your first question</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 183</p> <p>1 THE WITNESS: Good afternoon.</p> <p>2 COMMISSIONER HANSON: I want to look at the 3 witness box when I'm talking to you.</p> <p>4 On page 5 of your prefiled testimony online 153 5 you state, "While it may appear that the difference is 6 only a few decibels, it is important to remember that a 7 3-D B change in sound levels represents a doubling or 8 halving of the acoustic energy."</p> <p>9 So obviously to a layperson -- and we've had 10 these in previous wind dockets, discussions of a variety 11 of different dockets and projects. However, it's always 12 curious to me, in your example then of moving down to a 13 40 dBA you state that it's equivalent to turning off half 14 of the wind turbines in a project designed to meet the 40 15 dBA.</p> <p>16 If three dBA change is doubling or halving, what 17 is the -- going from a 45 to a 40 dBA? Do you know that?</p> <p>18 THE WITNESS: Well, it's 5 decibels. It could 19 be the equivalent of somewhere between a quarter, maybe a 20 third. These are logarithms. I can't do them in my 21 head, but it would be a very significant change.</p> <p>22 And that's why these debates get so heated 23 between a 40 or 45 dBA limit. It represents a big change 24 in the number of wind turbines that can be put into any 25 given area of a project.</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 182</p> <p>1 about wind turbines are new, yes, they're new. But 2 because of serendipity and a number of other factors, 3 I've been intimately involved in many of the early wind 4 projects in Maine, New Hampshire, Vermont, out in the 5 east, and have tracked at what's happened at those. Also 6 in Wisconsin we started a wind project in 2008 the one 7 that Mr. Hessler and his company worked on.</p> <p>8 So my experience I think is somewhat unique.</p> <p>9 There's three other acousticians in the country that I 10 would say have similar experience. But all of this has 11 been funded by local families. There is no research 12 money available to fund my work. Steve Cooper is in the 13 same boat. His whole lab and everything else was funded 14 out of his own money.</p> <p>15 Research money doesn't go to people who have 16 ideas that may inhibit current government policies and 17 with the current government policy promoting wind the 18 chance of getting funding for the kind of work I do is 19 nil so that also means that there's limited research 20 available.</p> <p>21 CHAIRWOMAN FIEGEN: Okay. Thank you.</p> <p>22 MR. DE HUECK: Mr. James, up next will be Vice 23 Chairman Hanson.</p> <p>24 THE WITNESS: Okay.</p> <p>25 COMMISSIONER HANSON: Good afternoon, Mr. James.</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 184</p> <p>1 COMMISSIONER HANSON: Well, you just stated that 2 it would be a change of about a quarter?</p> <p>3 THE WITNESS: It would be about a third of the 4 wind turbines. Let me give you a simpler example.</p> <p>5 If I have a noisy fan in front of me and I have 6 my sound level meter and the noisy fan is 40 dBA and I 7 have another noisy fan right alongside of it and I turn 8 that on, then the sound level's going to go up 3 decibels 9 to 43.</p> <p>10 If I started out with four noisy fans and they 11 were 45 and I cut them in half, turned two off, then it 12 would drop to 43. So when we talk about small changes in 13 decibels we're talking about big changes in acoustic 14 energy. And that's the point I was trying to make.</p> <p>15 And it's also why I think the answer to this is 16 having nonparticipants negotiate agreements in easements 17 and get compensation for the noise pollution.</p> <p>18 There's no easy way to site a wind turbine at 19 levels that are going to satisfy everybody. So the 20 proper method in my mind is to set criteria that are safe 21 and then allow monetary negotiations to occur for 22 easements.</p> <p>23 COMMISSIONER HANSON: Okay. Now thank you. I 24 understand that. But I'm not quite following. I thought 25 originally you said a change of 45 to 40 was a quarter.</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 185</p> <p>1 And then I believe you said that it was a change of a</p> <p>2 third -- of turning off one-third of the machines. Am I</p> <p>3 hearing you incorrectly?</p> <p>4 THE WITNESS: Well, like I said, the</p> <p>5 relationships are logarithmic. So as long as we move in</p> <p>6 3 decibel moves, it's easy to estimate but when you have</p> <p>7 a 5 dB, I'd say that's harder. I would say it's</p> <p>8 equivalent to turning off one out of every --</p> <p>9 one-third -- that would be equivalent to turning off</p> <p>10 about two-thirds of the machines to drop 5 decibels. Or</p> <p>11 to increase the setbacks greater, which is really the</p> <p>12 answer. To increase the distance.</p> <p>13 COMMISSIONER HANSON: Okay. Intuitively I'm</p> <p>14 having a little bit of a challenge with that because if</p> <p>15 you're shutting off -- did you just say two-thirds of the</p> <p>16 machines to turn off 5?</p> <p>17 THE WITNESS: To have an equivalent drop in</p> <p>18 sound level -- or to have a wind project -- the average</p> <p>19 sound level over the whole wind project because we're</p> <p>20 talking about not just one location but the whole</p> <p>21 project, to get a reduction of 5 decibels would require</p> <p>22 turning off about two out of every three of the machines.</p> <p>23 And then not being measured -- not taking a measurement</p> <p>24 right near one of the currently operating machines.</p> <p>25 My point -- my point in that statement was to</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 187</p> <p>1 two-thirds of their machines.</p> <p>2 THE WITNESS: No. I'm advocating that those</p> <p>3 machines that are up -- in the model we see some levels</p> <p>4 about -- above 40. But they seriously look at getting</p> <p>5 those levels down into 40. And that for the people who</p> <p>6 are in the impacted range that are nonparticipants, that</p> <p>7 they work out easement agreements.</p> <p>8 COMMISSIONER HANSON: I understand that. Thank</p> <p>9 you for your participation and information. Appreciate</p> <p>10 it.</p> <p>11 THE WITNESS: Okay. Thank you.</p> <p>12 COMMISSIONER NELSON: Mr. James, this is</p> <p>13 Commissioner Nelson.</p> <p>14 I understand that you heard most of</p> <p>15 Mr. Hessler's testimony this morning; correct?</p> <p>16 THE WITNESS: I heard probably 80 percent of it,</p> <p>17 yes.</p> <p>18 COMMISSIONER NELSON: Did you hear the portion</p> <p>19 where he explained to me that from his perspective it is</p> <p>20 very, very very difficult to measure infrasound?</p> <p>21 THE WITNESS: Yes. But he's been doing that</p> <p>22 with instruments with microphones.</p> <p>23 As illustrated in the example I gave and</p> <p>24 described earlier with all the blue lines and colors I've</p> <p>25 moved over to using a micro barometer which is much less</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 186</p> <p>1 show how difficult it becomes to put wind turbines into</p> <p>2 rural residential areas as the limits are reduced unless</p> <p>3 there is a safety valve to compensate people for the</p> <p>4 noise and allow them to enter into separate negotiations</p> <p>5 for an easement across their property.</p> <p>6 COMMISSIONER HANSON: Thank you. And I -- I</p> <p>7 appreciate your clarifications and explanations as you've</p> <p>8 gone through this. However, if you're at 45 dBA and you</p> <p>9 decrease by 5 to 40 dBA and in order to accomplish that</p> <p>10 you have to eliminate two-thirds of the machines, that</p> <p>11 means one-third of them are creating the 40 dBA. And I</p> <p>12 know -- I understand it's not quantity there necessarily.</p> <p>13 One machine could produce 40 dBA.</p> <p>14 THE WITNESS: If you're close to it.</p> <p>15 COMMISSIONER HANSON: Correct. But you're also</p> <p>16 saying that you're eliminating those that are closest to</p> <p>17 the receiver by --</p> <p>18 THE WITNESS: In my example I wasn't being that</p> <p>19 precise. I was trying to give an example of the over all</p> <p>20 magnitude of the problem of putting a large number of</p> <p>21 wind turbines into an area and why a couple decibel</p> <p>22 difference in the criteria makes a big difference to the</p> <p>23 Applicant.</p> <p>24 COMMISSIONER HANSON: Thank you. And you're</p> <p>25 certainly not advocating that the Applicant should remove</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 188</p> <p>1 sensitive to air movement et cetera and it makes it much</p> <p>2 easier to get clear readings.</p> <p>3 With the right instruments infrasound is easy to</p> <p>4 measure. With the standard acoustical instruments it's</p> <p>5 very complicated and very expensive.</p> <p>6 COMMISSIONER NELSON: So we've been talking</p> <p>7 about this whole issue of the test or study of the</p> <p>8 Shirley Wind Farm and you developed the testing protocols</p> <p>9 but apparently he didn't use your testing protocols; is</p> <p>10 that correct?</p> <p>11 THE WITNESS: No. No. They followed the</p> <p>12 testing protocols exactly and that was to use infrasonic</p> <p>13 rated microphones, make recordings and use what's called</p> <p>14 narrow band analysis to do the subsequent analysis of</p> <p>15 that data. And they executed the methods that I had</p> <p>16 recommended exactly.</p> <p>17 COMMISSIONER NELSON: And so why didn't you</p> <p>18 recommend using the micro barometer.</p> <p>19 THE WITNESS: Because at that time I wasn't</p> <p>20 aware that it was a much less expensive tool. It became</p> <p>21 clear to me after that when I had calls from people to</p> <p>22 come do testing that I needed a different way. So doing</p> <p>23 some research into how other fields of science test</p> <p>24 infrasound particularly for weather detection, tsunami</p> <p>25 detection, et cetera that micro barometers are available.</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 189</p> <p>1 They're highly reliable, very durable and relatively</p> <p>2 inexpensive and not subject to the same artifacts that a</p> <p>3 microphone was.</p> <p>4 COMMISSIONER NELSON: So help me understand just</p> <p>5 a little bit about how a microbarometer works. I</p> <p>6 understand a typical barometer measures pressure.</p> <p>7 THE WITNESS: That's correct.</p> <p>8 COMMISSIONER NELSON: And so a microbarometer</p> <p>9 does the same thing.</p> <p>10 THE WITNESS: Except that it measures the little</p> <p>11 ripple -- the pressure you see when someone says the</p> <p>12 pressure outside is X inches of mercury is the overall</p> <p>13 pressure.</p> <p>14 A microbarometer is designed to measure the</p> <p>15 little ripples that occur at that pressure level. It's a</p> <p>16 variant on a standard barometer with the exception that</p> <p>17 instead of measuring the overall pressure it just</p> <p>18 measures the rapid pressure changes as a breeze goes by,</p> <p>19 for example, or a pressure pulse from a wind turbine is</p> <p>20 picked up. And it has very little sensitivity to audible</p> <p>21 sound, literally no sensitivity to audible sounds.</p> <p>22 It's measuring the pressure changes that rise</p> <p>23 above and below the barometric pressure at any given</p> <p>24 point.</p> <p>25 COMMISSIONER NELSON: In the charts you were</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 191</p> <p>1 lines that show the specific frequency -- or the specific</p> <p>2 rotation speeds of the wind turbines and in this</p> <p>3 particular case I think that was .7 hertz. .7, .75</p> <p>4 hertz.</p> <p>5 COMMISSIONER NELSON: So what is the scale of</p> <p>6 measurement of the infrasound?</p> <p>7 THE WITNESS: Well, the scale of measurement's</p> <p>8 on the right-hand side. That's in decibels just like we</p> <p>9 would measure other sounds but without any A-weighting</p> <p>10 without any G-weighting, without any filtering of the</p> <p>11 sound we're just looking at all of the sounds 0 to 20.</p> <p>12 The analysis method called Fast Fourier</p> <p>13 Transform, narrow band analysis, allows us to take that</p> <p>14 long string of pressures -- it samples 50 times a second,</p> <p>15 and convert it into frequencies as we can see depicted in</p> <p>16 the chart in the upper right-hand corner. We can see the</p> <p>17 little graph with the spikes and then the arrows pointing</p> <p>18 to where those traces are in the spectrogram.</p> <p>19 And it is only by using these kind of tools that</p> <p>20 you can detect those pulses. Not that the pulses are</p> <p>21 that faint because they're up in the 50 -- maybe 50 to 60</p> <p>22 dB range. But those are sufficient as -- as Steve</p> <p>23 Cooper's study presented, those are inaudible but some</p> <p>24 people will pick those up and feel a pressure pulse or</p> <p>25 they'll get a migraine or they'll get dizzy. They will</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 190</p> <p>1 pointing out to us very early on in your discussion I</p> <p>2 will be honest when I saw those exhibits when they were</p> <p>3 initially submitted they looked Greek to me so I didn't</p> <p>4 study them.</p> <p>5 Now that you've explained them I'm going to go</p> <p>6 back and study them and if I remember correctly, one of</p> <p>7 the axis on there talked about different frequencies; is</p> <p>8 that correct?</p> <p>9 THE WITNESS: That's correct.</p> <p>10 COMMISSIONER NELSON: And so does the</p> <p>11 microbarometer test various frequencies and if so what</p> <p>12 frequency range?</p> <p>13 THE WITNESS: The microbarometer I'm using tests</p> <p>14 between 0 and 20 hertz.</p> <p>15 COMMISSIONER NELSON: So you can identify the</p> <p>16 specific sources of the infrasound that you're testing;</p> <p>17 correct?</p> <p>18 THE WITNESS: That's right. Because -- and it's</p> <p>19 only because wind turbines turn at the same RPM which</p> <p>20 means the blade moves in front of the tower at the same</p> <p>21 point.</p> <p>22 Usually within the wind project they operate at</p> <p>23 similar RPMs. And when you take the microbarometer</p> <p>24 readings and you compress hours worth of this data and</p> <p>25 plot them as I have, what you get are these horizontal</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 192</p> <p>1 have these symptoms that can't be explained --</p> <p>2 Excuse me. Turn those off.</p> <p>3 Can't be explained by normal audible sound</p> <p>4 effects.</p> <p>5 COMMISSIONER NELSON: And I'm not looking for a</p> <p>6 medical conclusion because I don't think you're qualified</p> <p>7 to do that, but of individuals that you have observed</p> <p>8 that have made these type of complaints and where you</p> <p>9 have measured the level of infrasound in their home, what</p> <p>10 level of infrasound have you associated with complaints.</p> <p>11 THE WITNESS: When the average sound pressure</p> <p>12 level of the tones gets over 50 dB then we see people</p> <p>13 with serious complaints. The most sensitive people can</p> <p>14 respond at 40 but I'm talking about average.</p> <p>15 Remember I said it's a pressure pulse so if we</p> <p>16 have a wind turbine blade coming down and it creates a</p> <p>17 pulse, there's a high-rise much above 50 -- in fact let's</p> <p>18 say the average was 50. The pulse would probably be 65</p> <p>19 to 70 and then a long period without anything. So the</p> <p>20 average doesn't look that high. It's the peak or the</p> <p>21 crest of the pulse that's triggering the physiological</p> <p>22 response.</p> <p>23 COMMISSIONER NELSON: And so, again, so the</p> <p>24 pulse at 50 dB is where you have received or observed</p> <p>25 complaints; correct?</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 193</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 195</p>
<p>1 THE WITNESS: Yes. Yes. There are some that</p> <p>2 are very sensitive who even at 40 average will have</p> <p>3 complaints, but when it gets to 50 people start</p> <p>4 complaining. And in homes where you get over 60 they</p> <p>5 start talking about leaving their home when it's over 60</p> <p>6 by any significant amount on a regular basis they will</p> <p>7 leave their home and it's because they just give up.</p> <p>8 COMMISSIONER NELSON: Thank you. I appreciate</p> <p>9 going through that discussion.</p> <p>10 I want to shift now to the dBA measurements that</p> <p>11 are being proposed for this wind project. And you</p> <p>12 indicated that -- and you explained why you don't believe</p> <p>13 a two week measurement works. You've suggested a</p> <p>14 10-minute average. Is it correct that you would only do</p> <p>15 that 10-minute average when the turbines are at full</p> <p>16 speed.</p> <p>17 THE WITNESS: That would be the point of making</p> <p>18 the measurement, yes. That's why the -- Mr. Hessler was</p> <p>19 asked this morning about an on/off test. The proper way</p> <p>20 to take a test of a machine like a wind turbine is to</p> <p>21 find an ANSI S 12.9 Part 3 compliance test, and on a day</p> <p>22 when the wind turbines are operating at full power and</p> <p>23 there's no wind at the ground -- this is a stable</p> <p>24 atmospheric condition. It's very common in the Midwest,</p> <p>25 the national renewable energy labs has done studies in</p>	<p>1 all be done in one night, not two weeks.</p> <p>2 COMMISSIONER NELSON: But from what you're</p> <p>3 explaining to me it's got to be the right night and</p> <p>4 nobody really knows when that is going to be; correct?</p> <p>5 THE WITNESS: That's right. It may mean that we</p> <p>6 set up the instruments and we have to spend some evenings</p> <p>7 waiting for the conditions to be right, yes. But that's</p> <p>8 still a lot less time than two weeks.</p> <p>9 COMMISSIONER NELSON: The condition that you</p> <p>10 described, windy up above, still down below, so I'm a</p> <p>11 South Dakotan for my entire life. Wind in</p> <p>12 South Dakota -- we've got a windy state. Is the</p> <p>13 phenomenon that you described, is that something that</p> <p>14 occurs everywhere? Because I know that wind is not the</p> <p>15 same everywhere.</p> <p>16 THE WITNESS: It's a phenomena created by solar</p> <p>17 heating. Let me explain how that happens.</p> <p>18 During the day the sun warms the ground. The</p> <p>19 warm ground causes air near it to rise and this mixes</p> <p>20 with the upper-level winds creating a smooth gradient.</p> <p>21 The wind speed increases. The more you go from the</p> <p>22 ground up the wind speed goes up.</p> <p>23 At night when the sun goes down the ground</p> <p>24 cools. Now we have cool air at the bottom, warm air up</p> <p>25 above and cool air sinks so we have this layer of maybe</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 194</p> <p>1 prairie states saying it's roughly two out of every three</p> <p>2 nights where this condition occurs with calm winds with</p> <p>3 high upper-level winds. So the wind turbines running but</p> <p>4 there's no leaf rustle to mask them.</p> <p>5 You take that condition. You have the wind</p> <p>6 turbines operating. They're turned off. Another reading</p> <p>7 is taken and as long as there's a 6 decibel or so</p> <p>8 difference between the on and the off, you can be fairly</p> <p>9 sure in saying that the on condition measurement was the</p> <p>10 wind turbines not background sound. If it's over 10,</p> <p>11 then it's absolute, if there's a 10.</p> <p>12 And as long as we have Mr. Hall's data showing</p> <p>13 that levels in the community are 22 to 28 at night, if</p> <p>14 the wind turbine sound was 40 and it was turned off I</p> <p>15 would expect the sound then to drop to 28 and we would</p> <p>16 know then the contribution of the wind turbine without</p> <p>17 any concern over whether other things had contaminated or</p> <p>18 affected the sound.</p> <p>19 There's operational data, SCADA data S C ADA,</p> <p>20 that I have used in hearings where I can correlate my</p> <p>21 readings with the exact operating mode, the speed, the</p> <p>22 blade angles, the power output, et cetera, and all of</p> <p>23 that can be brought to bear for a simple on/off test to</p> <p>24 make sure that the test is fair and assesses only wind</p> <p>25 turbine noise and not other types of noise. And it can</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 196</p> <p>1 100 feet deep. Sometimes less than that. Sometimes you</p> <p>2 can see the top of the trees wiggling but there won't be</p> <p>3 enough breeze at the ground to induce leaf Russell.</p> <p>4 The National Renewable Energy Lab study and I</p> <p>5 think one of the places they did the test was</p> <p>6 South Dakota, either that or one of the other plain</p> <p>7 states showed that that occurs about two out of three</p> <p>8 nights during the warm season. And it is a</p> <p>9 characteristic that meteorologists in other cases where</p> <p>10 I've testified have agreed. And in acoustics we use that</p> <p>11 condition as the best test condition.</p> <p>12 For example, the model, the ISO model that Mr.</p> <p>13 Hall used for his prediction makes the assumption that</p> <p>14 the weather conditions are calm wind at the ground and if</p> <p>15 you'll read it, it will say a stable atmospheric</p> <p>16 environment. That is the ideal condition for testing</p> <p>17 noise and that is what I'm saying would be the condition</p> <p>18 for testing wind turbines knowing from my own experience</p> <p>19 and from what I have learned about meteorology over my 45</p> <p>20 years that there will be many nights when the wind</p> <p>21 turbines will be at full power even though the wind at</p> <p>22 the ground level is moderate.</p> <p>23 COMMISSIONER NELSON: I think the last -- and I</p> <p>24 appreciate that discussion. I think the last question.</p> <p>25 You made the statement in relation to infrasound and you</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 197</p> <p>1 said, and I think I quote this correctly, "it's unstudied</p> <p>2 but a major concern."</p> <p>3 How can we make sound decisions on something</p> <p>4 that is unstudied?</p> <p>5 THE WITNESS: You can't. All you can do is --</p> <p>6 the precautionary principal says that we err on the side</p> <p>7 of safety. If we know that we have people complaining</p> <p>8 about the distances of a mile and a quarter or two miles,</p> <p>9 then we have to take that into consideration until the</p> <p>10 science those us that that isn't a problem.</p> <p>11 And this is something that's always baffled me.</p> <p>12 Why are the project -- why are we permitting projects</p> <p>13 near homes when there's still other areas where we could</p> <p>14 have wind turbines out at greater distances while the</p> <p>15 research goes on.</p> <p>16 So my position has been under the precautionary</p> <p>17 principal that until we know enough about why these</p> <p>18 problems occur, that we should be more cautious in</p> <p>19 allowing wind turbines near residential homes.</p> <p>20 COMMISSIONER NELSON: Thank you.</p> <p>21 MR. DE HUECK: Commissioner Hanson.</p> <p>22 CHAIRWOMAN FIEGEN: Go ahead. I have one more</p> <p>23 question whenever.</p> <p>24 MR. DE HUECK: We'll go down to Commissioner</p> <p>25 Fiegen. And I'll just announce for the room Cheri really</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 199</p> <p>1 over distance, if it does.</p> <p>2 THE WITNESS: Infrasound is a -- I'll call it</p> <p>3 infrasound is not absorbed by air. The energy</p> <p>4 infrasonic rate is not absorbed by air as the audible</p> <p>5 sounds are.</p> <p>6 The farther you get away from a high frequency</p> <p>7 noise, even speech, not only is distance a factor but</p> <p>8 that energy's being absorbed by ear molecules.</p> <p>9 Infrasound doesn't do that. Infrasound isn't</p> <p>10 blocked by physical things, for example. It goes through</p> <p>11 a house as though the house wasn't even there. And I</p> <p>12 believe that Mr. Hessler's work at Shirley Wind showed</p> <p>13 that the levels outside the house and inside were almost</p> <p>14 roughly the same.</p> <p>15 Infrasound is a particularly long propagating.</p> <p>16 But elephants for example in Africa use infrasound to</p> <p>17 communicate, a deep bellow. And they can communicate</p> <p>18 over hundreds of kilometers. We use infrasound to detect</p> <p>19 distant nuclear bombs, for example. The micro barometer</p> <p>20 that I use is used by the U.S. government with detectors</p> <p>21 to detect when bombs are set off halfway around the</p> <p>22 world.</p> <p>23 An infrasonic pulse if it's sufficiently strong</p> <p>24 enough can go around the world and have almost as much</p> <p>25 intensity as afterwards. There's anecdotal evidence when</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 198</p> <p>1 needs a break. She's been at it for a long time. So</p> <p>2 when we're done with Commission questions we're going to</p> <p>3 take a recess.</p> <p>4 CHAIRWOMAN FIEGEN: In your testimony,</p> <p>5 Mr. James, your written prefiled testimony, you talk</p> <p>6 about Michigan and Ohio and a noise trespass.</p> <p>7 Have they used that in relation, the noise</p> <p>8 trespass in Michigan and Ohio?</p> <p>9 THE WITNESS: In Michigan, yes. A number of</p> <p>10 communities have passed ordinances that encourage that to</p> <p>11 happen. Basically encourage -- they set restrictive</p> <p>12 limits, 45 not to exceed, for example. That's an Lmax.</p> <p>13 And then they let the developer negotiate with the</p> <p>14 landowners for easements.</p> <p>15 CHAIRWOMAN FIEGEN: And they haven't used it in</p> <p>16 Ohio.</p> <p>17 THE WITNESS: I don't know. Ohio's still</p> <p>18 arguing over things that -- actually in a case that</p> <p>19 Mr. Hessler and I were involved in called Buckeye Wind</p> <p>20 back in the early 2000s. They're still arguing over that</p> <p>21 case.</p> <p>22 CHAIRWOMAN FIEGEN: Thank you.</p> <p>23 COMMISSIONER NELSON: My apology to Cheri. I</p> <p>24 have another couple of questions.</p> <p>25 Help me understand how infrasound dissipates</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 200</p> <p>1 Krakatoa erupted microbarometers all over the world went</p> <p>2 off and they showed the echo of that eruption propagating</p> <p>3 around the earth several times. So infrasound is just</p> <p>4 one of those things that is hard to stop.</p> <p>5 And even though wind turbines aren't like a</p> <p>6 nuclear bomb, the sound is more than sufficient to</p> <p>7 propagate miles. I have measured infrasound tones at</p> <p>8 distances of 6 miles. I have colleagues who have</p> <p>9 measured in the distances of 50 miles. Where you can</p> <p>10 clearly see the tones that we see in my examples.</p> <p>11 And, again, this depends on how many wind</p> <p>12 turbines. One wind turbine isn't going to be detectable</p> <p>13 50 miles away. But a bank of 200 wind turbines will be</p> <p>14 clearly distinguishable at much greater distances than</p> <p>15 the single one. And when we start talking about these</p> <p>16 projects getting larger and larger we get to the point</p> <p>17 like we have up in Ontario where there's no place within</p> <p>18 southern Ontario where we can't put up a microbarometer</p> <p>19 and detect wind turbine tones.</p> <p>20 COMMISSIONER NELSON: So when you measured</p> <p>21 infrasound at 6 miles what was the level?</p> <p>22 THE WITNESS: It was down around 40. Average</p> <p>23 40.</p> <p>24 COMMISSIONER NELSON: And so presumably as you</p> <p>25 would move further out it would ratchet down and at some</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 201</p> <p>1 point hit zero.</p> <p>2 THE WITNESS: No, it doesn't hit zero. It just</p> <p>3 blends into the other infrasound that's there. I mean</p> <p>4 just the fact that the earth is rotating and friction in</p> <p>5 the atmosphere produces some infrasound. So you get to</p> <p>6 the point where there's a background infrasound even when</p> <p>7 you don't have wind gusts and other things triggering it.</p> <p>8 But at this point when I'm asking what is the distance we</p> <p>9 should be concerned of, the board of health in Brown</p> <p>10 County, which has debated this for eight years now</p> <p>11 basically has said that the radius of the human health</p> <p>12 hazard is 2 and a half miles around the wind project.</p> <p>13 And that seems to encapsulate most of the people who are</p> <p>14 sensitive and it takes people who are really sensitive</p> <p>15 beyond that, one of which I have an example in my</p> <p>16 exhibit, to sense it. But for practical purposes, any</p> <p>17 time you're within a mile is going to be very significant</p> <p>18 and even at 2 and 2 and a half miles we'll have people</p> <p>19 who if they are sensitive will report those sensations.</p> <p>20 Whether it triggers, you know, an adverse reaction or not</p> <p>21 depends on them. I have an acoustician friend Dr. Malcom</p> <p>22 Swinbanks who has published papers about his own</p> <p>23 sensitivity. And he uses his sensitivity to infrasound</p> <p>24 pulsations as an expert for the U.S. Department of</p> <p>25 Defense in protecting our military against infrasound.</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 203</p> <p>1 correct?</p> <p>2 THE WITNESS: That's close. You're probably --</p> <p>3 you're probably right sound trespass but noise means</p> <p>4 unwanted sound. If a person didn't bother them, then it</p> <p>5 wouldn't be a trespass.</p> <p>6 What I'm concerned about is uncompensated</p> <p>7 easements. And when we begin to have government bodies</p> <p>8 set a standard that goes to a home, not to the property</p> <p>9 line, it results in uncompensated easements. And that's</p> <p>10 what concerns me.</p> <p>11 COMMISSIONER HANSON: I'm a strong believer in</p> <p>12 property rights as well. But there's -- and semantics</p> <p>13 aside from noise and sound, when you get into something</p> <p>14 of that nature, does my air conditioning unit outside my</p> <p>15 house, do I need to compensate my neighbor for the noise</p> <p>16 that that creates or the airplane that flies overhead or</p> <p>17 the street construction work or on and on and on that</p> <p>18 take place throughout the world daily in everyone's life.</p> <p>19 I mean, that just seems so extraordinarily</p> <p>20 unworkable and unrealistic. It's when the noise is -- is</p> <p>21 really in a trespass sense. And I know you're trying to</p> <p>22 get to that point, but I just don't see that you're</p> <p>23 reaching that.</p> <p>24 THE WITNESS: You know, I -- I understand the</p> <p>25 issue of air conditioners but let me use that as an</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 202</p> <p>1 Because he can feel it, he doesn't have to look at his</p> <p>2 meter to know whether it's present.</p> <p>3 I know three other acousticians who also can</p> <p>4 sense these pressure pulsations. It's not as rare as</p> <p>5 Mr. Hessler might like to make it out. If my limited</p> <p>6 number of acousticians friends include three that are</p> <p>7 using it as tools, then it's more prevalent in the</p> <p>8 population than we might expect.</p> <p>9 COMMISSIONER NELSON: Thank you.</p> <p>10 COMMISSIONER HANSON: Mr. James, all of the</p> <p>11 positions and thoughts and premises that you're using</p> <p>12 seem to boil down to a conclusion, and I would like to</p> <p>13 read what I believe is your conclusion. I've written</p> <p>14 that down, and I -- it may be a little bit lengthy, but</p> <p>15 I'd just like you to pause and wait until I ask you if</p> <p>16 that is correct or not.</p> <p>17 You're obviously a strong supporter of property</p> <p>18 rights. And on page 6 line 174 there's a question</p> <p>19 pertaining to that. And all this seems to boil down to</p> <p>20 your position that sound levels that are generated from</p> <p>21 the wind turbines may not exceed the ambient sound level</p> <p>22 existing at the property line of nonparticipants unless</p> <p>23 the utility developer operator is willing to provide</p> <p>24 compensation for the what you call noise trespass -- or</p> <p>25 the what I would call sound as opposed to noise; is that</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 204</p> <p>1 example.</p> <p>2 The air conditioning industry since I was a</p> <p>3 young kid back in the '50s has done extensive work in</p> <p>4 making the sound of an outdoor air conditioning condenser</p> <p>5 compatible with community noise standards or community</p> <p>6 lifestyle.</p> <p>7 When I bought my new air conditioner a couple of</p> <p>8 years ago it came with all sorts of noise data showing</p> <p>9 the impact on my neighbor and how that impact would be</p> <p>10 acceptable. Also in my community there are other sounds</p> <p>11 at night that raise the level up to about 30, 35 dBA. So</p> <p>12 my expectation here is that the -- my neighbor if they</p> <p>13 put in a wind turbine -- or an air conditioner will also</p> <p>14 put in one that has been designed to be compatible with</p> <p>15 the acoustic environment of the community.</p> <p>16 Wind turbines haven't been designed for that.</p> <p>17 Wind turbines are still in their early years. That</p> <p>18 doesn't mean that some day they won't have one. It just</p> <p>19 means that right now a wind turbine is like an old air</p> <p>20 conditioner in 1950 with a noisy fan or noisy pump and</p> <p>21 other mechanical sounds, that until they can design wind</p> <p>22 turbines that are more compatible with being close to</p> <p>23 homes, they should put their hardware out in areas where</p> <p>24 people aren't there. Or if a person willing to accept</p> <p>25 the noise compensate them.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 205</p> <p>1 In my career with workers, there are a number of</p> <p>2 jobs where the noise was unbearable, but my employers --</p> <p>3 or my clients who were their employers would pay them</p> <p>4 extra and they would take that extra money as</p> <p>5 compensation for the noise.</p> <p>6 People have a -- people have a right to privacy,</p> <p>7 but if you say are you willing to exchange it for X</p> <p>8 number of dollars a year, there willing to do it. And</p> <p>9 that allows each property owner to participate in the</p> <p>10 process to the extent they want. And that's why I kind</p> <p>11 of lean towards it.</p> <p>12 COMMISSIONER HANSON: Thank you.</p> <p>13 THE WITNESS: Yeah. If wind turbines were air</p> <p>14 conditioners, it may be different.</p> <p>15 COMMISSIONER HANSON: Thank you, Mr. James. I</p> <p>16 understand that we have moved a great deal with, for</p> <p>17 instance, automobiles or -- you can hardly even hear them</p> <p>18 when you're standing right next to them.</p> <p>19 THE WITNESS: That's right.</p> <p>20 COMMISSIONER HANSON: And there's been a great</p> <p>21 deal of -- however, you would have to accept that there</p> <p>22 have been significant advances in the wind turbines of</p> <p>23 today as compared to 20 or 30 years ago. I won't take</p> <p>24 exception with your premises and argue those premises</p> <p>25 that's up to the other folks here. But I'll give it as</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 207</p> <p>1 where I went through a Daubert hearing in a court here in</p> <p>2 Michigan. It was McBain, Michigan I can get the specific</p> <p>3 reference for the record later I don't have it in my</p> <p>4 hands but in that case I was -- after the Daubert hearing</p> <p>5 I was qualified as an acoustician.</p> <p>6 In fact, if everyone would turn to my Exhibit 1, my</p> <p>7 bio materials, I have the exact quote from that decision</p> <p>8 on that page so that people can follow along. It's the</p> <p>9 page bio materials for Richard R. James, November 8,</p> <p>10 2017.</p> <p>11 At the bottom of that page there is a table showing</p> <p>12 some of the example qualifications and at the very bottom</p> <p>13 is the Michigan court case where I went through a Daubert</p> <p>14 hearing, and the judge concluded that I was an</p> <p>15 acoustician with expertise in measurement of wind turbine</p> <p>16 noise and its effects on people and I was qualified to</p> <p>17 opine that the Plaintiff's symptoms were caused by the</p> <p>18 Defendant's wind turbines after that special Daubert</p> <p>19 hearing.</p> <p>20 In Alberta, Canada I've also been simply qualified</p> <p>21 to speak to not only the noise but also human response to</p> <p>22 noise, and that is the typical qualifications that I have</p> <p>23 been granted in other jurisdictions.</p> <p>24 Q. And what was the name of that Michigan case?</p> <p>25 A. I will have -- it was -- I remember my clients'</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 206</p> <p>1 much weight as I can to what you've said where I feel</p> <p>2 that it's justifiable to do so. So thank you for your</p> <p>3 presentation.</p> <p>4 THE WITNESS: Okay. Well, thank you.</p> <p>5 MR. DE HUECK: We will recess until 4 o'clock.</p> <p>6 (A short recess is taken.)</p> <p>7 MR. DE HUECK: We are back in session.</p> <p>8 Mr. James is on the witness stand.</p> <p>9 Mr. James, you're still under oath. We finished</p> <p>10 with cross-examination first round. We're going back to</p> <p>11 Mr. Almond for redirect.</p> <p>12 <u>REDIRECT EXAMINATION</u></p> <p>13 <u>BY MR. ALMOND:</u></p> <p>14 Q. First question, Mr. James. Have you ever been</p> <p>15 permitted to testify in the United States Court to give</p> <p>16 opinions on noise generated by wind turbines' effects on</p> <p>17 people?</p> <p>18 A. Yes.</p> <p>19 Q. And can you provide a citation to the Commission of</p> <p>20 what that case was?</p> <p>21 A. The case --</p> <p>22 Q. Maybe not the citation but can you tell us the case</p> <p>23 name and where it was located at?</p> <p>24 A. Yeah. The case was here in -- well there's been</p> <p>25 many cases where I've been qualified but there's one</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 208</p> <p>1 names. If you want -- let me pull it up here. I can get</p> <p>2 it.</p> <p>3 Q. Well, no. Let's not do that. Unless the Commission</p> <p>4 would like him to.</p> <p>5 MR. DE HUECK: Just provide it to us later.</p> <p>6 Q. We'll just provide it later. Okay?</p> <p>7 A. I will.</p> <p>8 MR. ALMOND: I don't have any other questions</p> <p>9 for you, Mr. James.</p> <p>10 THE WITNESS: Okay. Thank you.</p> <p>11 MR. DE HUECK: Mr. Fuerniss, any</p> <p>12 cross-examination based on Commission questions?</p> <p>13 MR. FUERNISS: No.</p> <p>14 MR. DE HUECK: Ms. Jenkins.</p> <p>15 MS. JENKINS: No.</p> <p>16 MR. DE HUECK: Ms. Pazour.</p> <p>17 MS. PAZOUR: No.</p> <p>18 MR. DE HUECK: And Staff.</p> <p>19 MS. EDWARDS: Briefly.</p> <p>20 <u>RECROSS-EXAMINATION</u></p> <p>21 <u>BY MS. EDWARDS:</u></p> <p>22 Q. Can you turn to Staff Exhibit S-5? Do you have all</p> <p>23 the exhibits in front of you?</p> <p>24 A. I will get them up here again. Let's see. Staff</p> <p>25 exhibit -- S 4, S 5 additional data requests.</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 209</p> <p>1 Q. Yes. S 5.</p> <p>2 A. Okay. Opening it up here. I think everyone else is</p> <p>3 opening it too because it's slow to respond.</p> <p>4 Q. Just let me know when you get there.</p> <p>5 A. I will. It's opening slowly.</p> <p>6 Okay. I have the document open.</p> <p>7 Q. Okay. And I would like to?</p> <p>8 A. Which page?</p> <p>9 Q. Direct your attention to page 8 of 27.</p> <p>10 A. Okay. Is that 2-8? Or 2-7? Is that the page with</p> <p>11 question 2-7?</p> <p>12 Q. Right.</p> <p>13 A. Or 2-8.</p> <p>14 Q. I'm looking at the question before that which would</p> <p>15 be 2-6 but I'm looking at the answer so --</p> <p>16 A. Okay. Okay. Okay. I believe that was the response</p> <p>17 by Dr. Alves-Pereira.</p> <p>18 Q. Correct. And do you see at the very end there where</p> <p>19 she responded that there are currently no scientifically</p> <p>20 valid studies providing numerical data on safe distances</p> <p>21 that can effectively protect families against ILFN</p> <p>22 contaminated homes?</p> <p>23 A. That is very true because acousticians have ignored</p> <p>24 low frequency and infrasound since the '70s when I</p> <p>25 started out and they concluded that audible -- A-weighted</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 211</p> <p>1 Q. And earlier you testified that 15 percent of the</p> <p>2 population would be susceptible to infrasound. So would</p> <p>3 not then 15 percent of the population of southern Ontario</p> <p>4 be ill?</p> <p>5 A. No. That was 15 percent were subject to the audible</p> <p>6 sound. 15 percent found levels of 40 Leq and higher were</p> <p>7 susceptible.</p> <p>8 In my -- let's look at Shirley Wind. When Shirley</p> <p>9 Wind -- when the Brown County Health Department began to</p> <p>10 explore it the initial complaints were three families.</p> <p>11 By the end of their investigation they had 70 families</p> <p>12 that had reported either audible sound or infrasound</p> <p>13 related symptoms. And this was for a small project with</p> <p>14 eight wind turbines in a relatively small dairy farming</p> <p>15 community.</p> <p>16 So what is the percentage that are affected? We</p> <p>17 don't know. Health Canada, for example, their study</p> <p>18 found that at one and a quarter mile -- so we're talking</p> <p>19 2 kilometers they asked people within that distance if</p> <p>20 they had tinnitus, ringing in the ears, migraines,</p> <p>21 dizziness, et cetera. Well, we know that the general</p> <p>22 population -- that the percentage of the general</p> <p>23 population with dizziness and tinnitus, et cetera is</p> <p>24 roughly around 1 out of 10 people, and yet at a mile and</p> <p>25 a quarter from the wind turbines in the Health Canada</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 210</p> <p>1 sounds would be the focus of regulations. We've</p> <p>2 underserved the communities by ignoring the low frequency</p> <p>3 end of the spectrum.</p> <p>4 Q. How could you set a limit if there's no</p> <p>5 statistically reliable data?</p> <p>6 A. Well, to be very honest, the same way we set the</p> <p>7 criteria back in the 1970s. Acousticians who were</p> <p>8 familiar with different types of problems got together</p> <p>9 and pooled their data and came up with, for example, the</p> <p>10 EPA has an L D N on 55 for urban environments. It was</p> <p>11 based upon consensus among acousticians and their</p> <p>12 experiences in the field. And acousticians have plenty</p> <p>13 of experience with IFLN but governments don't because</p> <p>14 they've all focused on dBA criteria.</p> <p>15 Q. Okay. You testified, and I don't remember in</p> <p>16 response to which Commissioner question that there's</p> <p>17 nowhere you can go in Ontario and not be subject -- or</p> <p>18 not be able to pick up infrasound; correct?</p> <p>19 A. I said southern Ontario. Basically if you go from</p> <p>20 the western edge of southern Ontario on lake Huron over</p> <p>21 to the east of Toronto along Lake Eerie any area along</p> <p>22 there there is I think 1,700 wind turbines in that area.</p> <p>23 Anywhere in that area you will measure the tones from</p> <p>24 wind turbines as long as you don't have such high wind</p> <p>25 levels, et cetera, that they mask them.</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 212</p> <p>1 Study they were reporting 20 percent and higher</p> <p>2 prevalence rates.</p> <p>3 They couldn't explain what caused it. They tended</p> <p>4 to ignore it. But I used to say a mile and a quarter was</p> <p>5 a safe distance. Safe meaning safe. Now I can't say</p> <p>6 that. The Health Canada data calls it into question</p> <p>7 because we can't explain why these symptoms of low</p> <p>8 frequency noise, tinnitus, migraines, pressure</p> <p>9 pulsations, et cetera, nausea are so prevalent at that</p> <p>10 distance.</p> <p>11 Audible sound would have died off by a mile and a</p> <p>12 quarter. It would only be the low frequency and</p> <p>13 infrasound that's present in those homes. So the more</p> <p>14 with learn about the problem the more we begin to see</p> <p>15 that even what would be considered large setbacks may not</p> <p>16 prevent some of the complaints.</p> <p>17 MS. EDWARDS: Thank you. No further questions.</p> <p>18 MR. DE HUECK: Any Commission follow up?</p> <p>19 Okay. Commissioner Nelson has a question for</p> <p>20 you.</p> <p>21 THE WITNESS: Okay.</p> <p>22 COMMISSIONER NELSON: Earlier I asked you to try</p> <p>23 to explain dissipation to me. And I understood your</p> <p>24 answer.</p> <p>25 So it would appear that the dissipation of</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 213</p> <p>1 infrasound would occur uniformly over distance since</p> <p>2 there appears to be no impediments to it. Is that</p> <p>3 accurate?</p> <p>4 THE WITNESS: Yes. It -- it -- it propagates</p> <p>5 with very decrease in sound level over great distances,</p> <p>6 which is an advantage if you're an elephant trying to</p> <p>7 communicate to another elephant but it's a disadvantage</p> <p>8 if you're looking at a noise source that produces</p> <p>9 infrasonic pulses because that problem propagates much</p> <p>10 farther than the audible sounds.</p> <p>11 COMMISSIONER NELSON: So how many -- since it</p> <p>12 dissipates at a uniform rate over distance, how many dB</p> <p>13 does it decrease per mile?</p> <p>14 THE WITNESS: Well, it -- again, it -- sound</p> <p>15 drops off proportional to the distance. If we're talking</p> <p>16 about audible sound.</p> <p>17 COMMISSIONER NELSON: No we're not talking about</p> <p>18 audible sound. We're talking about infrasound.</p> <p>19 THE WITNESS: Well audible sound decreases at 6</p> <p>20 dB per doubling of distance. Infrasound is more like 1</p> <p>21 or 2 dB per doubling of distance.</p> <p>22 And in my tests I kind of lean towards the 2</p> <p>23 mile, mile and a quarter as the separating difference</p> <p>24 between a lot of people, a significant number, let's say</p> <p>25 10 percent, having complaints and after that it becomes</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 215</p> <p>1 infrasound is significant enough to trigger the</p> <p>2 sensations of the distances of a mile and a quarter to</p> <p>3 two miles in those sensitive individuals.</p> <p>4 COMMISSIONER NELSON: Have you measured</p> <p>5 infrasound -- the level of infrasound at a turbine?</p> <p>6 THE WITNESS: Right at a turbine it wouldn't be</p> <p>7 very high and that's because the sound's occurring up</p> <p>8 above and it's radiating out.</p> <p>9 I mean, a wind turbine the sound is radiating</p> <p>10 off the blades and, therefore, when you're close to it --</p> <p>11 actually one of the quietest places near a wind turbine</p> <p>12 is right at the base of the tower.</p> <p>13 COMMISSIONER NELSON: And I understand that. So</p> <p>14 at what distance would the infrasound be maximized?</p> <p>15 THE WITNESS: It becomes more repattable (check)</p> <p>16 when we're out at distances let's say a thousand feet.</p> <p>17 And for a one hertz infrasonic tone it takes a thousand</p> <p>18 feet for the wavelength to form. So within that you can</p> <p>19 get numbers -- within that distance the numbers can vary</p> <p>20 all over but as you get a little further away the wave</p> <p>21 form is fully developed and the propagation becomes</p> <p>22 somewhat measurable.</p> <p>23 But it depends on how it's reflected off the</p> <p>24 ground, how it's reflected off the ionosphere and other</p> <p>25 atmospheric conditions. And it's very variable. Low</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 214</p> <p>1 much more spotty.</p> <p>2 COMMISSIONER NELSON: Let me delve into your</p> <p>3 answer 1 or 2 dB per doubling of distance.</p> <p>4 So between 5 feet and 10 feet it reduces 1 and</p> <p>5 2 -- 1 or 2.</p> <p>6 THE WITNESS: Yeah.</p> <p>7 COMMISSIONER NELSON: That doesn't make sense.</p> <p>8 THE WITNESS: Well, let's say it starts out at</p> <p>9 100 at 1 meter away. And I'll use meters because it's</p> <p>10 smooth. 1 meter away it's 100. So at 2 meters it will</p> <p>11 be let's say 98. At 4 meters it becomes 96. At 8 meters</p> <p>12 it becomes 94.</p> <p>13 And so you can see that as we get to a</p> <p>14 significant distance like 500 meters it now in order to</p> <p>15 get another decibel of reduction we've got to go 500 more</p> <p>16 meters.</p> <p>17 COMMISSIONER NELSON: Okay. So I understand</p> <p>18 that math. And so then my question is is it 1 or is it 2</p> <p>19 decibels? That's a big difference.</p> <p>20 THE WITNESS: Yes. It depends upon the</p> <p>21 atmospheric conditions, and it depends upon the surface</p> <p>22 conditions but -- and that's why I say 1 or 2. Because</p> <p>23 it -- depending on where you're measuring, it could be</p> <p>24 either.</p> <p>25 But for the levels emitted by wind turbines the</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 216</p> <p>1 frequency noise problems are hard to trace because of</p> <p>2 these issues.</p> <p>3 And wind turbine sounds fit into that category.</p> <p>4 One day it could be perfectly fine. The next day it</p> <p>5 could be much noisier just due to -- I'm assuming they're</p> <p>6 operating the same. Just due to how the atmospheric</p> <p>7 boundary layers are reflecting the sound.</p> <p>8 COMMISSIONER NELSON: So I'm going to ask have</p> <p>9 you measured infrasound 1,000 feet away from an operating</p> <p>10 turbine?</p> <p>11 THE WITNESS: Yes. Multiple times.</p> <p>12 COMMISSIONER NELSON: And what level would you</p> <p>13 typically find there?</p> <p>14 THE WITNESS: Probably in the 60s to 70s average</p> <p>15 with peaks up around 85. That was my first paper was at</p> <p>16 that distance.</p> <p>17 COMMISSIONER NELSON: And what would cause the</p> <p>18 distance between it being 60 or it being 85?</p> <p>19 THE WITNESS: Well, the 60 is the average, but</p> <p>20 remember a pulse and then quiet so what we're doing is</p> <p>21 we're averaging a very large short-term sound with a lot</p> <p>22 of quiet after it so that average drops down. But it's</p> <p>23 the peak of the pulse that's causing the sensations.</p> <p>24 COMMISSIONER NELSON: Right. And I know you</p> <p>25 explained that already so I assumed that the numbers you</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 217</p> <p>1 were giving me were just the peak numbers. So 85 would</p> <p>2 be the peak?</p> <p>3 THE WITNESS: Yeah. 85. Whereas the average</p> <p>4 would be 50 to 60.</p> <p>5 COMMISSIONER NELSON: Thank you.</p> <p>6 MR. DE HUECK: Reiss, any redirect after</p> <p>7 Commissioner Nelson's question?</p> <p>8 No.</p> <p>9 Mr. James, thank you for your testimony --</p> <p>10 MS. SMITH: Excuse me, Mr. de Hueck, I got</p> <p>11 skipped, and I didn't want to interrupt.</p> <p>12 Is it okay? I just have one question.</p> <p>13 MR. DE HUECK: Yep.</p> <p>14 <u>REXCROSS-EXAMINATION</u></p> <p>15 <u>BY MS. SMITH:</u></p> <p>16 Q. Mr. James, you had previously talked about the</p> <p>17 Shirley Wind Farm in response to some of the questions</p> <p>18 that you were asked; is that correct?</p> <p>19 A. That's correct.</p> <p>20 Q. And you mentioned that the board of health declared</p> <p>21 the wind farm a human hazard. Is that true?</p> <p>22 A. The exact term is human health hazard.</p> <p>23 Q. Human health hazard.</p> <p>24 Are you aware that that designation was rescinded in</p> <p>25 2015 due to insufficient evidence of a link between wind</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 219</p> <p>1 A. Well, I'm an audiologist. I have two higher</p> <p>2 degrees, a master's degree in hearing and speech science</p> <p>3 from Vanderbilt --</p> <p>4 MR. DE HUECK: Can you slow down a little bit</p> <p>5 for the court reporter and identify yourself.</p> <p>6 A. I'm Jerry Punch. I live in open us, Michigan where</p> <p>7 I'm seated right now. I appreciate the opportunity to</p> <p>8 not to have to make the trip to South Dakota by the way.</p> <p>9 I have been an audiologist since 1967 so I have</p> <p>10 really about 50 years experience as an audiologist. My</p> <p>11 educational background is with a master's of science</p> <p>12 degree in hearing and speech sciences from Vanderbilt</p> <p>13 university and a Ph.D. in audiology from Northwestern</p> <p>14 University. I've been a teacher, a clinician, a</p> <p>15 researcher, an administrator in a number of settings,</p> <p>16 mostly academic settings.</p> <p>17 The last 20 years 21 years I've been at Michigan</p> <p>18 State University. I retired from that position, from the</p> <p>19 faculty there in 2011.</p> <p>20 Would you like me to go into the issue of how I got</p> <p>21 involved with wind turbine noise at this point?</p> <p>22 Q. Sure. Why don't you explain how you got involved.</p> <p>23 MR. DE HUECK: Mr. Punch, this is the Hearing</p> <p>24 Examiner. I'm going to interrupt you for just a second.</p> <p>25 When you look down we can't really see your lips so if</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 218</p> <p>1 farms and people's health issues?</p> <p>2 A. No. I'm not. In fact, 2015 the --</p> <p>3 Q. I just asked if you were aware of that.</p> <p>4 A. I'm aware that it was not rescinded at that point.</p> <p>5 Q. Was it ever rescinded?</p> <p>6 A. No. The board has maintained that in spite of</p> <p>7 efforts to have it rescinded.</p> <p>8 MS. SMITH: I have no further questions.</p> <p>9 MR. DE HUECK: Thank you for your testimony,</p> <p>10 Mr. James. That will conclude it.</p> <p>11 MR. DE HUECK: I'm going to turn to Mr. Almond</p> <p>12 to call his next witness.</p> <p>13 (A short recess is taken.)</p> <p>14 MR. DE HUECK: EL18-026 is back in session. Mr.</p> <p>15 Almond, you may call your next witness.</p> <p>16 MR. ALMOND: Intervenors call Jerry Punch.</p> <p>17 MR. DE HUECK: Good afternoon, Mr. Punch. My</p> <p>18 name is Adam de Hueck. I am the Hearing Examiner in this</p> <p>19 matter. I'll be swearing you in today. Are you ready?</p> <p>20 THE WITNESS: I'm ready. Thank you.</p> <p>21 (The oath is administered by Mr. de Hueck.)</p> <p>22 <u>DIRECT EXAMINATION</u></p> <p>23 <u>BY MR. ALMOND:</u></p> <p>24 Q. Why don't you introduce yourself to the Commission</p> <p>25 and give a brief recap of your education and experience.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 220</p> <p>1 you can either back up while you speak or alternatively</p> <p>2 if you can adjust your camera down.</p> <p>3 (Discussion off the record.)</p> <p>4 Q. First why don't you just -- what is an audiologist?</p> <p>5 A. Well, audiology is the study of hearing and hearing</p> <p>6 disorders essentially, hearing loss. Much of my work has</p> <p>7 been involved, particularly my research has been involved</p> <p>8 with hearing aid research with diagnostic testing to</p> <p>9 quantify the amount of hearing loss in people.</p> <p>10 As I say, I've been certified as an audiologist and</p> <p>11 still am since the 19 -- late 1960s. I've done a lot of</p> <p>12 clinical work with patients. As someone already</p> <p>13 mentioned in the previous testimony, I basically -- I'm</p> <p>14 losing my train of thought already. It's not that time</p> <p>15 of day for me.</p> <p>16 Basically what I was saying is wind turbines is kind</p> <p>17 of a new area. I got involved in about -- excuse me. In</p> <p>18 2008 or 2009 when, in fact, Rick James asked me to go to</p> <p>19 a wind project in lower Michigan. It was in the thumb</p> <p>20 area of Michigan where a family was abandoning their home</p> <p>21 or leaving their home at night to be able to sleep</p> <p>22 because of the turbine noise.</p> <p>23 By the way, my affiliation with Rick has been over</p> <p>24 many years. When I was chair of the department for about</p> <p>25 six years I actually hired Rick as an as an adjunct</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 221</p> <p>1 instructor to teach a couple of not courses but give a 2 couple of lectures in a hearing conservation course, a 3 graduate seminar in hearing conservation at Michigan 4 State University.</p> <p>5 And so Rick and I had known each other for sometime 6 before 2008 or '9. So we basically -- I went there 7 thinking I'm not sure what my role is here. I'm an 8 audiologist. I understand sound. They were complaining 9 of the noise. And I've had a lifelong interest or career 10 long interest in occupational hearing loss and in 11 community noise so I thought it would be interesting. I 12 was thinking about retiring in a few years and I thought, 13 well, this is something of interest to me. I could 14 possibly become involved if it seems important to do so 15 or interesting.</p> <p>16 And the family, we just interviewed them, more or 17 less, informally. Two daughters, two teenage daughters, 18 again, they were leaving their home at night to sleep in 19 a hotel or motel. And I came away actually thinking 20 honestly that what's the problem here? I heard the 21 turbines. They were moving somewhat during the afternoon 22 that I was there. I felt a little bit of sensation. It 23 didn't feel that strange at the time. I was only there, 24 as I said, a couple hours or so, three maybe. And I came 25 away thinking, well, I need to understand -- I want to</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 223</p> <p>1 MS. SMITH: I'm sorry. I'm kind of wondering 2 what the question is because I don't think it's quite -- 3 I'm sorry. I don't know where this started.</p> <p>4 Q. I think we were just kind of rambling a bit about 5 your background there, Dr. Punch. So let me try to hone 6 you in here.</p> <p>7 Did you file -- or did you prepare prefiled 8 testimony in this matter?</p> <p>9 A. I did.</p> <p>10 Q. And is that what has been marked as Exhibit I-2? 11 A. I'm looking at my list here I'm sorry I didn't 12 become acquainted with this earlier. I-2.</p> <p>13 A. Yes.</p> <p>14 Q. And do you have any changes or corrections you want 15 to make to that testimony?</p> <p>16 A. No, I don't.</p> <p>17 Q. And along with that testimony did you include two 18 exhibits which were your CV and then an article written 19 by you and Mr. James?</p> <p>20 A. I did, yes.</p> <p>21 Q. And you also provided some responses to some 22 questions asked by PUC Staff; is that correct?</p> <p>23 A. I did, yes.</p> <p>24 Q. And I'll represent to you that that those are on 25 Exhibit I-34, specifically Intervenors Responses to</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 222</p> <p>1 understand what's going on. So I rented -- rented. I 2 checked out a book from the library, Paul Gipe's book on 3 wind energy, Wind Energy Comes Of Age. And it was fairly 4 favorable toward wind energy. It did not -- it barely 5 mentioned noise, though, as an issue, and the book was 6 based a lot on the information that was available from 7 the wind turbines that had been installed in European and 8 I think Scandinavia countries and so forth and California 9 at that time by the time had become involved with wind 10 energy.</p> <p>11 So not getting a whole lot from the book in terms of 12 an explanation of what the family was complaining about, 13 I began to search the literature, first the internet and 14 then some other sources of let's say journal articles and 15 so on, and I ended up writing an article. Rick was a 16 co-author on the article along with a student we involved 17 in our measurements and writing the report.</p> <p>18 The study was published in Audiology Today, which is 19 basically a monthly magazine of the American Speech 20 Language Hearing Association in the summer of 2010, I 21 believe. And so as a result of that, I was asked to 22 chair a group in Michigan, which now the Department of 23 Energy essentially in the state to develop -- 24 My audio died. Are you hearing me? 25 Q. Yes.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 224</p> <p>1 Staff's Second Set of Data Requests to Intervenors. 2 If I were to ask you those same questions that are 3 asked in your prefiled testimony as well as the questions 4 asked by PUC Staff and Intervenors Responses to Staff's 5 Second Set of Data Requests to Intervenors, would you 6 provide the same answers here today?</p> <p>7 A. I would, yes.</p> <p>8 MR. ALMOND: At this time I would move for the 9 admission of Exhibit I 2 as well as Exhibits I 2 A and I 10 2 B.</p> <p>11 MR. DE HUECK: Do you have an objection? 12 MS. SMITH: Can we revisit this after cross? 13 MR. DE HUECK: Certainly.</p> <p>14 MR. ALMOND: I think the process we used 15 previously was to admit it and have her move to strike 16 it.</p> <p>17 MS. SMITH: If you would like to do it that way, 18 that's fine by me.</p> <p>19 MR. DE HUECK: You're right. Yes. Okay. So, 20 Staff, do you have anything to add?</p> <p>21 MS. EDWARDS: I have no objection. 22 MR. DE HUECK: So we're going to go ahead and 23 admit the exhibits and testimony. 24 (A short recess is taken.) 25 MR. DE HUECK: Okay. We're back in session.</p>

<p>ROUGH DRAFT -- DO NO QUOTE! 225</p> <p>1 The court reporter is all squared away so we can 2 continue. 3 Q. (BY MR. ALMOND) Dr. Punch, did you have the 4 opportunity to review Dr. Roberts's prefiled testimony in 5 this matter? 6 A. Yes, I did. 7 Q. And do you recall Mr. -- Dr. Roberts's prefiled 8 testimony him stating that he's not aware of any reliable 9 evidence providing any link between infrasound and 10 adverse health effects? 11 A. I did. Yeah I do. 12 Q. Do you have any response to that claim? 13 A. Well, I heard him say I'm not aware at least three 14 times with respect to that question. Or I read that. 15 There's I think mountains of evidence as we provided 16 in our article, the 2016 article, that included as 17 exhibit -- I've lost the numbers here but my second 18 exhibit. 19 You've heard testimony and I would agree with it 20 that from Rick especially that there's lots of field 21 evidence. There's lots of anecdotal evidence. There is 22 some evidence in the literature -- like Dr. Roberts made 23 the point that only epidemiological evidence is useful in 24 drawing conclusions about causation between wind turbine 25 noise and adverse health effects.</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 227</p> <p>1 draw inferences. We use what is available. 2 Not that we shouldn't do more research. Some of it 3 might be clinical research design. Some of it might be 4 epidemiological. But these studies that will really 5 address the question definitely about infrasound or just 6 even audible sound and things like dose response, how 7 much sound does it take before people really do come down 8 with the various complaints and problems that they 9 complain about. 10 That was one of my major takeaways from his -- his 11 comments there. He also did talk about -- he basically 12 uses government studies to rely on for his inference or 13 conclusion that there is no causative relationship 14 between adverse health effects and wind turbines. Yet he 15 uses -- he talked about peer reviewed studies. But these 16 government studies he relies on don't seem to be peer 17 reviewed, per se, in the way that he defines per 18 reviewed. So I found that rather unacceptable. 19 He holds folks like me and Mr. James and others to a 20 standard of peer reviewed epidemiological research to 21 establish those relationships yet he does not really 22 have -- he can't point to specific studies other than the 23 Health Canada study perhaps as others have also done to 24 support his view that there are no relationships, no 25 causative relationships here.</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 226</p> <p>1 He also said paradoxically that -- when asked how 2 likely is it that -- and I'm paraphrasing. How likely is 3 it that such epidemiological studies will be done in the 4 future. And he said not very likely. And I think I 5 agree with this in the sense that they're expensive, they 6 require a lot of preparation, government funding and 7 Mr. James has already responded to that issue of there's 8 just not government funding available for that kind of 9 research. 10 So my point is we have to take what we have. Just 11 like the Bradford Hill criteria doctor that is -- Sir 12 Austin Bradford Hill who addressed the medical society in 13 Britain in 1965 listing nine criteria which include 14 experimentation but there are eight other criteria that 15 he talked about that it becomes sort of the -- if you 16 will, the Bible of epidemiology, as I understand that. 17 As I understand it. Indicating that we don't need just 18 epidemiological research to answer questions about 19 causations -- causation of disease processes and/or 20 disorders and external patients. 21 He went through those criteria, but he didn't -- he 22 just named them. He didn't talk about what they are 23 about. And I think he basically ignored the message that 24 I would read into -- or read from Bradford -- Bradford 25 Hill's address, and that is, again, we use what we can to</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 228</p> <p>1 Q. And just I want to jump to kind of your over all 2 opinions and conclusions in your prefiled testimony. You 3 recommended two separate alternative noise limitations; 4 is that correct? 5 A. I did yes. 6 Q. One was a 40 dBA Leq night outside, the other 40 dBA 7 L A max; is that correct? 8 A. That's correct. 9 Q. Can you just explain the rationale for those two 10 recommendations? 11 A. Well, the 40 dB Leq comes from mostly -- emanates 12 really with the 2009 World Health Organization document 13 on night noise guidelines. And that's the point at which 14 it was said -- it was said -- it was decided and used by 15 the World Health Organization to be a threshold at which 16 there are substantial and nontrivial numbers of people 17 who are affected by low frequency noise. 18 They did not study in the 2009 document really wind 19 turbine noise. That needs to be understood. Wind 20 turbine noise has its own specific characteristics. But 21 if 40 dB Leq is needed for protection against things like 22 road traffic noise and airport noise -- or airport noises 23 and other kinds of noises, then because infrasound is a 24 component of wind turbine noise, the 40 dB actually seems 25 to be a conservative threshold to me.</p>

ROUGH DRAFT -- DO NO QUOTE! 229	ROUGH DRAFT -- DO NO QUOTE! 231
<p>1 45 I know is the design goal for this particular</p> <p>2 project, but 40 is really a very conservative goal. It</p> <p>3 should be lower. And I know Rick James talks about,</p> <p>4 recommends, 35 dB Leq but I realize the stress that puts</p> <p>5 on wind companies to build the projects and I'm not</p> <p>6 really trying to stop them from building the projects. I</p> <p>7 just want to protect people as much as possible.</p> <p>8 Let me point out the 40 dB Leq is the level that --</p> <p>9 I was about to get into this earlier, that the task force</p> <p>10 that I chaired in the state of Michigan some years ago</p> <p>11 was about to recommend -- that task force was shut down.</p> <p>12 I won't go into that unless you want me to. But there</p> <p>13 was some lobbying I think about shutting us down</p> <p>14 because --</p> <p>15 Q. I don't need you to go into that.</p> <p>16 A. Okay.</p> <p>17 Q. But --</p> <p>18 A. All right. So 40 dB is the level that's certainly</p> <p>19 recommended by the World Health Organization. It is very</p> <p>20 close to the levels that the -- that Dr. Schomer,</p> <p>21 Dr. Paul Schomer, has come up with recently based on four</p> <p>22 different sources of information, data. They recommend</p> <p>23 36 to 38 dB Leq.</p> <p>24 And he recommends it to be measured over a 24-hour</p> <p>25 period basically. That is a little different from the</p>	<p>1 infrasound we're talking about sound that does not</p> <p>2 attenuate very well and certainly not very rapidly, and</p> <p>3 as you've heard many times already in this hearing, it</p> <p>4 dissipates over very long distances.</p> <p>5 There's almost no barriers that can stop it. So</p> <p>6 even if you have your windows closed, it could be as bad</p> <p>7 inside as outside. And because the World Health</p> <p>8 Organization dealt with low frequency noises that did not</p> <p>9 include infrasound, I think an even lower number like 40</p> <p>10 instead of 45 dB LAMax would be appropriate to account</p> <p>11 for the peaks and valleys that do cause the annoyance in</p> <p>12 real time for people.</p> <p>13 And my concern -- and particularly in the 2009 WHO</p> <p>14 document, the concern there is with sleep. Sleep</p> <p>15 disturbance.</p> <p>16 Q. In addition to noise limitations, you also</p> <p>17 recommended a 1.25 mile setback. Why is it necessary to</p> <p>18 have both a noise limitation and a distance setback?</p> <p>19 A. Well, a distance setback would be ideal if we could</p> <p>20 show a really close correlation with the noise levels</p> <p>21 that people are exposed to at those distances. But</p> <p>22 because there are differences in terrain even changes in</p> <p>23 the weather patterns, differences in noise turbine</p> <p>24 arrays, the way they're arrayed with respect to one</p> <p>25 another, each other, you can't predict exactly what the</p>
<p>ROUGH DRAFT -- DO NO QUOTE! 230</p> <p>1 World Health Organization 40 dB level because they</p> <p>2 recommended that as an annual average, which I think it</p> <p>3 impractical -- implying by annual that you actually leave</p> <p>4 the sound level meter out for a year. We don't do that,</p> <p>5 of course. You take samples over a year.</p> <p>6 If I can get down to the 40 dB L E max is an</p> <p>7 attempt -- and I made this attempt in another case</p> <p>8 earlier in New York to try to look at the WHO documents,</p> <p>9 both the 1999 and the 2009 documents.</p> <p>10 Q. Can you back up just a little bit from the camera?</p> <p>11 A. Sure. I was actually taking a couple notes and</p> <p>12 trying to read my notes that I just wrote down just a</p> <p>13 minute ago. Anyway --</p> <p>14 Q. Let's not take any notes okay?</p> <p>15 A. Okay. All right.</p> <p>16 A. Okay. Can I go ahead with my --</p> <p>17 Q. Yeah. The 40 dB L A max.</p> <p>18 A. 40 dB L A max. If you review the -- even the 1999</p> <p>19 WHO standards I think they talk about the 45 dB L A max</p> <p>20 inside. And again the 40 dB L A max, one, is an attempt</p> <p>21 to account for all the peaks and valleys that occur in</p> <p>22 wind turbine noise. Much of it is infrasound. Some of</p> <p>23 it, of course, is also audible sound.</p> <p>24 I think even more conservative number might be in</p> <p>25 order because we're talking about -- when we talk about</p>	<p>ROUGH DRAFT -- DO NO QUOTE! 232</p> <p>1 noise levels are going to be from knowing the distance.</p> <p>2 But I think the 1.25 miles or 2 kilometers that's</p> <p>3 been recommended many times in the literature starting</p> <p>4 with Pierpont in 2009 would be sort of a minimum</p> <p>5 distance. 1.5 probably better, obviously. Again, trying</p> <p>6 to give fairness as much as I can be fair to the wind</p> <p>7 companies, 1.25 seems a rather respectable conservative</p> <p>8 number.</p> <p>9 But because the distance does not correlate very</p> <p>10 well with the noise levels at those distances, both would</p> <p>11 be my recommendation. It's not that hard to set the</p> <p>12 distance as a limiting factor or a minimum distance along</p> <p>13 with a maximum noise level. But certainly noise level</p> <p>14 always has to stay in the equation.</p> <p>15 MR. ALMOND: Thank you. I don't have any</p> <p>16 further questions for you at this time and I'll tender</p> <p>17 you for cross.</p> <p>18 MR. DE HUECK: Mr. Punch, we're now going to</p> <p>19 subject you to cross-examination starting with the</p> <p>20 Applicant, Prevailing Winds.</p> <p>21 MS. SMITH: Dr. Punch I'm just waiting so they</p> <p>22 can shift the camera over so that you can see me as</p> <p>23 opposed to others that are watching.</p> <p>24 (Discussion off the record.)</p> <p>25 CROSS-EXAMINATION</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 233</p> <p>1 BY MS. SMITH:</p> <p>2 Q. Dr. Punch, do you have anyone with you in the room?</p> <p>3 A. I don't.</p> <p>4 Q. And other than the documents that were filed in this</p> <p>5 matter including your testimony do you have any other</p> <p>6 documents in front of you?</p> <p>7 A. I had taken some handwritten notes. I'm putting</p> <p>8 those aside. I'm not using them. I don't have any other</p> <p>9 notes. I have a laptop to my right with some files I</p> <p>10 thought I might need, but I think everything is on the</p> <p>11 exhibit list that we might need.</p> <p>12 Q. Okay. Thank you. You mentioned -- you indicated</p> <p>13 you're an audiologist; correct?</p> <p>14 A. Correct.</p> <p>15 Q. And you're not an engineer, not a professional</p> <p>16 engineer. Is that also true?</p> <p>17 A. True. True.</p> <p>18 Q. And you're not an acoustician as Mr. James is;</p> <p>19 correct?</p> <p>20 A. Not as he is, no.</p> <p>21 Q. You don't perform modeling analyses for wind</p> <p>22 projects, for instance, to determine sound levels?</p> <p>23 A. I've never done that.</p> <p>24 Q. And you're not qualified to do that; is that</p> <p>25 correct?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 235</p> <p>1 Q. And so an audiologist can determine if somebody has</p> <p>2 hearing loss but they cannot necessarily determine or</p> <p>3 diagnose diseases, for instance, from the ear. Is that</p> <p>4 true?</p> <p>5 A. Well, I think a medical doctor would say we can't</p> <p>6 diagnose in the sense that we can tell where the</p> <p>7 lesion -- the site of the lesion is by audiometric</p> <p>8 testing battery that we can perform, some of which is</p> <p>9 electrophysiologic, some of which is audiological through</p> <p>10 earphones and so forth but we can't determine what the</p> <p>11 actual cause of, say, sensory neuro hearing loss really</p> <p>12 is.</p> <p>13 Many times in reports we put in audiometric results</p> <p>14 are highly consistent with presbyacoustic hearing loss or</p> <p>15 noise-induced hearing loss, for example, and that is</p> <p>16 helpful to physicians in making their diagnosis. But</p> <p>17 they have additional tests they can perform, including</p> <p>18 their own physical exam.</p> <p>19 Q. So if you -- as I understand your testimony, if you</p> <p>20 identified an issue, that may be referred to a physician</p> <p>21 in order to make a further testing diagnosis to determine</p> <p>22 the actual cause?</p> <p>23 A. Yes. We work closely with otolaryngologists, ENT</p> <p>24 specialists, in that we get referrals from them, and we</p> <p>25 refer to them with respect to diagnostic and sometimes</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 234</p> <p>1 A. I don't really know, to be honest, in terms of</p> <p>2 acoustical standards. Probably not. I have certainly</p> <p>3 done measurements in communities about community noise,</p> <p>4 race tracks, for example, and public events like concert</p> <p>5 hauls and so forth. I have made noise measurements part</p> <p>6 of my training as an audiologist was how to make noise</p> <p>7 measurements.</p> <p>8 Q. Okay. Are you a licensed audiologist?</p> <p>9 A. I am not because I am a retired audiologist I didn't</p> <p>10 want to pay the \$350 a year when I knew I wouldn't be</p> <p>11 practicing clinical work. Licensing only applies to</p> <p>12 clinical work, working with patients who have hearing</p> <p>13 problems.</p> <p>14 Q. Certainly. And so have you ever been licensed?</p> <p>15 A. I have been licensed the whole time with my career</p> <p>16 that I was involved in clinical work, yes.</p> <p>17 Q. Okay.</p> <p>18 A. In a couple states.</p> <p>19 Q. Are you licensed to practice medicine?</p> <p>20 A. Of course not.</p> <p>21 Q. Based on your testimony earlier I understand that an</p> <p>22 audiologist deals with hearing related diagnoses or</p> <p>23 treatment. So, for instance, hearing loss treatment. Is</p> <p>24 that true?</p> <p>25 A. That's true.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 236</p> <p>1 treatment issues. If medical or surgical treatments seem</p> <p>2 applicable, then certainly we refer to a medical</p> <p>3 specialist.</p> <p>4 Q. And as an audiologist you don't have any expertise</p> <p>5 to diagnose nonhearing related maladies like heart</p> <p>6 disease or diabetes; is that true?</p> <p>7 A. That's true. True.</p> <p>8 Q. In your testimony you state that you're testifying</p> <p>9 as an expert witness regarding the potential health</p> <p>10 effects posed by noise from the project; is that correct?</p> <p>11 A. True.</p> <p>12 Q. I believe if you want to turn to pages 3 and 4 of</p> <p>13 your testimony, do you have that in front of you?</p> <p>14 A. What exhibit is that? I do not have it -- I have it</p> <p>15 on the computer.</p> <p>16 Q. Certainly. I believe it is Exhibit 2. I 2. Sorry.</p> <p>17 A. I 2?</p> <p>18 Q. I 2.</p> <p>19 A. I 2 A? I'm sorry. Prefiled testimony?</p> <p>20 Q. Yes.</p> <p>21 A. Okay. Okay. I have it.</p> <p>22 Q. And if you look at page 3. 3 and 4.</p> <p>23 A. Okay.</p> <p>24 Q. I'm looking at lines 58 and 59. Do you see those?</p> <p>25 A. 59 ends the question and 60 starts an answer.</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 237</p> <p>1 Q. Yes.</p> <p>2 A. On my -- okay.</p> <p>3 Q. That's correct. And, as I understand that portion</p> <p>4 of your testimony starting at line 60 through 81 you're</p> <p>5 identifying your qualifications to testify as a health</p> <p>6 expert regarding wind turbine noise. Is that true?</p> <p>7 A. Well, the question was what experiences do I have to</p> <p>8 qualify me as a health expert, yes. In that sense it's</p> <p>9 true.</p> <p>10 Q. And as I'm looking at your testimony, you indicate</p> <p>11 that you coauthored an article on wind turbine noise in</p> <p>12 Audiology Today.</p> <p>13 Is that the article you were referencing with</p> <p>14 Mr. James that you --</p> <p>15 A. That was the first article. That's not the same</p> <p>16 article as I included as my Exhibit 2.</p> <p>17 Q. Certainly. You talk about chairing a technical work</p> <p>18 group. Is that true?</p> <p>19 A. Yes.</p> <p>20 Q. Testifying before zoning boards and commissions. Is</p> <p>21 that also correct?</p> <p>22 A. I have, yes.</p> <p>23 Q. Coauthoring a blog on a website. Is that also true?</p> <p>24 A. The article, wind turbine -- well, Exhibit 2 is an</p> <p>25 article that is published on a website. I called it a</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 239</p> <p>1 you think can occur due to wind turbines; is that true?</p> <p>2 A. Yes. Most of which are documented all of which are</p> <p>3 documented in the literature.</p> <p>4 Q. And that's your -- you reference those on page 5 of</p> <p>5 your testimony; correct?</p> <p>6 A. Are you talking about the symptoms or the complaints</p> <p>7 or the health problems?</p> <p>8 Q. Yes.</p> <p>9 A. Okay.</p> <p>10 Q. So, for instance, you note sleep disturbance,</p> <p>11 annoyance, headaches, dizziness, vertigo, nausea, those</p> <p>12 types of symptoms?</p> <p>13 A. Absolutely, yes.</p> <p>14 Q. People that don't live near wind turbines also can</p> <p>15 experience those same health effects. Is that true?</p> <p>16 A. Admittedly, yes of course.</p> <p>17 Q. And there's multiple reasons why someone might</p> <p>18 suffer a headache, for instance. Is that also true?</p> <p>19 A. Many reasons I understand, yes.</p> <p>20 Q. So if someone is seeking treatment for certain</p> <p>21 symptoms part of the process as we discussed earlier</p> <p>22 would be to diagnose potential causes of that</p> <p>23 particularly symptom. Is that true?</p> <p>24 A. True.</p> <p>25 Q. And you would also rule out other potential causes</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 238</p> <p>1 blog. I'm not sure it's really a blog. It's really a --</p> <p>2 it's like a journal of the hearing health -- technology</p> <p>3 and health matters. Okay.</p> <p>4 Q. Okay. And then testifying in other matters; is that</p> <p>5 true?</p> <p>6 A. Yes.</p> <p>7 Q. And interviewing individuals?</p> <p>8 A. I have interviewed individuals, yes.</p> <p>9 Q. And then the article that you've coauthored with</p> <p>10 Mr. James that you do have is Exhibit 2-2; is that</p> <p>11 correct?</p> <p>12 A. Sure. Yes.</p> <p>13 Q. So other than your interviews with people where you</p> <p>14 were interviewing them and asking them about their</p> <p>15 complaints as you described earlier in your testimony,</p> <p>16 you're relying primarily on other people's information to</p> <p>17 have your opinions; is that true?</p> <p>18 A. Well, to a large extent I have my own experiences</p> <p>19 visiting and talking with people and doing some more</p> <p>20 formal interviewing than I had mentioned earlier.</p> <p>21 Q. Okay. As far as -- as far as the people that you</p> <p>22 interviewed, did you perform medical examinations of</p> <p>23 those people?</p> <p>24 A. No.</p> <p>25 Q. And you have identified a number of maladies that</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 240</p> <p>1 so that you can identify hopefully the true cause; is</p> <p>2 that correct?</p> <p>3 A. Yes. And you're talking about individuals. I don't</p> <p>4 diagnose individuals. I talk -- my work is involved with</p> <p>5 what I call causation assessment or risk assessment, not</p> <p>6 individual diagnosis.</p> <p>7 Q. No. That would be what a physician would do; is</p> <p>8 that correct?</p> <p>9 A. Individual diagnosis, yes.</p> <p>10 Q. And an audiologist does not have the training to</p> <p>11 rule out nonhearing related symptoms as you've stated</p> <p>12 earlier; correct?</p> <p>13 A. Nonhearing related symptoms? Rule out?</p> <p>14 We can take the patient's -- or client's or</p> <p>15 patient's word for it, like the physicians have to do,</p> <p>16 that they have a headache, for example, but we can't</p> <p>17 officially diagnose it.</p> <p>18 Q. On page 5 of your testimony you indicate that</p> <p>19 landowners who participate in a wind project or sign</p> <p>20 waiver agreements with a wind company are less likely to</p> <p>21 experience or report negative effects from turbines; is</p> <p>22 that correct?</p> <p>23 A. I believe it is.</p> <p>24 Q. So a person's perception of a wind project can</p> <p>25 influence their reaction to the wind project. Is that</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">241</p> <p>1 true?</p> <p>2 A. Of course.</p> <p>3 Q. On page 6 of your testimony you state that you</p> <p>4 estimate around 15 to 20 percent of exposed residents</p> <p>5 will experience extreme annoyance and sleep disturbance.</p> <p>6 Is that true?</p> <p>7 A. Right.</p> <p>8 Q. You don't site a source for that statement in your</p> <p>9 testimony, do you?</p> <p>10 A. There is no source that says the range is 15 to 25</p> <p>11 percent. I was offering an opinion and also an estimate,</p> <p>12 and that is my estimate.</p> <p>13 Q. In your testimony you indicate that you have been</p> <p>14 retained as an expert witness in the past. Is that true?</p> <p>15 A. Yes.</p> <p>16 Q. Are you familiar with the case of Williams versus</p> <p>17 Invenergy, LLC?</p> <p>18 A. Yes.</p> <p>19 Q. And do you have in front of you what's been marked</p> <p>20 as I -- oh, A 36?</p> <p>21 A. I have it on the list I'll have to find it. I'm</p> <p>22 sorry. I --</p> <p>23 Q. I apologize. It's A 36. It would have been sent to</p> <p>24 you by e-mail.</p> <p>25 A. Oh, I think that was sent to Mr. James's e-mail</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">243</p> <p>1 the same reasons my testimony was excluded because of the</p> <p>2 Daubert hearing issue that we discussed.</p> <p>3 Q. Okay. So if you'll look on page 14 of the -- and so</p> <p>4 the -- as I understand it, the page numbers are on the</p> <p>5 lower right-hand side.</p> <p>6 A. Yeah. I'm almost there.</p> <p>7 Q. Okay.</p> <p>8 A. Okay. I have page 14.</p> <p>9 Q. So if we look under A, Qualifications, do you see</p> <p>10 that subsection?</p> <p>11 A. I do. Yes, I do.</p> <p>12 Q. And I'll just warn you Cheri's looking at me so we</p> <p>13 have to be careful not to talk over each other. Cheri is</p> <p>14 our court reporter.</p> <p>15 I see a line that says, "Punch's qualifications are</p> <p>16 impressive to be sure." Is Punch you, Dr. Punch?</p> <p>17 A. I would assume.</p> <p>18 Q. And if you look down at the bottom of the page it</p> <p>19 says, "However," and then up at the top of 14, "Punch is</p> <p>20 neither a medical doctor nor an epidemiologist who could</p> <p>21 opine on the cause of Williams' symptoms solely on the</p> <p>22 basis of these qualifications. Therefore, for Punch's</p> <p>23 causation testimony to be admissible he must support his</p> <p>24 causation opinion with reference to foundational</p> <p>25 literature which establishes the causal relationship</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">242</p> <p>1 address because I'm in his study in his home. I don't</p> <p>2 know --</p> <p>3 Q. I apologize. So do we need to send it to your</p> <p>4 e-mail now?</p> <p>5 A. I have my computer available to do that, if you</p> <p>6 will.</p> <p>7 Q. Okay. We will send it to you.</p> <p>8 A. I need to log in.</p> <p>9 Q. Okay.</p> <p>10 A. Again.</p> <p>11 A. I think I have it now.</p> <p>12 Q. Okay. If you have it up just let us know when</p> <p>13 you're ready.</p> <p>14 A. It's open. I'll need to be leaning to the right to</p> <p>15 access it. Okay.</p> <p>16 Q. Okay.</p> <p>17 A. Okay.</p> <p>18 Q. Were you retained by the plaintiff in this action to</p> <p>19 provide expert testimony on health effects of wind</p> <p>20 turbines?</p> <p>21 A. Yes, I was.</p> <p>22 Q. And was your testimony excluded by the court?</p> <p>23 A. As I recall, it was. I heard -- I should say I was</p> <p>24 present to hear Mr. James's testimony, and I think we</p> <p>25 were -- I know we were involved in the same case, and for</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">244</p> <p>1 through the Application of scientific knowledge."</p> <p>2 Have I read that accurately?</p> <p>3 A. You have.</p> <p>4 Q. So if we turn then to page 15?</p> <p>5 A. Okay.</p> <p>6 Q. And were you -- before I get there were you present</p> <p>7 for the discussion of the reason -- I believe you said</p> <p>8 you heard Mr. James's testimony?</p> <p>9 A. From another room I was listening on another</p> <p>10 computer, yes, on the website.</p> <p>11 Q. Did you hear the discussion and us read through the</p> <p>12 reasons why the Cape Bridgewater study was found by the</p> <p>13 Court to not support an opinion of causation?</p> <p>14 A. I have to say I only caught part of that. I'm not</p> <p>15 fully aware of what was said in total.</p> <p>16 Q. If I indicate that Mr. James agreed that I read the</p> <p>17 portions that were referencing the Cape Bridgewater study</p> <p>18 and the Dr. Kelly article and Paul Schomer's articles as</p> <p>19 not being sufficient to form a basis for causation, would</p> <p>20 you accept that based on what's in the document?</p> <p>21 A. I would accept that you --</p> <p>22 Q. Read it correctly.</p> <p>23 A. I'm accepting that you read it correctly, yes.</p> <p>24 Q. I won't repeat those then.</p> <p>25 A. Okay.</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 245</p> <p>1 Q. If we look at then on page 15 at the bottom on the</p> <p>2 left-hand column it says -- and are you there? I should</p> <p>3 ask before I start.</p> <p>4 A. Am I here? Yes.</p> <p>5 Q. It says here, "Neither the Pierpont nor Schomer</p> <p>6 information constitutes an epidemiological study or shows</p> <p>7 a significant statistical relationship between turbine</p> <p>8 generated infrasound and adverse health effects. The</p> <p>9 third article by Sult and Huller (check) supports its</p> <p>10 theory of causation by demonstrating some low frequency</p> <p>11 sounds stimulate hair cells in the cochleas of guinea</p> <p>12 pigs. However, the Salt and Huller article, like Punch's</p> <p>13 other exhibits, fail to demonstrate the statistical</p> <p>14 relationship between low frequency wind turbine</p> <p>15 infrasound and human health effects."</p> <p>16 Did I read that accurately?</p> <p>17 A. I wasn't actually reading with you. I have no</p> <p>18 reason to doubt that you read it accurately. Is that</p> <p>19 acceptable?</p> <p>20 Q. That's acceptable.</p> <p>21 And the Pierpont study is the book by Neenah</p> <p>22 Pierpont called Wind Turbine Syndrome? Is that true that</p> <p>23 they're referencing?</p> <p>24 A. True.</p> <p>25 Q. And there's testimony in your -- in your Direct</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 247</p> <p>1 variations, factors, can influence the noise levels that</p> <p>2 are picked up or expose people to certain noise levels at</p> <p>3 that particular distance.</p> <p>4 In other words, different people at 1.25 may not</p> <p>5 experience the same noise levels. I didn't quite make</p> <p>6 that clear earlier, I think.</p> <p>7 Q. Are you aware that -- as Mr. Howell did in this</p> <p>8 case, that it's possible to model in advance the</p> <p>9 estimated sound levels at specific distances from wind</p> <p>10 turbines?</p> <p>11 A. As I said earlier, I don't do the model but I</p> <p>12 understand what modeling is about and I understand from</p> <p>13 other acousticians in addition to Mr. James that modeling</p> <p>14 is not always accurate.</p> <p>15 MS. SMITH: I have no further questions at this</p> <p>16 time. I would move to strike all of Dr. Punch's</p> <p>17 testimony. He does not have the qualifications to opine</p> <p>18 regarding health effects, nor does he have the</p> <p>19 qualifications to opine regarding acoustical analyses of</p> <p>20 wind project and appropriate wind turbine levels.</p> <p>21 MR. DE HUECK: So from my perspective I'm going</p> <p>22 to stand by my prior ruling and apply it to Mr. Punch in</p> <p>23 that he may not testify as to health related effects.</p> <p>24 However, I think he is allowed to testify as an expert to</p> <p>25 infrasonic sounds and inaudible noises from his</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 246</p> <p>1 Testimony you have certain references to Mr. Howell's</p> <p>2 study on -- the acoustical study that was performed by</p> <p>3 Mr. Howell. Is that accurate?</p> <p>4 A. I did make some comments on that, yes.</p> <p>5 Q. Okay. And you made recommendations of certain</p> <p>6 distances and certain sound levels that you believe are</p> <p>7 appropriate; is that true?</p> <p>8 A. I don't recall whether that was in -- with respect</p> <p>9 to Mr. Howell's testimony or someone else's, but I think</p> <p>10 that's -- that makes sense, yes.</p> <p>11 Q. And I should --</p> <p>12 A. I'll take it as true.</p> <p>13 Q. I should restate that you did make those opinions</p> <p>14 not necessarily in response always to Mr. Howell but of</p> <p>15 your own determination?</p> <p>16 A. That's right.</p> <p>17 Q. And as I understood your testimony earlier, you</p> <p>18 indicated that you had offered a distance of -- a mile</p> <p>19 distance in addition to a dBA level because you didn't</p> <p>20 know how you would determine sound at a specific level.</p> <p>21 Is that true -- or a specific distance. Is that</p> <p>22 accurate?</p> <p>23 A. Yes. I said basically that the two don't correlate</p> <p>24 always because of differences like terrain and weather</p> <p>25 conditions and times of year. All kinds of things,</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 248</p> <p>1 experience and his training and research.</p> <p>2 MR. ALMOND: May I have the opportunity to voir</p> <p>3 dire the witness specifically related to this court case</p> <p>4 that she was just referring to, as there's a pretty</p> <p>5 significant paragraph in there where the Court says --</p> <p>6 "Dr. Punch is provided to give an opinion on causation</p> <p>7 that wind turbines produce audible noise which may</p> <p>8 disturb individuals and interfere with sleep," which is</p> <p>9 on page 16 of this court case we're going over that has</p> <p>10 not been discussed yet.</p> <p>11 MR. DE HUECK: Can you point me to where</p> <p>12 you're --</p> <p>13 MR. ALMOND: Page 16 of of the Williams versus</p> <p>14 Invenergy.</p> <p>15 MR. DE HUECK: Where is it?</p> <p>16 MR. ALMOND: C, Admissible Subjects of</p> <p>17 Testimony. Just read that section.</p> <p>18 MR. DE HUECK: Yeah. The first sentence, that's</p> <p>19 what I was trying to say. We're not going to talk about</p> <p>20 adverse health effects.</p> <p>21 MR. ALMOND: Of infrasound and not audible -- or</p> <p>22 low frequency sound pulses.</p> <p>23 That paragraph goes on to say that "Given his</p> <p>24 expertise as an audiologist, he is qualified to give</p> <p>25 opinions that wind turbines produce audible noise which</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 249</p> <p>1 may disturb individuals and interfere with sleep."</p> <p>2 MS. SMITH: May I respond? Because nothing that</p> <p>3 we've discussed here so far indicates that an audiologist</p> <p>4 tests for infrasound. They test for hearing loss.</p> <p>5 Hearing has to be audible. Therefore, I do not believe</p> <p>6 that he is qualified to speak regarding infrasound.</p> <p>7 MS. EDWARDS: I'd just like to weigh in that, if</p> <p>8 permissible, I would like to further voir dire the</p> <p>9 witness on the same issue.</p> <p>10 MR. DE HUECK: Go ahead.</p> <p>11 MS. EDWARDS: Thank you. Mr. -- rather,</p> <p>12 Dr. Punch, are you familiar with the case out of -- or,</p> <p>13 rather, docket out of New York involving the Cassadaga</p> <p>14 Wind Farm permit.</p> <p>15 THE WITNESS: I am.</p> <p>16 MS. EDWARDS: Did you offer testimony in that</p> <p>17 case?</p> <p>18 THE WITNESS: I did, yes.</p> <p>19 MS. EDWARDS: Was your status as an expert</p> <p>20 challenged?</p> <p>21 THE WITNESS: I don't think my credentials per</p> <p>22 se were challenged. I don't recall that they were.</p> <p>23 MS. EDWARDS: Was there a Motion to have your</p> <p>24 testimony excluded?</p> <p>25 THE WITNESS: Well, if you have evidence that's</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 251</p> <p>1 did earlier.</p> <p>2 He may not talk about adverse health effects as,</p> <p>3 say, a doctor or another medical professional because</p> <p>4 clearly he is not. But he has clearly stated that he has</p> <p>5 been studying audiology for a long long time, and he's</p> <p>6 got a background and a resume to support that.</p> <p>7 On that note I believe infrasound and other</p> <p>8 inaudible noises go hand in hand with his study, and he's</p> <p>9 clearly very fluent in that matter, which is beyond</p> <p>10 someone just someone talking about what they've read on</p> <p>11 the internet. So I believe his background will allow him</p> <p>12 to testify in terms of infrasound.</p> <p>13 Additionally, I see what Reece has pointed out,</p> <p>14 and if you read the whole paragraph it makes sense to me.</p> <p>15 They're not saying that he can medically go on to expound</p> <p>16 about sleep related health effects but that if he has,</p> <p>17 such as the WHO, literature that talks about health</p> <p>18 effects, he's qualified to tell us about those reports</p> <p>19 and what they said.</p> <p>20 MS. SMITH: And just to be clear, as I</p> <p>21 understand -- I understand with the reading here that</p> <p>22 noise can cause sleep disturbance -- the relationship</p> <p>23 between noise and sleep disturbance was allowed by the</p> <p>24 court in this particular case.</p> <p>25 So is your ruling that that's allowable? That's</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 250</p> <p>1 true, your documentation would be better than my</p> <p>2 recollection. I don't recall it. No. I don't recall</p> <p>3 it.</p> <p>4 MS. EDWARDS: Would it be accurate to state that</p> <p>5 the Public Service Commission found that it went to</p> <p>6 weight and persuasiveness rather than admissibility and</p> <p>7 allowed your testimony in?</p> <p>8 THE WITNESS: That sounds consistent with what I</p> <p>9 recall. But I'm not -- I'm not a lawyer either, and I</p> <p>10 don't really fully understand the weight of those -- you</p> <p>11 know, the substance of those labels.</p> <p>12 MS. SMITH: I would say that this -- we're</p> <p>13 really just doing legal argument through the witness</p> <p>14 because that particular case had a standard where they</p> <p>15 allowed -- they decided they didn't -- were not going to</p> <p>16 apply the traditional standards of admissibility and they</p> <p>17 allowed the witness in and it went to weight.</p> <p>18 Here we have been applying the rules of</p> <p>19 admissibility. They need to be an expert witness in</p> <p>20 order to testify. Otherwise, anyone could come up and</p> <p>21 give their opinions regarding articles on the internet,</p> <p>22 and we've been attempting to differentiate between the</p> <p>23 two.</p> <p>24 MR. DE HUECK: Okay. So still applying a legal</p> <p>25 standard here is my ruling, and it's similar to what we</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 252</p> <p>1 the extent of what's allowable?</p> <p>2 MR. DE HUECK: That would be the extent.</p> <p>3 MS. SMITH: Okay. Just wanted a clarification.</p> <p>4 Thank you.</p> <p>5 MR. DE HUECK: So I'm considering it pretty</p> <p>6 limited testimony, avoiding anything that is assessing</p> <p>7 the risk of health problems.</p> <p>8 MS. SMITH: All right. As long as we're</p> <p>9 stopped, I will offer that we'll do the same approach</p> <p>10 that we did before. We will provide our proposed</p> <p>11 striking redaction of the testimony that's been</p> <p>12 submitted, and we'll look at the transcript as well.</p> <p>13 MR. DE HUECK: Yes.</p> <p>14 MS. SMITH: Thank you. I have no further</p> <p>15 questions then.</p> <p>16 MR. DE HUECK: Okay.</p> <p>17 Moving on for cross-examination to Mr. Fuerniss.</p> <p>18</p> <p>19 <u>CROSS-EXAMINATION</u></p> <p>20 <u>BY MR. FUERNISS:</u></p> <p>21 Q. Hello, Dr. Punch. You have referenced the World</p> <p>22 Health Organization. Is it true that they're currently</p> <p>23 reviewing their noise standards and looking in particular</p> <p>24 at noises from wind turbines?</p> <p>25 A. That's true. I learned that yesterday.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 253</p> <p>1 MR. FUERNISS: Thank you. I have no further</p> <p>2 questions.</p> <p>3 MR. DE HUECK: Ms. Jenkins.</p> <p>4 MS. JENKINS: No questions.</p> <p>5 MR. DE HUECK: Ms. Pazour.</p> <p>6 MS. PAZOUR: No questions.</p> <p>7 MR. DE HUECK: Staff.</p> <p>8 MS. EDWARDS: No questions.</p> <p>9 MR. DE HUECK: Okay. Dr. Punch -- or,</p> <p>10 Mr. Punch, now we're going to subject you to Commissioner</p> <p>11 cross-examination. We're going to get you over to</p> <p>12 Kristie Fiegen.</p> <p>13 Before she begins I just have one question.</p> <p>14 That Pierpont lady, she came up with infrasound</p> <p>15 and studied it and published some things. Would it</p> <p>16 surprise you to know that she had changed her position</p> <p>17 and determined that wind turbines do not carry</p> <p>18 infrasound? In other words, she backed off of her former</p> <p>19 position that you would have relied on in that court</p> <p>20 case?</p> <p>21 THE WITNESS: Well, I relied on a number of</p> <p>22 things. But it would surprise me, yes. It would</p> <p>23 surprise me.</p> <p>24 MR. DE HUECK: So you have not heard that?</p> <p>25 THE WITNESS: I have not.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 255</p> <p>1 some already rendered legal decision so convincingly that</p> <p>2 some segments of the population suffer damaging effects</p> <p>3 from exposure to wind turbine noise."</p> <p>4 Can you cite for me the legal decisions that</p> <p>5 you're referring to there?</p> <p>6 THE WITNESS: I don't think they're necessarily</p> <p>7 the legal decisions that were made in cases I've been</p> <p>8 involved with. They're cases that I've discussed with</p> <p>9 Rick James, and he's discussed some cases of others who</p> <p>10 he knows -- other acousticians who have been involved in</p> <p>11 these cases.</p> <p>12 I cannot cite at this point -- I was basing that</p> <p>13 on information I had then, but I don't recall what I was</p> <p>14 basing it on at this point.</p> <p>15 I think probably I was thinking for sure about</p> <p>16 the Wisconsin case. We mentioned the Shirley Wind case</p> <p>17 in this article, in fact. This was written in 2015 or</p> <p>18 '16. And that case was on going since, I don't know,</p> <p>19 2012 at least, if not earlier. So the fact that it had</p> <p>20 been ruled a human health hazard was a legal decision in</p> <p>21 a court case essentially, in a hearing at least.</p> <p>22 There are other cases in Europe. There are</p> <p>23 cases now that anyone about then in Canada, particularly</p> <p>24 Ontario, Australia, I think, Ireland where there are real</p> <p>25 community pushback -- there's real community pushback to</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 254</p> <p>1 MR. DE HUECK: Okay.</p> <p>2 CHAIRWOMAN FIEGEN: I have none.</p> <p>3 MR. DE HUECK: Vice Chairman Hanson.</p> <p>4 No questions.</p> <p>5 Commissioner Nelson.</p> <p>6 COMMISSIONER NELSON: Dr. Punch, your Exhibit 2,</p> <p>7 which I think has been labeled as Intervenor 2 B, the</p> <p>8 wind turbine noise and human health paper, on the bottom</p> <p>9 of page 2 --</p> <p>10 THE WITNESS: I'm sorry. Is that Exhibit 2?</p> <p>11 COMMISSIONER NELSON: It was Exhibit 2 on your</p> <p>12 testimony.</p> <p>13 THE WITNESS: Right.</p> <p>14 COMMISSIONER NELSON: It's been labeled as 2 B.</p> <p>15 THE WITNESS: Well, they're numbered by letters</p> <p>16 and then a number.</p> <p>17 COMMISSIONER NELSON: Yep. I-2 B. And if you</p> <p>18 go to the second page.</p> <p>19 THE WITNESS: Okay.</p> <p>20 COMMISSIONER NELSON: Bottom of the second page,</p> <p>21 probably second to the last sentence that starts, "In</p> <p>22 fact."</p> <p>23 THE WITNESS: Just getting to the second page.</p> <p>24 Okay. Yes. Okay.</p> <p>25 COMMISSIONER NELSON: "In fact much research and</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 256</p> <p>1 install turbine operations.</p> <p>2 And even in Canada I think -- my understanding</p> <p>3 is that in the province of Ontario the new premier, Doug</p> <p>4 Jones -- excuse me. Doug Ford was elected in large part</p> <p>5 because of the community's complaints and upset with</p> <p>6 respect to all the turbines that are going up in that</p> <p>7 area of the country.</p> <p>8 COMMISSIONER NELSON: Yeah. But that has</p> <p>9 nothing to do with a convincing legal decision.</p> <p>10 So I want to go back to your reference to the</p> <p>11 Shirley Wind Farm issue where that area was declared to</p> <p>12 be a public health area.</p> <p>13 THE WITNESS: Human health hazard, yes.</p> <p>14 COMMISSIONER NELSON: Okay. And that decision</p> <p>15 was made by a court of law; is that correct?</p> <p>16 THE WITNESS: Well, it was made by the Public</p> <p>17 Service Commission, I think, based on evidence from the</p> <p>18 Department of Health. I was not involved in that case.</p> <p>19 Let me make that clear.</p> <p>20 COMMISSIONER NELSON: But that's the one that</p> <p>21 you're referring to in this paper; correct?</p> <p>22 THE WITNESS: Okay. Correct. I believe so. I</p> <p>23 believe so.</p> <p>24 COMMISSIONER NELSON: No further questions.</p> <p>25 THE WITNESS: Again -- okay.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 257</p> <p>1 MR. DE HUECK: With that, Mr. Almond, do you</p> <p>2 have any redirect?</p> <p>3 MR. ALMOND: No.</p> <p>4 MR. DE HUECK: Prevailing Winds, do you have any</p> <p>5 recross based solely on Commissioner Nelson's question?</p> <p>6 MS. SMITH: No.</p> <p>7 MR. DE HUECK: Staff.</p> <p>8 MS. EDWARDS: No.</p> <p>9 MR. DE HUECK: Okay. Mr. Punch, thank you for</p> <p>10 your testimony today. You may be dismissed.</p> <p>11 (The witness is excused.)</p> <p>12 MR. DE HUECK: And moving on, Mr. Almond, you</p> <p>13 may call your next witness.</p> <p>14 MS. AGRIMONTI: Mr. de Hueck, I'm sorry. I just</p> <p>15 realized the time. We're hitting 5:30, and I know we'll</p> <p>16 go until 7:00. I didn't know if this was the right time</p> <p>17 to break, or if you had a different time in mind.</p> <p>18 (Discussion off the record.)</p> <p>19 MR. DE HUECK: Reece, why don't you go ahead.</p> <p>20 Call your next witness we'll at least get your portion</p> <p>21 done and then think about a break before</p> <p>22 cross-examination.</p> <p>23 MR. ALMOND: Intervenors call Paul Schoenfelder.</p> <p>24</p> <p>25</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 259</p> <p>1 worked as a recreation manager for the city of boys I</p> <p>2 parks and recreation department. Wife and I worked on a</p> <p>3 business model, plan tried to figure out a way to</p> <p>4 basically get back to South Dakota get back to the farm.</p> <p>5 So right now since January I moved back. I'm in the</p> <p>6 process of building a business on the farm site.</p> <p>7 Q. And what about your wife? What does she do?</p> <p>8 A. She's a training manager for a company called D T S.</p> <p>9 She works remotely the company she works for is based out</p> <p>10 of Orlando Florida she works out of our home remotely.</p> <p>11 Q. Do you have any children?</p> <p>12 A. We do. We have four adult children. Our adult</p> <p>13 child, Zachary, our third child, moved back to</p> <p>14 South Dakota in June.</p> <p>15 Q. Where does he live?</p> <p>16 A. He lives on the farm with us. He purchased a camper</p> <p>17 and moved on to the farm site. We're in the process of</p> <p>18 renovating the farmhouse, and so for the last few months</p> <p>19 we've been living in the camper since we don't have a</p> <p>20 flush toilet. So until I get my rough-in permit, my</p> <p>21 rough-in inspection and get my shower back in place,</p> <p>22 we're living in the camper on the farmsite.</p> <p>23 Q. The other three children live outside of</p> <p>24 South Dakota?</p> <p>25 A. Yes. All three live in Idaho.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 258</p> <p>1 Paul Schoenfelder,</p> <p>2 called as a witness, being first duly sworn in the above</p> <p>3 cause, testified under oath as follows:</p> <p>4 <u>DIRECT EXAMINATION</u></p> <p>5 BY MR. ALMOND:</p> <p>6 Q. Why don't you introduce yourself to the Commission?</p> <p>7 A. My name is Paul Schoenfelder. I live at 40228 296th</p> <p>8 Street, Wagner, South Dakota.</p> <p>9 Q. And do you own land in or around the project</p> <p>10 footprint?</p> <p>11 A. I do.</p> <p>12 Q. How long -- sorry.</p> <p>13 A. Sorry. Own a farm together with my wife. I in 2000</p> <p>14 received a deed to a portion of what's my wife's family</p> <p>15 farm.</p> <p>16 Q. How many acres do you own?</p> <p>17 A. 160.</p> <p>18 Q. And how long did you say you've lived there?</p> <p>19 A. My wife grew up on the family farm. We moved to</p> <p>20 Boise, Idaho and then in -- let's see 2017 my wife</p> <p>21 returned to the area, to the farm, and then I moved to</p> <p>22 the area in January of 2018.</p> <p>23 Q. And what do you do for a living?</p> <p>24 A. Right now I'm working on building two businesses in</p> <p>25 the area. We -- I lived out in Idaho for 24 years. I</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 260</p> <p>1 Q. And do you have any concerns with this project?</p> <p>2 A. I have numerous concerns with the project.</p> <p>3 Q. I should first clarify are you an Intervener in this</p> <p>4 proceeding?</p> <p>5 A. Yes. I am an Intervenor in this case. Several</p> <p>6 concerns. My primary concern is my health, the health of</p> <p>7 my family.</p> <p>8 We have several wind turbines proposed within a mile</p> <p>9 of our home. I know several people that live near the</p> <p>10 Beethoven wind project have had very credible health</p> <p>11 concerns associated with that. I've visited the</p> <p>12 Beethoven area. Again it's only a few miles from my</p> <p>13 home. Sound, shadow flicker, vibration. Those are</p> <p>14 things that are definitely concern for me. Long-term</p> <p>15 we're planning to live in this house I have to assume for</p> <p>16 the rest of our lives. It faces towards the east. To</p> <p>17 the southeast we've got multiple wind turbines. So</p> <p>18 health issues are huge.</p> <p>19 You know, from an aesthetics standpoint, this is</p> <p>20 where where he want to live. This is where we've spent</p> <p>21 the last 10 years trying to figure out how to get back</p> <p>22 to.</p> <p>23 I wake up every morning and look to the east and</p> <p>24 based on the maps vision where the wind turbines are</p> <p>25 proposed, I know that physically it would be a different</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 261</p> <p>1 environment. So along with my own health concerns, I</p> <p>2 guess I'm afraid for the health of my neighbors. I fear</p> <p>3 for their physical and psychological well-being, having</p> <p>4 multiple large wind turbines in the neighborhood.</p> <p>5 Q. And what county do you live in?</p> <p>6 A. Charles Mix County.</p> <p>7 Q. And did you participate in the I guess attempted</p> <p>8 zoning process and all the County Commission meetings</p> <p>9 that we talked about with Mr. Mushitz?</p> <p>10 A. Yes. Pretty much throughout the process. I started</p> <p>11 attending some meetings in April. Shortly thereafter the</p> <p>12 idea of zoning was brought up and again attended multiple</p> <p>13 meetings in which zoning was discussed by the county.</p> <p>14 Q. And from start to finish just give the Commission</p> <p>15 kind of your impression of the process that took place.</p> <p>16 A. Well, the first meeting I attended was in April. I</p> <p>17 believe it was April 19. It was a County Commission</p> <p>18 meeting attended by Mr. Powers who discussed his health</p> <p>19 concerns.</p> <p>20 MS. AGRIMONTI: Objection. I'm going to ask</p> <p>21 that the witness please not recite what others may have</p> <p>22 said at a meeting. He was asked about his impression,</p> <p>23 not what people said.</p> <p>24 THE WITNESS: I apologize.</p> <p>25 MS. AGRIMONTI: That's okay. I'm sorry for</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 263</p> <p>1 Q. And let's not talk about what any County</p> <p>2 Commissioners said.</p> <p>3 MS. AGRIMONTI: Yeah. I'm going to move to</p> <p>4 strike the testimony of the witness. He has provided, I</p> <p>5 believe, speculation about what the County Commissioners</p> <p>6 knew or did not know in his recounting of what was said</p> <p>7 or not said at a variety of meetings.</p> <p>8 MR. DE HUECK: So it's pretty blended in there</p> <p>9 with what he took away from the meetings. I'm going to</p> <p>10 allow him to continue I'm not going to strike any</p> <p>11 testimony up to this point but we need to just focus on</p> <p>12 what you observed, how you felt, and not speculate as to</p> <p>13 what they said or how they felt or --</p> <p>14 THE WITNESS: Yes.</p> <p>15 Q. So summarizing you said you attended meetings in the</p> <p>16 months of April and May. Did you get a sense or a</p> <p>17 feeling of whether or not the County Commissioners were</p> <p>18 attentive to the concerns of the residents?</p> <p>19 A. I got the impression they were very very attentive</p> <p>20 to the input that they were sleeving from the public.</p> <p>21 Q. Okay. So then after May did you continue to attend</p> <p>22 meetings?</p> <p>23 A. I did. I attended.</p> <p>24 Q. Tell us about those.</p> <p>25 A. I attended the meeting in June. That was the</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 262</p> <p>1 interrupting. I want to make sure I have an opportunity</p> <p>2 to interject an objection during a narration.</p> <p>3 A. I attended meetings in April. My primary take away</p> <p>4 from that meeting was that the County Commissioners did</p> <p>5 not have a great deal of information about the proposed</p> <p>6 project. My impression was that they were surprised at</p> <p>7 what the setbacks potentially were in neighboring Bon</p> <p>8 Homme County. It was expressed by County Commissioners</p> <p>9 that they -- they were surprised that setbacks would be</p> <p>10 that close to occupied residences.</p> <p>11 I expressed my concerns that there was a lack of</p> <p>12 information about the project available. There was a lot</p> <p>13 of unknowns. I didn't know exactly what the plans were.</p> <p>14 I've been trying to follow the project earlier, you know,</p> <p>15 through 2016, through 2017, but still didn't have a great</p> <p>16 deal of information. I attended several meetings, at</p> <p>17 least two or three meetings during the month of May in</p> <p>18 which the topic was brought up to the County</p> <p>19 Commissioners. Several members of the community attended</p> <p>20 those meetings. Again, I was struck by the general lack</p> <p>21 of knowledge of wind, large wind facility regulations,</p> <p>22 practices. We discussed setbacks with the County</p> <p>23 Commission. It was expressed several times that two mile</p> <p>24 setbacks may be appropriate. County Commissioners</p> <p>25 expressed that --</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 264</p> <p>1 meeting that was attended by a representative from</p> <p>2 District III economic development, Mr. McGinnis. He</p> <p>3 talked about -- I got to be careful. I honestly want to</p> <p>4 be very careful.</p> <p>5 MR. DE HUECK: Well, here's the easy way to do</p> <p>6 it. You're doing a lot of what's called narrative, and</p> <p>7 you just start -- which is great and appreciate it, but</p> <p>8 your attorney can ask a lot more questions and kind of</p> <p>9 help guide what comes out of your mouth.</p> <p>10 So I'm going to allow Reece to ask more</p> <p>11 questions and for you to give shorter answers. You can</p> <p>12 talk just as much. It's just he's going to be there to</p> <p>13 help you guide it along so we're going to break up your</p> <p>14 long narratives into smaller sections through your</p> <p>15 attorney.</p> <p>16 THE WITNESS: Thank you.</p> <p>17 Q. So this June meeting in which a District III</p> <p>18 representative was there, at that meeting did you have a</p> <p>19 sensor an impression of how the Commissioners were</p> <p>20 responding to the concerns of the citizens?</p> <p>21 A. I believe they put a lot of weight on what</p> <p>22 Mr. McGinnis brought forward. My take away was that if</p> <p>23 the county was going to set about regulations greater</p> <p>24 than those that existed in Bon Homme County, that they</p> <p>25 would subject the county to litigation, that there was a</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 265</p> <p>1 rationale that was used to develop the Bon Homme County</p> <p>2 regulations regarding large wind turbines and that if the</p> <p>3 county were going to do anything more restrictive than</p> <p>4 that they would have to provide peer reviewed research or</p> <p>5 they would subject the county to litigation.</p> <p>6 Q. And did you continue to attend county meetings as</p> <p>7 the process continued on?</p> <p>8 A. I did. I attended another meeting later in June.</p> <p>9 Q. And what was the purpose of that meeting about?</p> <p>10 A. That meeting was to take more public input. There</p> <p>11 were several members of the community that came in and</p> <p>12 expressed larger setbacks, one mile setbacks and two mile</p> <p>13 setbacks were what they would like to see, what they</p> <p>14 would expect, that they felt would be necessary to</p> <p>15 protect them.</p> <p>16 Q. And did you have a sensor impression of how that</p> <p>17 information was -- or how the Commissioners responded to</p> <p>18 those requests?</p> <p>19 A. Continued to be very well received. Expresses</p> <p>20 that -- at the public -- we felt as members of the public</p> <p>21 other public people that I heard there that those things</p> <p>22 were being heard and that the idea of larger setbacks,</p> <p>23 one mile setbacks for residences was certainly --</p> <p>24 certainly under consideration.</p> <p>25 Q. And did there come a point in time where you felt</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 267</p> <p>1 of that southern part of the county. I requested a map</p> <p>2 that would also represent nonparticipating or withdraw</p> <p>3 nonparticipating households. Mr. McGinnis, I believe --</p> <p>4 Q. Did you receive a copy of the map that you</p> <p>5 requested?</p> <p>6 A. I did not receive a copy of that map. I also did</p> <p>7 not see a copy of the map that included nonparticipating</p> <p>8 residences.</p> <p>9 Q. Okay. After that meeting, did you attend any</p> <p>10 additional meeting?</p> <p>11 A. I did. At that meeting in July it was suggested</p> <p>12 that -- it was suggested that an agreement --</p> <p>13 Q. You said the July meeting this is the one you were</p> <p>14 just talking about?</p> <p>15 A. Just talking about, the July meeting. It was</p> <p>16 suggested that Prevailing Winds Staff visit with --</p> <p>17 Q. Let's hold on -- off on that testimony, okay?</p> <p>18 A. Sure.</p> <p>19 Q. So when you left this meeting in July what was your</p> <p>20 kind of take away from it?</p> <p>21 A. My take away was that -- my take away was that the</p> <p>22 Prevailing Winds Staff was having more influence on the</p> <p>23 County Commission than the residents of the county.</p> <p>24 Q. Okay. And then did you continue to attend County</p> <p>25 Commission meetings there after?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 266</p> <p>1 that the County Commissioners were no longer as receptive</p> <p>2 to the requests of their citizens?</p> <p>3 A. I attended a meeting in July which was also attended</p> <p>4 by Mr. McGinnis, members of -- I guess I refer to them as</p> <p>5 Prevailing Winds project, Thorstad, their legal counsel,</p> <p>6 also several people who were investors and/or had</p> <p>7 easements for the project.</p> <p>8 At that time the tenor of the Commission seemed to</p> <p>9 change.</p> <p>10 Q. How so?</p> <p>11 A. When the topic of one mile setbacks was brought up</p> <p>12 the Commission seemed to be stepping away from that.</p> <p>13 Mr. McGinnis brought a map that he had put together. I</p> <p>14 assumed it was Mr. McGinnis put together that showed the</p> <p>15 southern part of Charles Mix County overlaid with</p> <p>16 residences with multiple rings representing setbacks.</p> <p>17 Overlaid with that were proposed turbine locations and</p> <p>18 that was reviewed.</p> <p>19 Several times -- you know, it was -- it was -- it</p> <p>20 felt difficult to express something, you know, other than</p> <p>21 what would now have been significantly reduced setbacks.</p> <p>22 I requested at that meeting that a map show -- a map</p> <p>23 of nonparticipating residents. Because as it was looked</p> <p>24 at, people observed that most of the county if you</p> <p>25 overlaid one mile or two mile setbacks that occupied most</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 268</p> <p>1 A. I did.</p> <p>2 Q. And did your impression or your sense change at any</p> <p>3 point as you attended those additional meetings that the</p> <p>4 County Commission was providing -- was receiving the</p> <p>5 Prevailing Winds' input more favorably than that of its</p> <p>6 residents?</p> <p>7 A. Yes. That was my impression. It built from that</p> <p>8 July meeting and continued in future meetings that I had</p> <p>9 attended.</p> <p>10 Q. When was the last Commission meeting that you</p> <p>11 attended with respect to this project?</p> <p>12 A. I attended an August meeting of the Commission,</p> <p>13 which zoning was discussed. And then I also attended a</p> <p>14 September -- early September meeting that was actually</p> <p>15 with township representatives and the County Commission</p> <p>16 to discuss zoning.</p> <p>17 Q. What was that September meeting about?</p> <p>18 A. That was about zoning in general. There was a draft</p> <p>19 zoning ordinance being brought forward and there were --</p> <p>20 there were, I don't know, approximately -- there were</p> <p>21 several people -- 40 people from the community, several</p> <p>22 of them representing the townships discussing all aspects</p> <p>23 of zoning.</p> <p>24 Q. And was the discussion of wind energy zoning -- or</p> <p>25 was wind energy zoning considered during that meeting?</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 269</p> <p>1 A. In that September meeting wind energy zoning was by 2 and large dismissed because at that point what was 3 referred to as an agreement had been signed and the 4 county would not entertain any zoning changes or 5 emergency zoning with regards to large wind facilities. 6 Q. And you referenced the agreement. Have you come to 7 learn that was the Peter Pawlowski Affidavit that we've 8 been discussing in this hearing? 9 A. Yes. 10 Q. Okay. You've attended this entire hearing process; 11 is that right? 12 A. Yes. 13 Q. Earlier a question was asked about the level of 14 social disruption that has occurred in the area. What is 15 your sense on the social disruption that has occurred and 16 that will -- whether you think it will likely continue 17 on? 18 MS. AGRIMONTI: Objection. Vague. 19 MR. DE HUECK: You may go ahead and answer that. 20 A. I've been -- I've been aware of this project since 21 2016, and I've seen that it's generated quite a bit of 22 anxiety. I attended the public meeting in Avon in July 23 of 2018, and I think if you attended that meeting what 24 you saw at that meeting is really indicative of what I've 25 seen in the community, if not even more so. I've seen a</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 271</p> <p>1 testimony as well. He's speculating as to how people 2 feel. 3 MR. DE HUECK: I agree. However, I'm not going 4 to strike that testimony. I don't think it's 5 incredibly -- just, Reiss, continue to ask some 6 questions. 7 MR. ALMOND: I don't have any other questions 8 for Mr. Schoenfelder thank you for testifying. 9 THE WITNESS: Thank you. 10 MR. DE HUECK: As you've seen we're now going to 11 turn you over for cross-examination. We'll start over 12 here with the Applicant. 13 MS. AGRIMONTI: Thank you. 14 <u>CROSS-EXAMINATION</u> 15 <u>BY MS. AGRIMONTI:</u> 16 Q. Mr. Schoenfelder, just a couple of questions. 17 You've reviewed the proposed layout for the project in 18 this proceeding; is that right? 19 A. I have. I've seen the map change a couple times, 20 but I'm pretty familiar with it. 21 Q. And do you know how close the nearest turbine is to 22 your home? 23 A. I would say approximately three-quarters of a mile. 24 Q. And you stated that you were actively involved in 25 Charles Mix County with respect to whether a zoning</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 270</p> <p>1 great deal of anxiety. 2 My -- my sister-in-law owns property adjacent to 3 ours. Her intention -- she's developing that property 4 with the intention to move to that property. When she 5 learned that there may be turbines -- 6 MS. AGRIMONTI: Objection. He's testifying to 7 what other people think or believe. 8 MR. DE HUECK: Yes. So don't continue down the 9 road of that. Just your own personal. 10 A. I've seen people who I fear would -- who have been 11 so emotionally bothered that I fear for their health. 12 The idea that wind turbines are going to be placed in the 13 area. I've seen high levels of anxiety. I've felt 14 personally a lack of information, a lack of accurate 15 information. I can't -- I guess I could speak for others 16 because I've talked to quite a few people, but my 17 feelings have been echoed by others. They feel that it's 18 esthetically disturbing. 19 Q. Have you observed any strains on friendships or 20 relationships in the community? 21 A. Absolutely. I've seen neighbors who don't look each 22 other in the eye. I see conflicts. I see people brought 23 to tiers. I see people who feel ashamed because they -- 24 because of the position they've taken for or against it. 25 MS. AGRIMONTI: I'm going to object to that</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 272</p> <p>1 ordinance ought to be put in place; is that right? 2 A. Yes. 3 Q. And you would agree that all interested persons who 4 have a stake in whether zoning would be appropriate or 5 not have a right to speak and influence the political 6 process? 7 A. Yes. 8 Q. And in fact that's what happened in Charles Mix 9 County? 10 A. Could you restate that question? 11 Q. Yeah. You would agree that both -- or all sides, 12 there were townships that weighed in on whether zoning 13 was appropriate. There were people like yourself who had 14 opinions about setbacks. There were participants who 15 believed there should be certain rules in place for their 16 development of their property and there was Prevailing 17 Wind Park and all of those entities weighed in to this 18 Charles Mix process. Would you agree? 19 A. Yes. 20 MS. AGRIMONTI: I have no further questions. 21 MR. DE HUECK: Mr. Fuerniss, do you have any 22 questions for Mr. Schoenfelder? 23 <u>CROSS-EXAMINATION</u> 24 <u>BY MR. FUERNISS:</u> 25 Q. Mr. Schoenfelder, you mentioned the potential impact</p>

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1 of a wind farm on your home, your homestead and your
2 business do you feel it would also potentially impact --
3 you said that your -- that was your wife's home she grew
4 up there. Would there possibly be an impact on the
5 cemetery that her family's buried in?
6 A. I believe so. Absolutely.
7 MR. FUERNISS: Thank you.
8 MR. DE HUECK: Ms. Jenkins, do you have any
9 questions.
10 MS. JENKINS: I have one.
11 CROSS-EXAMINATION
12 BY MS. JENKINS:
13 Q. Do you think that we -- that the process to get this
14 Application approved or denied, has it gone according to
15 how you would expect for people like us Intervenor?
16 MS. AGRIMONTI: I'm going to object. I don't
17 believe that the witness would have any expectation or
18 basis on which to make a prediction about how this
19 process ought to go.
20 MS. JENKINS: Maybe I have to restate that.
21 MR. DE HUECK: You do. I think you're trying to
22 ask him his level of satisfaction with the process that
23 he's gone through? Or something along those lines?
24 Q. Do you understand?
25 A. I believe I understand the question.

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1 Q. Okay.
2 A. I have been disappointed in the amount of -- or the
3 lack of information available about the project. I have
4 been dissatisfied with the -- with the type of
5 information that I've been able to access. I've never
6 been contacted by Prevailing Winds even though I live in
7 the impacted area. My wife's never been, you know,
8 contacted.
9 I've attempted to contact Prevailing Winds. See
10 very little response. I hear -- I am surprised and
11 disappointed at the length of time between when the
12 Application is submitted through this process and when it
13 will be approved.
14 My personal opinion is that the County Commission
15 doesn't have the -- didn't have the time, didn't have the
16 tools in order to adequately and in depth look at this
17 project.
18 I fear that it moved very quickly for the people in
19 the area and it moved very quickly for our county
20 officials.
21 Q. Thank you. And can you describe how you feel about
22 it since the Application came in and the process for the
23 Intervenor to prepare for the case and the burden? Do
24 you feel like there's a burden?
25 A. Well, if you look at the mounds of paper, there's a

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1 lot of information. And it's a very complicated process.
2 I think for individuals to try and navigate that process,
3 it's very difficult and I think there's a lot of people
4 that would be shut out of the process simply due to the
5 lack of understanding of how the process works.
6 Q. And do you feel that the necessary permits from the
7 different entities that are required --
8 A. Again, having a lack of understanding of how the
9 process works, I was somewhat surprised that certain
10 things -- the WAPA study being primary among them. I
11 submitted a letter to WAPA in 2016. It was by
12 happenstance I saw the announcement in the Wagner post
13 that that deadline for information to be submitted to
14 WAPA was drawn to a close.
15 It seems like it's very important, impactful
16 project, and a lot of people, myself included, my family,
17 not aware of what the process was and still look at it to
18 a certain extent shaking our head wondering how is this
19 happening so quickly.
20 Q. Okay. And then one final question, I think.
21 Do you feel like the resources that we as
22 Intervenor have are comparable to the resources that --
23 of the Applicant's?
24 A. Absolutely not.
25 Q. Okay. And the question B to that is do you feel

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1 that if the necessary permits that they needed to
2 finalize this project -- do you feel like they probably
3 should have been obtained before they filed an
4 Application with the PUC and caused us to have to spend
5 money to protect our interests?
6 MS. AGRIMONTI: Objection. Relevancy.
7 MR. DE HUECK: You can go ahead and answer that.
8 If you understood the question.
9 A. I think that there are still unknown factors in the
10 Application that there's still holes in the Application.
11 And I don't know how -- how those could be addressed. I
12 still don't understand how they could be addressed or
13 redressed through the process leading up to either
14 approval or denial of the Application.
15 Q. Okay. And do you have any other concerns?
16 A. Well, again, I have personal concerns. I'm trying
17 to start a business in the area. And a business is based
18 on -- on sort of the uniqueness of the area. I'm trying
19 to -- I'm working on opening a brewery. We'd love people
20 to come out and enjoy the area and understand that you
21 have products that are -- that are produced in this area,
22 that this is where it comes from. And when I -- I'm kind
23 of -- I'm a history buff so whenever I go up to the hill
24 I go up to Fort Randall anybody who's in the car gets to
25 hear me point out Lake Andes. Lake Andes from the hill.

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 277</p> <p>1 Lewis & Clark documented Lake Andes because it's a 2 natural lake. 3 Well, then you turn and look farther to the east. 4 What you don't see is the rolling plains that was there 5 250 years ago. What's become the dominant feature is a 6 band of large wind turbines. And then you envision that 7 large band of wind turbines stretching for miles farther 8 to the south across Highway 46. 9 And then you look off towards Nebraska. I drive 10 down to Elgin, Nebraska, and I'm -- I'm not stricken by 11 the rolling hills. I'm struck by the large wind 12 turbines, and that's not -- that's not where I grew up. 13 I grew up in Mitchell. I didn't grow up in an industrial 14 wind farm so that's some concern. 15 MS. JENKINS: Thank you. 16 MR. DE HUECK: Ms. Pazour. 17 MS. PAZOUR: No comment. 18 MR. DE HUECK: Staff. 19 MS. REISS: No thank you. 20 MR. DE HUECK: And that brings us to Commission 21 questions starting with Commissioner Hanson. 22 COMMISSIONER HANSON: Good evening, 23 Mr. Schoenfelder. It's understandable that there will be 24 mixed feelings about a large industrial project of this 25 nature within an area for a number of different reasons.</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 279</p> <p>1 just one or two or -- 2 THE WITNESS: Again I guess trying to avoid 3 hearsay. 4 COMMISSIONER HANSON: Sure. That's a little 5 difficult. I understand. 6 THE WITNESS: People say I -- I don't want to -- 7 I don't want to do business with that person. I don't 8 want to tell them how I feel because I fear that I'll 9 estrange them and they won't do business with me. 10 COMMISSIONER HANSON: Is this, I'm assuming -- 11 when you socialize and to whatever extent, church and 12 sports events in the high school, things of that nature, 13 is this a number one topic of discussion or is Trump's 14 latest tweet the -- 15 THE WITNESS: What to me is almost more 16 disturbing is that there is a lack of information that 17 people don't know that more than anything else I hear is 18 that still happening? Or I don't want to talk about it 19 because it's already done. It's already -- a done deal 20 is the word you hear so often. It's a done deal. As if 21 this -- all these proceedings are completely irrelevant. 22 That people when asked if they would attend that meeting 23 in Avon in July said there's no point it's already 24 approved and I don't want to rock the boat. That's -- 25 that's been repeated several times.</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 278</p> <p>1 And that there will be some significant feelings 2 expressed by the inhabitants that are affected by it. 3 We've read a number of things and certainly 4 we've witnessed some emotional presentations to us when 5 we were there for the public meeting. 6 Can you tell us just I'm curious -- and it's not 7 necessarily going to weigh a tremendous amount on the 8 decision but I'd like to know, have you witnessed -- 9 let's look at degrees, for instance. Have you personally 10 witnessed altercations from the standpoint of shouting 11 matches between people? 12 THE WITNESS: I've witnessed I would say strong 13 words. I don't know if I would describe them as shouting 14 matches. 15 COMMISSIONER HANSON: Have you witnessed any 16 physical altercations? 17 THE WITNESS: I have not. 18 COMMISSIONER HANSON: Okay. I'm just curious to 19 the fabric of the town and relationships. Have you seen 20 people that are no longer willing to do business at 21 particular areas or people who have estranged 22 relationships of that nature? 23 THE WITNESS: Yes. Yes, I have. 24 COMMISSIONER HANSON: Okay. Thank you. 25 Well, to what degree have you seen that? Is it</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 280</p> <p>1 COMMISSIONER HANSON: All right. Thank you. 2 COMMISSIONER NELSON: Thank you for being here. 3 Just to make sure I've got you placed properly 4 on the map, I'm seeing a parcel owned by the Vernon sip 5 life estate. Is that where you're at. 6 THE WITNESS: That is correct. 7 COMMISSIONER NELSON: Perfect. You referred in 8 your testimony to the mountains of paper that were 9 involved in this process. 10 THE WITNESS: Uh-huh. 11 COMMISSIONER NELSON: But you ended by saying 12 that there are holes in the Application. 13 THE WITNESS: Uh-huh. 14 COMMISSIONER NELSON: And do you believe that 15 those holes have not been filled by the mountains of 16 paper that have been involved here? 17 THE WITNESS: A couple things I guess that come 18 to my mind immediately. The one is WAPA environmental 19 study. It was my understanding that that was a precursor 20 for approval for this project. Again, submitted letters 21 to that process. Still waiting to hear what that says. 22 Environmental cultural asset survey. Even in 23 the Application I read that that's being worked on. Then 24 again then the accelerated process of the zoning in my 25 own county led to believe that zoning would move forward,</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 281</p> <p>1 that there would be opportunities for public input when</p> <p>2 there is to the best of my knowledge that agreement and</p> <p>3 Affidavit that was produced between Prevailing Winds and</p> <p>4 the county didn't receive public input. So again still</p> <p>5 feeling like there's a lack of information out there and</p> <p>6 misinformation but definitely still things lacking and</p> <p>7 not understanding how the process works.</p> <p>8 COMMISSIONER NELSON: Do you understand that</p> <p>9 those first two items that you mentioned will in fact</p> <p>10 need to be completed before any permit would ever be</p> <p>11 valid from this Commission.</p> <p>12 THE WITNESS: I do absolutely.</p> <p>13 COMMISSIONER NELSON: And that that information</p> <p>14 at least that which is not confidential information will</p> <p>15 ultimately be public.</p> <p>16 THE WITNESS: Yes.</p> <p>17 COMMISSIONER NELSON: The last question, I want</p> <p>18 to follow up on Commissioner Hanson's question about</p> <p>19 relationships.</p> <p>20 Have any of your relationships been damaged</p> <p>21 through this process?</p> <p>22 THE WITNESS: Yes.</p> <p>23 COMMISSIONER NELSON: Are there people that you</p> <p>24 don't talk to because of this?</p> <p>25 THE WITNESS: There are people I feel less</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 283</p> <p>1 CHAIRWOMAN FIEGEN: Two quick questions. The</p> <p>2 closest wind tower number to your property is -- do you</p> <p>3 know what number it is or could Reece --</p> <p>4 THE WITNESS: I could look at the map in a</p> <p>5 heartbeat.</p> <p>6 Between 23 and 58. I couldn't tell you exactly</p> <p>7 which one's closer. They're both approximately</p> <p>8 three-quarters of a mile from my home.</p> <p>9 CHAIRWOMAN FIEGEN: Okay. How many acres there</p> <p>10 does your family own?</p> <p>11 THE WITNESS: In total 320.</p> <p>12 CHAIRWOMAN FIEGEN: 320. And then you talked</p> <p>13 about looking at building a business and --</p> <p>14 THE WITNESS: Uh-huh.</p> <p>15 CHAIRWOMAN FIEGEN: It's always neat when people</p> <p>16 come back -- come back to South Dakota and raise their</p> <p>17 families and retire here, whatever. We love that.</p> <p>18 THE WITNESS: Uh-huh.</p> <p>19 CHAIRWOMAN FIEGEN: Tell me a little bit about</p> <p>20 the business that you're looking at developing and will</p> <p>21 people come to your facility? Will they be outside?</p> <p>22 Will they be in your home? Are you building a shed?</p> <p>23 Help me understand the dynamics of that business and like</p> <p>24 how many acres. Where will it be? Right next to your</p> <p>25 home?</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 282</p> <p>1 comfortable talking to. There are relationships that</p> <p>2 have been strained personally for me. Neighbors. Yes.</p> <p>3 COMMISSIONER NELSON: And do you feel ill will</p> <p>4 towards those who support the project?</p> <p>5 THE WITNESS: I am -- I made a commitment early</p> <p>6 in this process that I would want to be treated the way</p> <p>7 other people want to be treated. I hope that other</p> <p>8 people feel the same way. These are my neighbors. A lot</p> <p>9 of those neighbors are taking the stands for a lot of</p> <p>10 different reasons. They're not evil people. I just --</p> <p>11 I -- I refuse to -- I refuse to hate anyone through this</p> <p>12 process.</p> <p>13 COMMISSIONER NELSON: Thank you. And I</p> <p>14 appreciate your sharing that. And that was a tough</p> <p>15 question for me to ask, and I appreciate your answer.</p> <p>16 Thank you.</p> <p>17 THE WITNESS: Thank you.</p> <p>18 MR. DE HUECK: Chair Fiegen.</p> <p>19 CHAIRWOMAN FIEGEN: Thank you for being here.</p> <p>20 Thank you for being part of the process. When I was a</p> <p>21 legislator and then I came to the PUC the process here is</p> <p>22 completely different than the legislative process, and it</p> <p>23 is difficult to maneuver but we're quasi-judicial and</p> <p>24 yeah. So it's completely different. And so thank you.</p> <p>25 THE WITNESS: No problem. It's my pleasure.</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 284</p> <p>1 THE WITNESS: And I apologize. You're going to</p> <p>2 get me started.</p> <p>3 The first thing is the family farm. So we're</p> <p>4 working on the family farmhouse. We sharecrop that land.</p> <p>5 So we're involved in the process. We received revenue</p> <p>6 from that farm. We would never want to do anything that</p> <p>7 would significantly diminish that. Farms are important</p> <p>8 both economically and culturally. So we want to make</p> <p>9 sure that that family farm can continue working with a</p> <p>10 couple of families who do the real work and they've done</p> <p>11 it for 10, 15, 20 years plus and we want to maintain that</p> <p>12 relationship.</p> <p>13 We also want to build a farm based business.</p> <p>14 Basically producing products on the farm, woodworking</p> <p>15 products, hand crafted products, and then distribute it</p> <p>16 from the farm.</p> <p>17 And then the primary business that we're working</p> <p>18 on is a brewery. From the legislative side I would say</p> <p>19 the legislature did a good job this spring because they</p> <p>20 changed some of the brewery laws so now we're able to do</p> <p>21 what's called self distribution. In the past you -- if</p> <p>22 you didn't sell beer on the sight you had to work through</p> <p>23 a distributor, approximately 35 percent of what you --</p> <p>24 the cost of production goes to that distributor. So</p> <p>25 being able to self distribute is huge up to 1,500</p>

<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 285</p> <p>1 barrels. So we started the process we have a building</p> <p>2 permit we're clearing the ground for a brewery building.</p> <p>3 It will be a pole barn.</p> <p>4 We know that the margins -- you make a lot more</p> <p>5 money if you can sell it on site so we are hoping to get</p> <p>6 people on site to come out and buy our beer.</p> <p>7 We also know that brand loyalty is huge in the</p> <p>8 small brewery market so we want to create an environment</p> <p>9 where people can come out, sit on the porch patio that</p> <p>10 would be incorporated into this building. We are trying</p> <p>11 to situate the patio of that building so it's got a</p> <p>12 prairie view, emphasizing the farmhouse origin and nature</p> <p>13 of our products is a big part of that marketing strategy.</p> <p>14 And knowing that also then we can self distribute that</p> <p>15 and push that out of the area, that we can push the</p> <p>16 lion's share of our products out. But if we get people</p> <p>17 to identify with us, they'll become loyal to our brand.</p> <p>18 CHAIRWOMAN FIEGEN: Thank you. I certainly</p> <p>19 appreciate understanding how you're using the land that</p> <p>20 you came back to. Thank you.</p> <p>21 MR. DE HUECK: Mr. Schoenfelder, in following up</p> <p>22 with both Commissioner Hanson and Commissioner Nelson</p> <p>23 regarding the social climate of your community, you</p> <p>24 talked a lot about strained relationships, high anxiety</p> <p>25 among community members, annoyance between the two sides.</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 287</p> <p>1 MR. ALMOND: None.</p> <p>2 MR. DE HUECK: And we had Commissioner questions</p> <p>3 so Prevailing Winds, do you have any cross based on those</p> <p>4 questions?</p> <p>5 MS. AGRIMONTI: No. Thank you,</p> <p>6 Mr. Schoenfelder.</p> <p>7 MR. DE HUECK: Mr. Fuerniss, no. Ms. Jenkins.</p> <p>8 MS. JENKINS: Of course I have one.</p> <p>9 <u>CROSS-EXAMINATION</u></p> <p>10 <u>BY MS. JENKINS:</u></p> <p>11 Q. Did you give the business plan to the county or have</p> <p>12 you presented that to them?</p> <p>13 A. We went to the County Commission I want to say in</p> <p>14 2014, presented a model of what we had in mind and they</p> <p>15 said that from their perspective -- my understanding</p> <p>16 their perspective was that we would be able to move</p> <p>17 forward with our plan.</p> <p>18 MS. JENKINS: Okay. Thank you, Paul.</p> <p>19 THE WITNESS: Thank you.</p> <p>20 MR. DE HUECK: Ms. Pazour.</p> <p>21 MS. PAZOUR: None.</p> <p>22 MR. DE HUECK: Staff.</p> <p>23 MS. EDWARDS: No.</p> <p>24 MR. DE HUECK: Go ahead.</p> <p>25 MR. ALMOND: Do you intend to brew brown ale?</p>
<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 286</p> <p>1 Have you ever felt a threat to your personal</p> <p>2 safety?</p> <p>3 THE WITNESS: Up to this point -- concerns but</p> <p>4 not a threat. I mean, that's kind of a subtlety but it's</p> <p>5 something I've thought about but it's not --</p> <p>6 MR. DE HUECK: It's not there on the streets.</p> <p>7 THE WITNESS: Personally threatened.</p> <p>8 MR. DE HUECK: Like a riot isn't looming.</p> <p>9 THE WITNESS: Yeah.</p> <p>10 MR. DE HUECK: You can still gather under one</p> <p>11 roof, yes. Feel that hostility and whatnot.</p> <p>12 THE WITNESS: Yeah. There's a high level of</p> <p>13 sensitivity, anxiety.</p> <p>14 MR. DE HUECK: The community's been able to keep</p> <p>15 civility amongst each other because you're good people.</p> <p>16 THE WITNESS: Yes. For the most part -- I mean,</p> <p>17 I've been to these County Commission meetings where, I</p> <p>18 mean, some of the Intervenors are personally attacked and</p> <p>19 insulted. Not physically attacked.</p> <p>20 MR. DE HUECK: Yeah.</p> <p>21 THE WITNESS: But demeaned. That's -- yeah.</p> <p>22 That's disturbing.</p> <p>23 MR. DE HUECK: Yep. Thank you.</p> <p>24 With that, we'll go back to your attorney for</p> <p>25 redirect.</p>	<p style="text-align: right;">ROUGH DRAFT -- DO NO QUOTE! 288</p> <p>1 A. I will say my wife's family's Belgian. We'll brew a</p> <p>2 lot of Belgian styles.</p> <p>3 MR. DE HUECK: We'll take a short break, come</p> <p>4 back at 6:25. That's about a 10-minute break.</p> <p>5 (The witness is excused.)</p> <p>6 (A short recess is taken.)</p> <p>7 MR. DE HUECK: The hearing has resumed.</p> <p>8 Mr. Almond, you may call your next witness.</p> <p>9 MR. ALMOND: Call Gregg Hubner.</p> <p>10 Gregg Hubner,</p> <p>11 called as a witness, being first duly sworn in the above</p> <p>12 cause, testified under oath as follows:</p> <p>13 <u>DIRECT EXAMINATION</u></p> <p>14 <u>BY MR. ALMOND:</u></p> <p>15 Q. Gregg, why don't you introduce yourself for the</p> <p>16 Commissioners.</p> <p>17 A. Gregg Hubner, spelled H-U-B-N-E-R. My address is</p> <p>18 29976 406th Avenue, Avon, South Dakota.</p> <p>19 Q. How long have you lived at that address?</p> <p>20 A. Since 2012.</p> <p>21 Q. And what do you do for a living?</p> <p>22 A. I'm a licensed real estate broker and a certified</p> <p>23 general appraiser and I farmed up until last year. I</p> <p>24 have rented my land out now.</p> <p>25 Q. Do you own any land in or around the footprint of</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 289</p> <p>1 the project?</p> <p>2 A. Yes.</p> <p>3 Q. Using the map behind you over your shoulder can you</p> <p>4 point out to the Commissioners where your residence is?</p> <p>5 A. Right here this long yellow line it's right at the</p> <p>6 bottom (indicating). I see it's under my wife's name,</p> <p>7 Marsha.</p> <p>8 Q. And in addition to your residence, do you own other</p> <p>9 land in the project footprint area?</p> <p>10 A. Yes.</p> <p>11 Q. And using Exhibit I 29 back there, can you see the</p> <p>12 Hubner name on various parcels of land?</p> <p>13 A. Yes. From the house I own 240 acres where the house</p> <p>14 are -- is, excuse me, and my brother owns the next four</p> <p>15 quarters north and then I own some land to the west of it</p> <p>16 and then some more to the east of it. And then my</p> <p>17 brother and I own a couple quarters up north but I think</p> <p>18 it's just out of the project. Because it's right near</p> <p>19 Beethoven so I think it's right up in that white there.</p> <p>20 Q. And how many total acres do you own -- do you and</p> <p>21 your brother own and if you can split up who owns what</p> <p>22 approximately?</p> <p>23 A. Well, I have -- yeah. I think I have about 1120</p> <p>24 acres and my brother has about 840 acres, I think.</p> <p>25 There's about 1,900. And we own that one piece together.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 291</p> <p>1 12 times whatever they were going to pay per turbine for</p> <p>2 \$25 years would total about 2.886 million dollars and</p> <p>3 that was their projection or estimate.</p> <p>4 Q. So did you take it to mean that if you signed up,</p> <p>5 there was a possibility you were going to get 2.896</p> <p>6 million dollars?</p> <p>7 A. Well, there might have been a possibility but I</p> <p>8 thought it was a pretty slim possibility. Since my</p> <p>9 brother and I were actually small farmers. We're small</p> <p>10 landowners compared to nowadays. And 12 percent at that</p> <p>11 time when they were projecting 100 turbines was 12</p> <p>12 percent of the project. So that wasn't the reason I</p> <p>13 didn't sign but I mean it was pretty unlikely to me that</p> <p>14 we were going to get 12 turbines on this small piece of</p> <p>15 land.</p> <p>16 Q. Was it ever expressed to you why 12 was used?</p> <p>17 A. No.</p> <p>18 Q. Okay. I'm going to do some quick math but 1,985</p> <p>19 acres divided by 12 does that come out to about 165 acres</p> <p>20 per turbine?</p> <p>21 A. I think that's the math, yes.</p> <p>22 Q. Was this -- did you have any other interactions with</p> <p>23 Mr. Jurgens or Hornstra regarding this exhibit?</p> <p>24 A. No.</p> <p>25 Q. And this meeting took place at your house?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 290</p> <p>1 So roughly the two of us -- but we each own our own land</p> <p>2 but together we own about 1,985 acres.</p> <p>3 Q. Okay. And at some point were you asked to sign up</p> <p>4 to participate in the project?</p> <p>5 A. Yes. I was asked to sign up for the Prevailing</p> <p>6 Winds project in the spring of 2015.</p> <p>7 Q. And how were you asked to sign up?</p> <p>8 A. Well, I was called by Ron Hornstra and he wanted to</p> <p>9 make an appointment, which they did. And so him and</p> <p>10 Roland Jurgens came to our house. I think it was in -- I</p> <p>11 think it was in March of '15.</p> <p>12 Q. And if you'd take a look at Exhibit I-16 for me.</p> <p>13 A. Okay. Yes. I've got that.</p> <p>14 Q. And tell me what Exhibit I-16 is.</p> <p>15 A. Well, they brought this document with them the day</p> <p>16 they were at my house, and this was their shall you call</p> <p>17 it addendum or estimator projection of what my payment</p> <p>18 would be and how it would work out. And for some reason</p> <p>19 they put my brother's land and my land together because I</p> <p>20 think someplace on here it says 1,985 acres.</p> <p>21 But anyway -- yeah right here on the bottom, long</p> <p>22 table on top. It says 1,985 acres. And they did all the</p> <p>23 calculations over their 25 year projected time and they</p> <p>24 projected us to get 12 turbines. This was all based on</p> <p>25 12 turbines. And that's up in the top table. Yeah. So</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 292</p> <p>1 A. Yes.</p> <p>2 Q. In March of 2015?</p> <p>3 A. It was either February or March but it was in the</p> <p>4 early spring of '15.</p> <p>5 Q. And during that meeting did you sign up for the</p> <p>6 project?</p> <p>7 A. No.</p> <p>8 Q. So after that meeting did you then become engaged</p> <p>9 with the county process and follow this project, how it</p> <p>10 went through the county process?</p> <p>11 A. Yes.</p> <p>12 Q. And can you give a brief broad brush strokes summary</p> <p>13 of your involvement in the county process from the spring</p> <p>14 of 2015 to I guess today?</p> <p>15 A. Well, we got pretty involved in the county process</p> <p>16 after they came to our place. To be honest I had never</p> <p>17 been to a County Commissioners meeting in my life before</p> <p>18 this started. Probably a zoning meeting either so shame</p> <p>19 on me, we'll say.</p> <p>20 But give you just a little bit of history it won't</p> <p>21 take over 30, 40 seconds. When they built the Beethoven</p> <p>22 project we were also approached to sign up for that. And</p> <p>23 320 acres my brother and I own upright next to it was</p> <p>24 right next to it. So they wanted that and we decided not</p> <p>25 to do that.</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 293</p> <p>1 But we had built this house in 2012, and before we</p> <p>2 built the house we knew the Beethoven -- you know, they</p> <p>3 had been around since 2009 actually. In 2010 I was first</p> <p>4 approached by my name, not by Roland or Ronnie but by my</p> <p>5 neighbor in 2010. And I said no, I'm not interested and</p> <p>6 so before we built our house then in the fall of 2011 I</p> <p>7 called the same neighbor and I said we're going to build</p> <p>8 my house we're going to move from town we're going to</p> <p>9 build this home where I want to retire just a mile grew</p> <p>10 up. --</p> <p>11 MS. AGRIMONTI: I'm going to object to the</p> <p>12 extent the witness is stating what other people said.</p> <p>13 MR. ALMOND: He hasn't done it yet but I think</p> <p>14 he's about to get there so if you can avoid that, Gregg.</p> <p>15 THE WITNESS: I was trying not to.</p> <p>16 MR. DE HUECK: You were saying that your</p> <p>17 neighbor said there was nothing going on so that's --</p> <p>18 A. Okay. I got information to find out from a B&H</p> <p>19 representative -- that won't work either.</p> <p>20 Q. Did you have an understanding of whether or not</p> <p>21 there was going to be --</p> <p>22 A. I was assured, don't worry about wind turbines.</p> <p>23 There's nothing happening.</p> <p>24 MS. AGRIMONTI: Same objection.</p> <p>25 MR. DE HUECK: Okay. We won't strike it. Let's</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 295</p> <p>1 A. Yeah. It was -- at all of our meetings we were</p> <p>2 talking a two mile setback. And I've, you know, written</p> <p>3 some stuff in my prefiled stuff that would explain why we</p> <p>4 thought we wanted two miles. And, you know, it's very</p> <p>5 similar to what Paul testified to just a little while</p> <p>6 ago. You know, the first meeting it sounded like they</p> <p>7 were listening. But the second meeting not so much. And</p> <p>8 by the third meeting it's like they didn't even hear what</p> <p>9 we said. I mean we took them volumes and volumes of</p> <p>10 stuff to read and I mean it just -- they were being</p> <p>11 highly persuaded, highly influenced by in my opinion</p> <p>12 Prevailing Winds, District III, and they had their mind</p> <p>13 set up on this state standard, 1.1 times, 1,000 feet from</p> <p>14 the house, and there was nothing you could say, nothing</p> <p>15 you could do, nothing you could show them to make any</p> <p>16 difference.</p> <p>17 And going through the process, the hearing process</p> <p>18 at the zoning and also the public hearing meeting for the</p> <p>19 County Commissioners, the vast majority of people that</p> <p>20 spoke against the Article 17 were people that were living</p> <p>21 in the project, and the vast majority of people that</p> <p>22 spoke for Article 17 were people that were adjacent -- or</p> <p>23 not adjacent what's the word I'm looking for.</p> <p>24 Landowners.</p> <p>25 Q. Absentee?</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 294</p> <p>1 just move on.</p> <p>2 Q. Let's go back to the original question. Walk us</p> <p>3 through the county process and your involvement in the</p> <p>4 process after that spring of 2015.</p> <p>5 A. Okay. Okay. So we built the house. We moved into</p> <p>6 the house. And Beethoven came along and we can see it</p> <p>7 from our house it's about 9 miles away. And we thought</p> <p>8 well that's okay. Well then in 2015 when they came</p> <p>9 around with the second project the house was already</p> <p>10 built. So we thought, well, you know, these things come</p> <p>11 and they're, you know, very seldom don't they build them</p> <p>12 so we thought the only thing we can do to protect</p> <p>13 ourselves -- the second best thing we can do is get safe</p> <p>14 long setbacks so that we can stay in our house.</p> <p>15 And so we started attending zoning and Commissioners</p> <p>16 meetings in the spring summer of 2015. I looked up in my</p> <p>17 records. We attended -- my wife and I and several</p> <p>18 neighbors and people that were interested -- eight</p> <p>19 meetings in 2015 and at the fall of 2015 is when they did</p> <p>20 the draft -- or excuse me. The Article 17. And so this</p> <p>21 was kind of leading up to that and advocating for</p> <p>22 setbacks through that Article 17 process. That's what</p> <p>23 happened in 2015.</p> <p>24 Q. And during the Article 17 process was a state</p> <p>25 standard utilized during these meetings?</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 296</p> <p>1 A. Absentee. It's later today I would have been better</p> <p>2 this morning. But anyway absentee landowners or people</p> <p>3 that live in Sioux Falls, investors these type of people</p> <p>4 were for it.</p> <p>5 So in my opinion we never had much of a chance</p> <p>6 because they always got what they wanted and there was</p> <p>7 never talk of compromise. As a matter of fact they</p> <p>8 painted it like -- at the public hearing at the</p> <p>9 Commissioners they painted it. If you go through some of</p> <p>10 the recorded stuff that I have sent in, two miles is way</p> <p>11 too long we're against the two mile setback. Two miles</p> <p>12 doesn't work anywhere and they never talked about a mile</p> <p>13 or half-mile or anything but 1,000 feet or two miles.</p> <p>14 And so we just got totally wiped out by the people that</p> <p>15 persuaded them more than we did.</p> <p>16 Q. And how many County Commissioners are there in</p> <p>17 Bon Homme County? First I should say you live in</p> <p>18 Bon Homme County; right?</p> <p>19 A. Yeah. Bon Homme County. Western edge.</p> <p>20 Q. How many County Commissioners are there?</p> <p>21 A. We have five one -- one for every town.</p> <p>22 Q. What town?</p> <p>23 A. Avon, Springfield, Tabor, Tyndall, and Scotland</p> <p>24 districts. We're in the Avon District, and that is the</p> <p>25 only district that has any Beethoven towers and it's also</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 297</p> <p>1 the only district that is going to have any Prevailing</p> <p>2 Winds towers is the Avon district.</p> <p>3 Q. Who's the Commissioner for the Avon district?</p> <p>4 A. Our Commissioner is Bruce Voigt.</p> <p>5 Q. And was Bruce Voigt participating in any of the</p> <p>6 processes?</p> <p>7 A. Well, Bruce Voigt is on the managers board of</p> <p>8 Prevailing Winds. And it's only been that way since the</p> <p>9 last election so I assume he took auction January 1 of</p> <p>10 '17.</p> <p>11 MS. AGRIMONTI: Objection. The witness is</p> <p>12 assuming.</p> <p>13 THE WITNESS: Okay.</p> <p>14 A. He got elected in the last general election.</p> <p>15 Q. Okay.</p> <p>16 A. Whenever he would have taken office that's how long</p> <p>17 he's been there.</p> <p>18 Q. And has he voted on any matters that related to this</p> <p>19 project?</p> <p>20 A. No. He -- he can't vote. And that's another</p> <p>21 problem I have with this process is that if you're for</p> <p>22 this project or against this project it doesn't make any</p> <p>23 difference. If you're in the Avon district where all the</p> <p>24 turbines are you have no representation.</p> <p>25 Q. We talked a little bit about the state standard.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 299</p> <p>1 tell me who owns that land?</p> <p>2 A. Well, I had a neighbor, went to one of the meetings</p> <p>3 in trip and brought this map back home and showed it to</p> <p>4 me. And I looked at it and it hit me, struck me kind of</p> <p>5 funny because it doesn't take me very long to figure out</p> <p>6 that all of this land at the bottom belongs to my</p> <p>7 brother, myself, and one piece to my neighbor Greg Wyly.</p> <p>8 And then all the land, the next little piece up to the</p> <p>9 left, is Indian land. And then we go up to Sherman</p> <p>10 Fuerniss's land on the very north part. And there was I</p> <p>11 think another piece of Indian land and there was maybe</p> <p>12 one we didn't identify.</p> <p>13 Basically this map was showing about three or four</p> <p>14 people I contend that it was to make it look like we're</p> <p>15 the only ones who didn't sign up. I don't know what else</p> <p>16 it would have meant.</p> <p>17 MS. AGRIMONTI: Objection. Speculation.</p> <p>18 MR. DE HUECK: I agree.</p> <p>19 MS. AGRIMONTI: So I'd move to strike.</p> <p>20 MR. DE HUECK: We can strike that very last</p> <p>21 part. But you can continue to take him down that line of</p> <p>22 questioning.</p> <p>23 A. I guess before the hearing's up I would like to see</p> <p>24 sPower tell me what this map is since my land is front</p> <p>25 and center.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 298</p> <p>1 Was your understanding of the use of the state</p> <p>2 standard -- or was it your understanding the state</p> <p>3 standard came from the PUC draft model ordinance?</p> <p>4 A. Yes. I've done extensive research on all of those</p> <p>5 things, and the draft model ordinances ordinance which</p> <p>6 was made in 2008 and implemented in 2009, and it was</p> <p>7 never law or -- you know, it was just more of a</p> <p>8 suggestion. And I think counties used that back when</p> <p>9 wind came in to our state back in 2008, 2009.</p> <p>10 Q. Did you observe the Bon Homme County Commission</p> <p>11 utilize those state standards?</p> <p>12 A. Yes.</p> <p>13 Q. I'll call them?</p> <p>14 A. Because as they were doing the process I would look</p> <p>15 through and read and compare and, yes, it was based on</p> <p>16 that ordinance.</p> <p>17 Q. Changing topics here, can you flip to Exhibit I 18</p> <p>18 for me, please.</p> <p>19 A. Okay. I have it.</p> <p>20 Q. And what is Exhibit I 18?</p> <p>21 A. This is a -- an sPower production front and back. I</p> <p>22 think it's actually two pages but it's an sPower</p> <p>23 production with a map on it where the blue lines</p> <p>24 represent the footprint of this new prevail winds park.</p> <p>25 Q. And the land that is colored orange or red, can you</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 300</p> <p>1 Q. We might get a chance to do that?</p> <p>2 A. Okay.</p> <p>3 Q. But let's continue with your examination.</p> <p>4 Can you flip to Exhibit I 29 for me, please.</p> <p>5 A. Okay.</p> <p>6 Q. Do you see a data response 4-2?</p> <p>7 A. Yes.</p> <p>8 Q. The data request asks the Applicant to provide the</p> <p>9 names of the 35 landowners who will have a turbine on</p> <p>10 their property and in doing so identify the county in</p> <p>11 which the landowner owns the land in which the turbine</p> <p>12 will be placed and you see the answer is see Attachment</p> <p>13 4-2?</p> <p>14 A. Yes.</p> <p>15 Q. Turn over your right shoulder. What does it say on</p> <p>16 the top right corner?</p> <p>17 A. Of this?</p> <p>18 Q. Of that board.</p> <p>19 A. 4-2. Attachment 4-2.</p> <p>20 Q. And since receiving that have you had the</p> <p>21 opportunity to go through and count all the landowners</p> <p>22 that have turbines placed on their land?</p> <p>23 A. Yes. I did.</p> <p>24 Q. And have you created a table showing the different</p> <p>25 turbines and the landowners associated with each turbine?</p>

ROUGH DRAFT -- DO NO QUOTE! 301

1 A. Yes. As best I could. Yep.

2 (Exhibit 38 is marked for identification.)

3 Q. I'm handing you what's been marked as Exhibit I 38.

4 Is this the table that you've prepared after reviewing

5 Attachment 4-2?

6 A. Yes.

7 Q. And is this table showing the different turbine

8 numbers and the landowners associated with each turbine

9 number?

10 A. Yes. There's a couple turbines that were like right

11 on the border. Could possibly be mistaken here but it's

12 as best I could do.

13 Q. And if you flip to the second page, did you then add

14 up the different number of turbines that each particular

15 landowner would get?

16 A. Yes.

17 MR. ALMOND: At this time I'd like to move for

18 the admission of Exhibit I 38.

19 MS. AGRIMONTI: I will not object to the extent

20 it is the witness's interpretation of what he believes is

21 shown on the map.

22 MS. REISS: No objection.

23 MR. DE HUECK: So admitted for as Ms. Agrimonti

24 stated.

25 Q. And what was the purpose of performing this

ROUGH DRAFT -- DO NO QUOTE! 302

1 analysis?

2 A. Well, what's come up in our rural community in the

3 last, say, month was the talk about all of the people

4 that aren't getting turbines that thought they were. So

5 that's why I wanted to know who was actually getting the

6 turbines. And I think, according to what I heard from --

7 MS. AGRIMONTI: Objection.

8 MR. ALMOND: You can't talk about what you

9 heard.

10 THE WITNESS: At this hearing?

11 MR. ALMOND: Oh, you want to talk about what

12 someone said at this hearing?

13 MS. AGRIMONTI: Let me just interpose an

14 objection. To the extend he wants to use this exhibit to

15 talk about people who thought they were going to get

16 turbines but who aren't, hearsay, speculation. So if

17 that's where he goes, that's my objection.

18 Q. Go ahead.

19 MR. DE HUECK: Try to help him down a road he

20 can go.

21 Q. What have you heard during this hearing?

22 MS. AGRIMONTI: Objection.

23 MR. DE HUECK: Yeah. We're going to be in the

24 same boat. That would be hearsay.

25 MR. ALMOND: It's not out of court.

ROUGH DRAFT -- DO NO QUOTE! 303

1 No. We'll go elsewhere.

2 Q. So I'll ask again what were you trying to illustrate

3 with this analysis?

4 A. I heard somewhere --

5 Q. Well, hold on, Gregg.

6 A. I'm sorry. I heard this week it's in the Docket

7 it's somewhere.

8 Q. Hold on, Gregg. No. No.

9 A. Can I assume anything?

10 Q. No.

11 MR. DE HUECK: Reiss, you can pry a little bit

12 on what he's heard while we've been in trial, if that's

13 helpful.

14 Q. While you've been attending this trial what have you

15 heard?

16 A. The number of turbines -- the number of leases that

17 sPower Prevailing Winds has. I heard the number this

18 week. Or it's probably on the Docket.

19 Q. Well, you can actually refer to Exhibit I 29. You

20 should be open to it. No. 4-3 gives you that

21 information.

22 A. I-29? 4-3?

23 Yeah. That's what I'm trying to say if I just turn

24 the page over. There's 136 full rights agreements.

25 Those would be agreements where they could put turbines

ROUGH DRAFT -- DO NO QUOTE! 304

1 on. And so in relationship to the 136 that coughed

2 turbines, I was interested in how many actually got

3 turbines and that's why I made this paper.

4 So 136. And I think it was 29.

5 MS. AGRIMONTI: I object to this line of

6 questioning. I don't understand the relevance to the

7 factors that are before the Commission in terms of who

8 got turbines and who didn't.

9 MR. ALMOND: We were done with the line of

10 questioning so I'll end there.

11 MR. DE HUECK: Okay.

12 MR. ALMOND: I don't have any other questions

13 for you, Gregg. You are an Intervenor so I don't want to

14 not allow you to say anything that you want to.

15 Is there anything you want to tell the

16 Commission at this point, given this opportunity.

17 A. Well, basically I wrapped in this because all the

18 work that we did in the county we were there eight times

19 in 2015, six times in 2017. In 2016 we didn't go at all

20 because we felt after they did the Article 17 and did it

21 with basically no consideration for the residents at all,

22 we basically gave up. We did nothing in 2016. Never

23 went to one meeting.

24 And then they came along in August of 2016, had the

25 PUC meeting, and then a week or 10 days later pulled

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 305</p> <p>1 their permit, and it's also in the exhibits here where</p> <p>2 Mr. Pawlowski testifies that the reason they pulled it</p> <p>3 they didn't have their land signed up. And it's always</p> <p>4 bothered me that they would bring the PUC clear to Avon</p> <p>5 and put on this big show as if this was going to happen</p> <p>6 and they never had the land signed up. And I knew that</p> <p>7 was the fact but they never -- it took them two years to</p> <p>8 actually admit that.</p> <p>9 And so it's always been about second best which is</p> <p>10 protection of our home our neighbor's home, creation,</p> <p>11 safety, shadow flicker, red lights. It's always been</p> <p>12 we're trying to get some protection. We got no</p> <p>13 protection from the county.</p> <p>14 The county is not capable -- the county doesn't do</p> <p>15 enough work -- the county doesn't have enough time -- and</p> <p>16 this was probably evidenced here this morning -- to do</p> <p>17 the due diligence that they need, you know, to do</p> <p>18 setbacks and do shadow flicker and study sound and all</p> <p>19 this stuff we've been going through for, you know, three</p> <p>20 days already. They don't have -- I don't mean to be</p> <p>21 disparaging but they don't have a clue as to what all</p> <p>22 this is.</p> <p>23 And we would take them information after information</p> <p>24 after information, and we'd talk to them and we'd give</p> <p>25 them stuff and it made absolutely no difference. And</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 307</p> <p>1 Until he starts putting flicker on my land or into</p> <p>2 my bedroom window or making noise where I can't sleep.</p> <p>3 That point has been crossed.</p> <p>4 And I used the analogy -- I thought of this a few</p> <p>5 weeks ago. The to be owe industry it took 40 years of</p> <p>6 people dying from lung cancer before they finally did</p> <p>7 something. Now I can't legally light up a cigarette and</p> <p>8 start puffing smoke in this room. Why is that?</p> <p>9 If I lit a cigarette and then burned another one and</p> <p>10 another one, I'd have smoke in this room and it's illegal</p> <p>11 and everybody's going to go home and probably nobody's</p> <p>12 going to get lung cancer. Probably not. But why is that</p> <p>13 law in existence? Because we protect people. We protect</p> <p>14 them.</p> <p>15 And so when you talk about protecting people you</p> <p>16 need to protect all the people. Not the big corporations</p> <p>17 or the big money but the people. Because that's what</p> <p>18 we're supposed to do, and that's the way a lot of our</p> <p>19 laws are written.</p> <p>20 That's why I can't smoke a cigarette. I don't</p> <p>21 smoke, but that's why I can't light up a cigarette in</p> <p>22 here because we're to protect. And that's why we're at</p> <p>23 the PUC because we don't get protection, and we will</p> <p>24 never get protection at our county level.</p> <p>25 I don't think I have anything else to say.</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 306</p> <p>1 then not having a County Commissioner to represent us.</p> <p>2 We have just totally given up on our county because they</p> <p>3 have done everything that the wind energy system has</p> <p>4 wanted them to do.</p> <p>5 Every time we went to a meeting if we would get --</p> <p>6 if we would just show up and they wouldn't know it the</p> <p>7 next time you'd show up at a meeting they'd have a wall</p> <p>8 stacked with investors, attorneys, and Prevailing Winds</p> <p>9 people. And it was totally intimidating, totally. I</p> <p>10 could go on and on about each individual meeting. I</p> <p>11 won't have to. But that's the way it's always been.</p> <p>12 As soon as you opposed or brought in a witness -- we</p> <p>13 brought in Geronimo ohm powers one day we brought in</p> <p>14 Vickie may one day and at the very next meeting they</p> <p>15 showed up and basically refuted and tried to dismiss the</p> <p>16 whole thing. So we got no protection from our county.</p> <p>17 They're not capable and they've been highly influenced by</p> <p>18 the wind industry. And you can go to any county in the</p> <p>19 state and they're going to tell you the exact same thing.</p> <p>20 So that's why we're here, and we're trying to -- you</p> <p>21 know, everybody wants to paint us as aunt I wind aunt I</p> <p>22 wind aunt I wind that's not it. We're for safe and</p> <p>23 responsible wind energy if they want it. I mean I'd</p> <p>24 never put it on my land but my neighbor has the right to</p> <p>25 do with his land what he wants to a point. To a point.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 308</p> <p>1 MR. ALMOND: Thank you, Gregg.</p> <p>2 THE WITNESS: Yep.</p> <p>3 MR. DE HUECK: So it's 7 o'clock so what I'd</p> <p>4 like to do is break for the evening, come back refreshed,</p> <p>5 and be at our best tomorrow morning. If that works for</p> <p>6 my three Commissioners.</p> <p>7 CHAIRWOMAN FIEGEN: So can we start earlier</p> <p>8 tomorrow?</p> <p>9 MR. DE HUECK: 8:15.</p> <p>10 (Discussion off the record.)</p> <p>11 MR. DE HUECK: I guess we'll move into</p> <p>12 cross-examination. So if we were recessed we're back in</p> <p>13 session now.</p> <p>14 Go ahead, Prevailing Winds.</p> <p>15 MS. AGRIMONTI: Thank you, Mr. de Hueck.</p> <p>16 <u>CROSS-EXAMINATION</u></p> <p>17 <u>BY MS. AGRIMONTI:</u></p> <p>18 Q. Mr. Hubner, are you aware of the predicted shadow</p> <p>19 flicker and sound level predictions for your residence?</p> <p>20 A. I've read them, but I can't tell you right now what</p> <p>21 they are.</p> <p>22 Q. All right. Please turn to Exhibit A22-1. Page 2.</p> <p>23 A. I've got the wrong book here.</p> <p>24 Q. I'd like you to go to the response to 1-2 A. It's</p> <p>25 the paragraph that begins "another concern." It's about</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">309</p> <p>1 the fourth paragraph down. Do you see that?</p> <p>2 A. Where it says identify.</p> <p>3 Q. Where it starts, "Another concern relates to</p> <p>4 compliance with setbacks."</p> <p>5 Do you see that?</p> <p>6 A. I'm on page 1.</p> <p>7 Q. I'd like you to be on page 2, please.</p> <p>8 A. Oh, okay. Another concern.</p> <p>9 Q. Yeah. And in that paragraph you talk about a</p> <p>10 belief --</p> <p>11 And let me ask you first, did you participate in</p> <p>12 drafting these responses, Mr. Hubner?</p> <p>13 A. I did.</p> <p>14 Q. All right. And it states that there is another</p> <p>15 concern relating to the Campbell County wind farm and</p> <p>16 that it relates to seven instances where the turbines</p> <p>17 were built in violation of setbacks; is that right?</p> <p>18 A. Yes.</p> <p>19 Q. So that's the concern for the Campbell County wind</p> <p>20 farm is they were not built in conformance with required</p> <p>21 setbacks?</p> <p>22 A. Well, that's a concern I would have too is if they</p> <p>23 don't follow the law here, you know, how do I know</p> <p>24 they're going to follow the law here.</p> <p>25 Q. I'm trying to understand a couple of other lay</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">311</p> <p>1 Q. I note in there a variety of meetings both with</p> <p>2 Commission and zoning do these all relate to Bon Homme</p> <p>3 County?</p> <p>4 A. Yes. These are all Bon Homme County.</p> <p>5 Q. And I note that in 2017 there are two meetings</p> <p>6 listed, one for zoning and one Commission where it says,</p> <p>7 "Gregg proposes one mile with waivers."</p> <p>8 Can you please explain what that is.</p> <p>9 A. Yes. I would like to. What happened there was the</p> <p>10 draft model ordinance that, you know, Article 17 was</p> <p>11 based on was taken down by the PUC.</p> <p>12 Q. Mr. Hubner I'm just asking -- maybe I've asked a</p> <p>13 poor question. What was your proposal with respect to</p> <p>14 one mile with waivers? What kind of setback was it?</p> <p>15 A. Okay. It was a mile from a residence with waivers</p> <p>16 and we know what they are; right?</p> <p>17 Q. Yeah. Thank you.</p> <p>18 A. All right.</p> <p>19 Q. Okay. Please turn to page 28.</p> <p>20 A. Okay.</p> <p>21 Q. What is this letter?</p> <p>22 A. It looks like a -- oh, that's a letter I sent to the</p> <p>23 Real Estate Commission and without reading the whole</p> <p>24 letter because it was September '15, I was -- I had been</p> <p>25 trying for years to get the South Dakota Real Estate</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">310</p> <p>1 witnesses who are identified as potential witnesses for</p> <p>2 the Intervenor including yourself and they're going to</p> <p>3 talk about the Campbell County wind farm and I want to</p> <p>4 make sure I understand what the concern is. And I read</p> <p>5 this response to say it's about violation of setbacks.</p> <p>6 Is that an accurate summary?</p> <p>7 A. Yes.</p> <p>8 Q. Thank you.</p> <p>9 All right. Please go to page 13 of the exhibit.</p> <p>10 You're actually ahead of me. Give me just a second.</p> <p>11 Can you please tell me what this document is? The</p> <p>12 top of it says timetable?</p> <p>13 A. These are the meetings that we attended at our</p> <p>14 county level.</p> <p>15 Q. For what purpose was this table put together?</p> <p>16 A. I just do a lot of -- I just do a lot of</p> <p>17 documentation of all this stuff.</p> <p>18 Q. All right. Did you create it for the purposes of</p> <p>19 responding to this discovery request or was it already</p> <p>20 something in your files?</p> <p>21 A. No. I had done this about maybe a year ago or less</p> <p>22 than a year ago.</p> <p>23 Q. All right.</p> <p>24 A. Would have been after February. So it would have</p> <p>25 been sometime this spring probably.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE!</p> <p style="text-align: right;">312</p> <p>1 Commission to add in their property disclosures statement</p> <p>2 on the house just a little paragraph that says does the</p> <p>3 seller of the property -- is there a wind farm in the</p> <p>4 area or a proposed wind farm or do you know of a wind</p> <p>5 farm in the area so that if somebody bought your house</p> <p>6 they would know even if it wasn't built yet they would</p> <p>7 know if a turbine was -- turbines were coming in.</p> <p>8 Q. All right. And that effort hasn't been successful,</p> <p>9 has it?</p> <p>10 A. No. Not at all.</p> <p>11 Q. Please turn to page 15 of the exhibit. I'm going to</p> <p>12 back up a little bit.</p> <p>13 A. Okay.</p> <p>14 Q. One second. All right. On the paragraph that</p> <p>15 begins "today"?</p> <p>16 A. Yep. Right in the middle?</p> <p>17 Q. Yeah.</p> <p>18 A. Yep.</p> <p>19 Q. I'm going to read a portion of the last paragraph.</p> <p>20 It says and you're responding to your concerns about the</p> <p>21 Bon Homme zoning ordinance is that right Article 17 in</p> <p>22 this letter?</p> <p>23 A. There's no date on this letter, is there?</p> <p>24 Q. I didn't see one.</p> <p>25 A. Well, this would have been -- if it starts out -- it</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 313</p> <p>1 starts out talking about in the spring of '15 so I'm</p> <p>2 assuming this is a spring or summer 2015 letter.</p> <p>3 Q. Okay.</p> <p>4 A. Okay.</p> <p>5 Q. All right. At the end of that paragraph you state</p> <p>6 that, "there should be concerns about reduced property</p> <p>7 values and then "not only would I want my property taxes</p> <p>8 and valuation reduced I plan to sue B.H. Wind or Ronnie</p> <p>9 Hornstra personally for the loss I'll have to take on my</p> <p>10 property."</p> <p>11 Did I read that right?</p> <p>12 A. Yes.</p> <p>13 Q. And have you otherwise made threats to commence</p> <p>14 legal action against any of the wind developers in the</p> <p>15 area?</p> <p>16 A. Not that I know of. I'm not sure B&H wind is in</p> <p>17 existence anymore.</p> <p>18 Q. I'm sorry what did you say sir?</p> <p>19 A. I'm not sure B&H wind is even in existence anymore.</p> <p>20 Q. And do you know what the closest turbine is to your</p> <p>21 residence?</p> <p>22 A. Yeah. According to a map that was provided to me</p> <p>23 during this hearing, it was in the 4,500 foot range, I</p> <p>24 think.</p> <p>25 MS. AGRIMONTI: Thank you. I have no other</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 315</p> <p style="text-align: center;"><u>CROSS-EXAMINATION</u></p> <p>1</p> <p>2 BY MS. REISS:</p> <p>3 Q. Mr. Hubner, you mentioned that one of your concerns</p> <p>4 was the setback distance; correct?</p> <p>5 A. Correct.</p> <p>6 Q. And did you have concerns about sound or shadow</p> <p>7 flicker at all?</p> <p>8 A. Yeah. Shadow flicker definitely. Sound definitely,</p> <p>9 yes. All three.</p> <p>10 Q. Okay. You mentioned the one mile setback as your --</p> <p>11 or as a recommendation. Would you have any</p> <p>12 recommendation for sound or shadow flicker?</p> <p>13 MR. ALMOND: I'm going to object. Misstates his</p> <p>14 testimony.</p> <p>15 MS. REISS: Can I rephrase.</p> <p>16 MR. DE HUECK: Yeah.</p> <p>17 Q. What was the setback you requested in your</p> <p>18 testimony?</p> <p>19 A. The setback I requested in my testimony?</p> <p>20 Today? Here? Now?</p> <p>21 Q. In response to a question Ms. Ago -- or Ms. Ago had</p> <p>22 pointed you to a document. Let me pull it up.</p> <p>23 A. You're referring to the one mile with waivers or --</p> <p>24 Q. Yes.</p> <p>25 A. -- or you talking about? Okay. So that's one mile</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 314</p> <p>1 questions.</p> <p>2 MR. DE HUECK: Mr. Fuerniss.</p> <p>3 MR. FUERNISS: I don't have any questions.</p> <p>4 MR. DE HUECK: Ms. Jenkins.</p> <p>5 <u>CROSS-EXAMINATION</u></p> <p>6 BY MS. JENKINS:</p> <p>7 Q. Gregg, you heard my testimony yesterday?</p> <p>8 A. Yep.</p> <p>9 Q. And did you also have the concerns of the -- the</p> <p>10 county not following proper procedure, Bon Homme County?</p> <p>11 A. Well, I never contended their procedure. I mean,</p> <p>12 I -- whether they made a mistake or didn't make a mistake</p> <p>13 as they were doing this. How they did it was really not</p> <p>14 an issue for me. It's what they did and who they</p> <p>15 listened to.</p> <p>16 Q. Okay. And do you have anything else that you want</p> <p>17 to talk about?</p> <p>18 A. Oh, not really.</p> <p>19 MR. ALMOND: I don't think we've got time.</p> <p>20 MS. JENKINS: Thank you.</p> <p>21 MR. DE HUECK: Ms. Pazour.</p> <p>22 MS. PAZOUR: Not at this time.</p> <p>23 MR. DE HUECK: Staff, do you have</p> <p>24 cross-examination?</p> <p>25 MS. REISS: Yes. Thank you.</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 316</p> <p>1 with waivers from a residence.</p> <p>2 Q. Yes.</p> <p>3 A. Yes.</p> <p>4 Q. Would you have any recommendations to alleviate your</p> <p>5 concerns with sound?</p> <p>6 A. Well, from what I've heard today, 35 decibel top</p> <p>7 limit would be -- would be very good. I've been duck</p> <p>8 hunting already and I've heard turbines for 3 miles. And</p> <p>9 I'm assuming at one mile I'm going to hear turbines. So</p> <p>10 35 decibel one mile from a residence 1,500 feet from a</p> <p>11 property line would be a minimum for me.</p> <p>12 Q. Okay. Would you have any recommendation in regard</p> <p>13 to shadow flicker?</p> <p>14 A. Zero. On the property or on the house.</p> <p>15 Q. Okay. And if the Applicant could commit to those</p> <p>16 sound and shadow flicker levels related to your property</p> <p>17 would it alleviate some of your concerns?</p> <p>18 A. Some of them.</p> <p>19 MS. REISS: No further questions.</p> <p>20 MR. DE HUECK: That brings us over here to</p> <p>21 Commission questions. And I'll call -- I'm starting with</p> <p>22 Commissioner Nelson.</p> <p>23 COMMISSIONER NELSON: Gregg, just a couple of</p> <p>24 questions. I've asked a lot of questions about</p> <p>25 infrasound in the proceeding. Do you have any evidence</p>

<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 317</p> <p>1 that you or your wife have a sensitivity to infrasound?</p> <p>2 THE WITNESS: I have no evidence, but if I could</p> <p>3 just say another sentence, from reading a lot of this, we</p> <p>4 do have a health condition in the family that could be</p> <p>5 sensitive to infrasound.</p> <p>6 COMMISSIONER NELSON: I promised myself I wasn't</p> <p>7 going to ask any questions about the zoning process</p> <p>8 because I don't believe that's properly before us, but</p> <p>9 I'm going to ask one.</p> <p>10 Was there ever an attempt to refer the 2015 Bon</p> <p>11 Homme zoning changes to a vote of the people?</p> <p>12 THE WITNESS: No.</p> <p>13 COMMISSIONER NELSON: No other questions. Thank</p> <p>14 you.</p> <p>15 MR. DE HUECK: Chairman Fiegen.</p> <p>16 CHAIRWOMAN FIEGEN: Thank you. I did not know</p> <p>17 your background. And so were you here -- you were here</p> <p>18 yesterday when I -- or maybe two days ago. I can't</p> <p>19 remember now. When I asked about housing eligibilities?</p> <p>20 THE WITNESS: Yeah.</p> <p>21 CHAIRWOMAN FIEGEN: So I couldn't remember how</p> <p>22 much land do you own all by yourself with Marsha, your</p> <p>23 wife?</p> <p>24 THE WITNESS: The 1,120 acres or whatever.</p> <p>25 CHAIRWOMAN FIEGEN: Okay. And then do you have</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 319</p> <p>1 Commission meeting, I believe, and what you said it was</p> <p>2 two miles or 1,000 feet and you wish they would have</p> <p>3 negotiated.</p> <p>4 THE WITNESS: I wish they would have tried to</p> <p>5 compromise in some way.</p> <p>6 CHAIRWOMAN FIEGEN: Compromise. Okay.</p> <p>7 THE WITNESS: Yeah.</p> <p>8 CHAIRWOMAN FIEGEN: So when you answered the</p> <p>9 Staff questions was that property lines or was that your</p> <p>10 resident that you built?</p> <p>11 THE WITNESS: What I have -- I started out for</p> <p>12 two miles. And after we fought that for two years and</p> <p>13 got nowhere, and it looked like this next project was</p> <p>14 going to come in, that's when I made an effort to go back</p> <p>15 one more time and say here I'd like you to do a mile from</p> <p>16 a residence. And I don't think at the county at that</p> <p>17 time I mentioned 1,500 feet from the property line. But</p> <p>18 since being involved in a couple PUC hearings and</p> <p>19 learning about, you know, ice throw and owners manuals of</p> <p>20 turbines and all of that stuff it occurred to me that the</p> <p>21 property line and the right of way line to a highway</p> <p>22 would be a minimum of 1,500 feet.</p> <p>23 If you have a bunch of bear land, you know, a</p> <p>24 1,500 foot property is going to allow some of your</p> <p>25 neighbors to put turbines on their land. If your bear</p>
<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 318</p> <p>1 another 1,900.</p> <p>2 THE WITNESS: No.</p> <p>3 CHAIRWOMAN FIEGEN: It's all -- okay. So out of</p> <p>4 that 1,100 how many housing eligibilities would there</p> <p>5 possibly be? And because of your background -- yeah.</p> <p>6 That's my question.</p> <p>7 THE WITNESS: Well, I think the word housing --</p> <p>8 the term housing eligibility is more for the more</p> <p>9 metropolitan if you want to use that term, Sioux Falls,</p> <p>10 Brookings, Watertown. They go in their counties and they</p> <p>11 establish housing eligibilities so that you can put so</p> <p>12 many houses on a quarter of land. And each county's got</p> <p>13 a different set.</p> <p>14 Okay. In Bon Homme County we don't call them</p> <p>15 housing eligibilities but there are zoning laws that you</p> <p>16 have to have so many minimum acres to build a house. And</p> <p>17 I think that it's five acres if I'm not mistaken.</p> <p>18 So you can't plat off anything less than 5 acres</p> <p>19 and build a house unless of course you can get a waiver.</p> <p>20 CHAIRWOMAN FIEGEN: I'm going to go back to the</p> <p>21 Staff's questions. When they asked you questions about</p> <p>22 what you would be comfortable with on a -- when you</p> <p>23 proposed that one mile setback, I guess, and then the</p> <p>24 Staff kind of asked you a little bit of questions you did</p> <p>25 talk about your goal was to negotiate at the County</p>	<p style="text-align: center;">ROUGH DRAFT -- DO NO QUOTE! 320</p> <p>1 land is next to they're bare land, you know, 1,500 foot</p> <p>2 would work. It's a minimum but it -- to summarize, a</p> <p>3 mile from a residence, 1,500 feet from a property line,</p> <p>4 35 decibels.</p> <p>5 CHAIRWOMAN FIEGEN: From a residence? 35?</p> <p>6 THE WITNESS: Yeah.</p> <p>7 CHAIRWOMAN FIEGEN: Thank you.</p> <p>8 MR. DE HUECK: Commissioner Hanson.</p> <p>9 COMMISSIONER HANSON: Good evening.</p> <p>10 THE WITNESS: Hi.</p> <p>11 COMMISSIONER HANSON: Over the years I have read</p> <p>12 a lot of literature.</p> <p>13 THE WITNESS: So have I.</p> <p>14 COMMISSIONER HANSON: From a gentleman by the</p> <p>15 same name as you who lives in your vicinity. Would that</p> <p>16 be you?</p> <p>17 THE WITNESS: It's possible.</p> <p>18 COMMISSIONER HANSON: I'm surprised when you</p> <p>19 gave your resume you didn't say author on it as well.</p> <p>20 I don't have any questions for you. You've been</p> <p>21 very patient sitting there going through the process.</p> <p>22 Appreciate it.</p> <p>23 THE WITNESS: Thank you.</p> <p>24 COMMISSIONER HANSON: And that's all I have to</p> <p>25 say other than good evening.</p>

1 MR. DE HUECK: Mr. Almond, do you have any
2 redirect? No.
3 Mr. Hubner, thank you for your testimony.
4 THE WITNESS: Thank you.
5 (The witness is excused.)
6 MR. DE HUECK: That's concludes our hearing
7 today. We will reconvene --
8 MS. AGRIMONTI: Just one housekeeping matter,
9 Mr. de Hueck.
10 Ms. Smith cross-examined two witnesses with an
11 Exhibit No. 36. It's a court case. We would move
12 admission.
13 MR. DE HUECK: Oh. We had this discussion
14 earlier, and I could have swore you guys already got it
15 in.
16 Yes. The court case will be admitted. Thank
17 you for catching that.
18 MS. AGRIMONTI: Thank you.
19 MR. ALMOND: Can I say no objection.
20 MR. DE HUECK: Yeah.
21 So reconvene at the same time? Is that okay?
22 CHAIRWOMAN FIEGEN: Well, I'd love to start at
23 8:00 but --
24 MR. DE HUECK: 8:30. We'll show up at 8:30 and
25 be ready to go.

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