

In The Matter Of:
LIVINGSTON COUNTY ZONING BOARD OF APPEALS

February 23, 2015

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1 LIVINGSTON COUNTY ZONING BOARD OF APPEALS
 2 CASE SU-7-14
 3 PLEASANT RIDGE WIND ENERGY PROJECT
 4 February 23, 2015
 5 6:30 PM
 6 Walton Centre
 7 Fairbury, Illinois

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 11 Joan Huisman
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1 **CHAIRMAN CORNALE:** We'll call this meeting
 2 to order. Can I have roll call, please?
 3 **MR. SCHOPP:** This is the February 23, 2015,
 4 continuation hearing of the Livingston County Zoning
 5 Board of Appeals' review of Livingston County Zoning
 6 Case SU-7-14, Pleasant Ridge Energy, LLC, Pleasant
 7 Ridge Wind Energy Project.
 8 Roll call: Mike Cornale?
 9 **CHAIRMAN CORNALE:** Here.
 10 **MR. SCHOPP:** John Vitzthum?
 11 **MR. VITZTHUM:** Here.
 12 **MR. SCHOPP:** Richard Kiefer?
 13 (No response.)
 14 **MR. SCHOPP:** Diana Iverson?
 15 **MS. IVERSON:** Here.
 16 **MR. SCHOPP:** Howard Zimmerman?
 17 **MR. ZIMMERMAN:** Here.
 18 **MR. SCHOPP:** Joan Huisman?
 19 **MS. HUISMAN:** Here.
 20 **MR. SCHOPP:** Gibs Nielsen?
 21 (No response.)
 22 **MR. SCHOPP:** All right. Thank you. We have
 23 a quorum.
 24 **CHAIRMAN CORNALE:** I believe this evening we

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1 INDEX OF EXAMINATION

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3 DR. JERRY PUNCH

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1 have Mr. Punch back with us for some additional
 2 questions that we had with him; so, with that, we'll
 3 go ahead and just get started.
 4 Mr. Punch, I just want to remind you that
 5 you are still under oath from your previous testimony.
 6 So with that, Mr. Blazer, you may continue.
 7 **MR. LUETKEHANS:** After Mr. Punch originally
 8 testified a number of weeks ago, I think we talked
 9 about UCLC Exhibit 101. I don't know if -- I don't
 10 remember if we handed it out or not. I made another
 11 15 copies just in case we didn't. But at this time,
 12 we would ask that that be admitted into evidence based
 13 on what happened last time.
 14 **CHAIRMAN CORNALE:** Let the record indicate
 15 the County at this point will accept UCLC Exhibit 101.
 16 Looks like it's an email from Mr. Punch to
 17 Mr. Luetkehans. Subject is "Supplementary Statement."
 18 EXAMINATION OF MR. PUNCH
 19 BY MR. BLAZER:
 20 Q Mr. Punch, did you review anything since
 21 last month in preparation for your testimony tonight?
 22 A. Yes.
 23 Q. What did you review?
 24 A. I reviewed part of my deposition, only

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1 certain parts of it.
 2 I reviewed what I think is the article by
 3 Crichton, et al., that you had brought up. You asked
 4 me if I had seen the article. I had not.
 5 I think it came out in November, and I had
 6 not seen it yet. I found it, and I think it is the
 7 correct article. I made some annotated comments here.
 8 If you still have questions, I'd like to rely on some
 9 of those.
 10 Q. I don't on that. But when you said you
 11 referred to your deposition, I assume what you met was
 12 you --
 13 A. Not deposition, my --
 14 Q. Your testimony?
 15 A. My testimony.
 16 Q. Okay.
 17 A. I really didn't -- I reviewed a few articles
 18 that were in my list of references but not very many
 19 of them. I just had some thoughts of my own that I
 20 thought maybe could come out, but I can't point to
 21 anything more specifically than that.
 22 Q. Okay. Do you have your presentation here
 23 with you?
 24 A. I have it on the computer.

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1 Q. Okay. If you could turn to your slide 31?
 2 A. Okay.
 3 Q. This is the slide where you talk about what
 4 and where is the evidence for adverse health impacts
 5 from wind turbines?
 6 A. Yes.
 7 Q. And one of the things that you identified,
 8 one of your bullet points, is "Expert testimony in
 9 legal proceedings in USA and other countries and
 10 related public comments."
 11 Do you see that?
 12 A. Yes.
 13 Q. All right. And, last month, I asked you a
 14 little bit about this particular bullet; and you said
 15 that you didn't bring any of those materials with you
 16 because it's too tedious.
 17 Do you remember that?
 18 A. I would say I said something like that, yes.
 19 (Mr. Blazer distributing document.)
 20 Q. Mr. Punch, I put several items from those
 21 legal proceedings on the table there for you.
 22 Actually, the first one, oddly enough, isn't
 23 on the stack I just handed out. It's an exhibit
 24 that's already in this record. It's Pleasant Ridge

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1 Exhibit 56. So I want to start with Pierpont first.
 2 Exhibit 56 is from the Tule, T-u-l-e, Wind
 3 Project in California where Pierpont's opinions or her
 4 theory was rejected.
 5 Is that one of the legal proceedings that
 6 you refer to in your slide 31?
 7 A. No. I was trying to show that there's a
 8 range of evidence and that, in some of the testimony
 9 that I've been part of in hearings in Wisconsin, for
 10 example, in Iowa, and through stories that I've heard
 11 through other -- through other people who have been
 12 experts -- again, I was making a general statement
 13 that I know there's testimony indicating that others
 14 also think there are adverse health effects from wind
 15 turbine noise.
 16 I'm aware, very much aware, Mr. Blazer, that
 17 there is testimony on the opposite side.
 18 Q. This in particular, what I'm focusing on
 19 here, is --
 20 A. Are you asking me to look at this?
 21 Q. No, no. I'm asking if that proceeding,
 22 where Dr. Pierpont's theory was rejected, is one of
 23 the legal proceedings that's part of what you refer to
 24 in slide 31.

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1 A. Not specifically, no.
 2 Q. Okay. Then if we could go to the next one
 3 on the list or if you could just slip that one over --
 4 they are all in order -- I have a feeling this could
 5 go pretty quickly.
 6 The next one is Pleasant Ridge Exhibit 280,
 7 which is a proceeding before the Ontario Environmental
 8 Review Tribunal, which also rejected Pierpont and
 9 prohibited her from testifying.
 10 Is that one of the legal proceedings that
 11 you referred to?
 12 **MR. LUETKEHANS:** Instead of Mr. Blazer, who
 13 ends up testifying as to what's in this report, I
 14 think the first question is whether he relied upon it,
 15 and whether he has seen it.
 16 It shouldn't be Mr. Blazer testifying as to
 17 what it says. It's somehow back-dooring this into the
 18 record.
 19 **MR. BLAZER:** Mr. Cornale, I'm simply --
 20 since he identified in his presentation expert
 21 testimony and legal proceedings in the USA and other
 22 countries and related public comments, I think it's
 23 fair to ask him if any of these are part of what he's
 24 relying on.

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1 **MR. LUETKEHANS:** And I agree. It's the
2 characterization by you of what they stand for that I
3 have a problem with. If you want to ask a question, I
4 have no problem with that. It's him testifying as to
5 what it says, is my concern.
6 **CHAIRMAN CORNALE:** This is super simple.
7 Why don't you just look at this. If he used that one,
8 yes or no. If he says yes, you can question him
9 further. If he says no . . .
10 **MR. BLAZER:** I'll move on.
11 **CHAIRMAN CORNALE:** Perfect.
12 Q Going back to Exhibit 280, Mr. Punch, have
13 you ever seen this opinion from the Environmental
14 Review Tribunal involving the Wrightman case?
15 A. I've not read this, no.
16 Q. Have you ever seen it?
17 A. I don't believe I have. I've looked at an
18 awful lot of documents. I'm aware, for example, that
19 Dr. Pierpont's testimony was rejected in one or more
20 places and she was not allowed to be a witness.
21 Q. Okay. That probably gets us as far as we
22 need to go.
23 Let's look at the next one on the stack
24 there, Pleasant Ridge Exhibit 87, which is a decision

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1 from a federal judge in California in the matter of
2 Protect Our Communities Foundation versus Jewell,
3 J-e-w-e-l-l.
4 Have you ever seen that one before?
5 A. No. This is very reminiscent of the pile of
6 articles you served me earlier. There's a lot of
7 things I have been -- I'm vaguely aware of but have
8 not really read.
9 I'm aware there's arguments on both side.
10 There's piles of testimony -- if you brought it all in
11 here, it would stack up to the ceiling -- on either
12 side.
13 Q. Right now, I'm just asking you about these.
14 So you haven't seen this one before?
15 A. No, I have not.
16 Q. Next one is Pleasant Ridge Exhibit 290.
17 This one involves Mr. Shepherd. Mr. Shepherd that you
18 rely on, he's from Australia, right?
19 A. What's his first name?
20 Q. I actually don't know.
21 A. I read his articles, articles in the
22 literature by Shepherd.
23 Q. Okay.
24 A. I believe he is Australian. I get Australia

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1 and New Zealanders confused sometimes.
2 Q. This one should say Pleasant Ridge Exhibit
3 290?
4 A. Yes.
5 Q. And it's from the Meridian Energy Proceeding
6 in New Zealand.
7 Have you ever seen that one before?
8 A. I don't think so.
9 Q. Next one. Well, one of the people that you
10 rely on -- before we go to that one, just a couple of
11 preliminary questions first, Mr. Punch, if I may.
12 There's somebody that you relied on in your
13 presentation named Nissenbaum, N-i-s-s-e-n-b-a-u-m.
14 Is that correct?
15 A. Michael Nissenbaum, yes.
16 Q. Among other things, you rely on him
17 specifically for your recommendations regarding
18 turbine setbacks, right?
19 A. Right. He had a recommendation that I did
20 repeat, I think, based on the distances that he
21 actually studied in his particular investigation.
22 Q. Okay. Speaking of -- actually, do you have
23 your UCLC Exhibit 101, the email that your attorney
24 introduced?

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1 A. Yes, I have the copy here. Yes.
2 Q. And you say here -- I mean, there's the
3 second full paragraph. It's the larger paragraph. In
4 the middle of that paragraph, you see there's a line
5 there that starts, "Alternatively, a barrier could be
6 placed."
7 A. I do, yes.
8 Q. Just for the record, I'll read it so we know
9 what we're talking about.
10 "Alternatively, a barrier can be placed near
11 or around the receptor, which is the example I gave in
12 my answer, indicating that many people seek protection
13 by attempting to sleep in their basements to improve
14 their chances for a better night's sleep.
15 "As I also indicated, infrasound is not
16 easily mitigated by concrete walls, even underground
17 concrete walls. None of these options are practically
18 effective when infrasound is involved."
19 The question I have is: You do agree that
20 the other type of sound, the sound at levels above
21 infrasound, can effectively be soundproofed?
22 Soundproofing will work?
23 A. They can either be muffled or attenuated
24 depending on the frequency. The higher the frequency,

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1 the easier it is to attenuate the sound.
 2 Q. Then you say here that "infrasound is not
 3 easily mitigated." Are you saying it's impossible to
 4 mitigate it?
 5 A. Well, I think, in practical terms, in terms
 6 of the way houses are built, it's probably impractical
 7 and impossible.
 8 I'm basing this on some personal knowledge,
 9 not only my knowledge of acoustics as it is, but with
 10 some experiences of people I've interviewed and met,
 11 talked to, who have tried to sleep in their basements.
 12 Some people have put up mattresses against
 13 the walls. One person had a fortified basement with a
 14 safe that had an extra layer of concrete around it --
 15 for whatever reason -- before the turbines came in;
 16 and he had to leave his house.
 17 Q. I assume you don't have experience with home
 18 soundproofing; is that correct?
 19 A. No. I don't do architectural acoustics in
 20 that sense.
 21 Q. And by "practically effective," do you mean
 22 it might cost too much?
 23 A. Well, what's feasible in terms of -- well,
 24 yeah, affordability would be one thing, I suppose. A

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1 very expensively -- a very thick wall that came close
 2 to about maybe a third or a fourth of the wavelength
 3 of the sound would do it.
 4 I figured once, if this is a correct
 5 assumption, a correct piece of information, that based
 6 on what I read earlier in an acoustics text, it would
 7 take about 300 feet of concrete to actually mitigate
 8 one hertz to be unnoticeable.
 9 Q. Are you familiar with programs for
 10 soundproofing homes around airports?
 11 A. I'm not personally. I'm aware of
 12 attenuation strategies, strategies for attenuating
 13 sound in homes around neighborhoods, around highways,
 14 and that sort of thing.
 15 Q. But not around airports? You don't know
 16 about those programs?
 17 A. I'm not intimately aware of those, no.
 18 Q. Okay. Let's go back to Nissenbaum, again.
 19 He's a radiologist, right?
 20 A. That's my understanding, yes.
 21 Q. He's not a neurologist or an ENT?
 22 A. No.
 23 Q. You do recall he's a member of the Advisory
 24 Board of the Society for Wind Vigilance? Does that

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1 ring a bell?
 2 A. I believe he was on that list.
 3 Q. All right. The next one there on the stack
 4 there is Pleasant Ridge 288? That's another Ontario
 5 Environmental Review Tribunal decision where the
 6 plaintiff is named Ericksen, E-r-i-c-k-s-e-n.
 7 Is that one of the legal proceedings that
 8 you referred to in slide 31 of your presentation?
 9 A. No. Again, I didn't refer to anything
 10 specifically in the presentation. I was giving a
 11 range of things.
 12 Q. Okay. Have you ever seen that one before?
 13 A. No.
 14 Q. All right. Then the next one also relating
 15 to Nissenbaum is Pleasant Ridge 293. Mckinnon,
 16 M-c-k-i-n-n-o-n, versus Rural Municipality of Martin.
 17 Have you ever seen that one before?
 18 A. Is that 293 that you said?
 19 Q. 293, yes.
 20 A. No. I'm guessing there are hundreds of
 21 these that I have probably not seen and hundreds on
 22 the other side. But I have seen some.
 23 Q. Another person that you rely extensively on
 24 in your presentation is a Dr. McMurtry,

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1 M-c-M-u-r-t-r-y.
 2 A. Robert McMurtry, yes.
 3 Q. Actually, there's a good 10, 11, 12 pages of
 4 your presentation that's based on his work; is that
 5 correct?
 6 A. I don't know how many pages, but there's
 7 several -- more than a couple.
 8 Q. Okay. And he's developed what you refer to
 9 as "diagnostic criteria" that can be used to diagnose
 10 Wind Turbine Syndrome; is that your position?
 11 A. He's been careful not to call it that,
 12 actually. It's gotten a pretty bad rap in these kinds
 13 of hearings in various settings.
 14 He talks about symptoms of people who live
 15 in the environments of wind turbines, but basically
 16 it's the same thing.
 17 Q. And McMurtry is an orthopedic surgeon?
 18 A. I believe he is, yes.
 19 Q. Not a neurologist?
 20 A. Pretty sure he's not.
 21 Q. Not an expert on sleep disorders?
 22 A. I don't think he casts himself as an expert
 23 on sleep.
 24 Q. Not an epidemiologist?

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1 A. No. As you say, he's an orthopedic surgeon.
 2 He's developed a number of his own techniques for
 3 orthopedic surgery.
 4 Q. And he's one of the founders of the Society
 5 for Wind Vigilance. You're aware of that?
 6 A. I wasn't aware. I mean, he was on the list.
 7 And I'll take your word if he is. It doesn't bother
 8 me that he is.
 9 Q. Are you also aware that he's a board member
 10 of a group known as Alliance to Protect Prince Edward
 11 County? Does that ring a bell?
 12 A. I think I read that in his bio.
 13 Q. Are you aware that one of the organization's
 14 guiding principles is to participate directly in
 15 campaigns opposing individual wind projects and help
 16 to seek regulatory changes?
 17 A. I hadn't read that.
 18 Q. Last month, if you remember this, you said:
 19 "McMurtry has a good representation as a health expert
 20 in Canada."
 21 Do you remember that?
 22 A. I think he does.
 23 Q. Do you have Pleasant Ridge 287 there? And
 24 that's another Ontario Environmental Review Tribunal

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1 proceeding. The party name is Platinum Produce.
 2 A. I have 285 next on my stack.
 3 Q. 287 should be there.
 4 A. No. I go from -- I thought we already
 5 talked about that. I was looking over here for the
 6 next one.
 7 Q. You do have 287 there?
 8 A. Yes. And I've answered your question about
 9 whether I've seen it or not.
 10 Q. Actually, I was asking you a different one.
 11 But had you ever seen 287 before?
 12 A. No.
 13 Q. The next one then is 285. That's another
 14 Ontario Environmental Review Tribunal proceeding. The
 15 party there is Bovaird, B-o-v-a-i-r-d.
 16 Have you ever seen that one before?
 17 A. Not in this format, no. I don't think I've
 18 seen it before.
 19 Q. Have you ever heard of the case before?
 20 A. I'm aware of -- again, in generalities.
 21 I've never testified in Canada. I've talked to others
 22 who have. I'm aware a lot has been happening there
 23 with wind turbine development. I haven't seen this
 24 particular report, that I recall.

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1 Q. Okay.
 2 A. I had one more.
 3 Q. We'll get to that. I have a feeling you're
 4 not interested in talking about that one?
 5 A. Not Geoff Leventhall, no.
 6 Q. We'll get to that one in a minute. Do you
 7 have your -- this is Pleasant Ridge 292 -- your 2010
 8 article that you wrote along with Richard James in
 9 Audiology Today?
 10 Do you have that one there? You don't?
 11 A. It's somewhere on my laptop.
 12 Q. I'll just give you this copy.
 13 A. I don't have it with me otherwise.
 14 Q. If you could, go to page 25 of that article.
 15 While you're looking at that, just so we can confirm,
 16 Leventhall was one of the people that you rely on in
 17 your presentation in this proceeding, right?
 18 A. Rely on?
 19 Q. Cite, quote, refer to?
 20 A. I think I did mention him once or twice.
 21 Q. Okay.
 22 A. I'm on page 25 now.
 23 Q. Okay. It's the one that starts, "Dr. Geoff
 24 Leventhall, a British scientist."

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1 Do you see that?
 2 A. I see it, yes.
 3 Q. What you wrote here is: ". . . and his
 4 colleagues, Wayne, et al., et cetera, have documented
 5 the detrimental effects of low frequency noise
 6 exposure."
 7 Do you see that?
 8 A. Yes.
 9 Q. In the next paragraph, again, you're
 10 referring to Leventhall in your article. And you say,
 11 "Leventhall, in 2003" -- and, actually, before we go
 12 there, if you would, go to your slide 39 in your
 13 presentation in this matter.
 14 A. Okay.
 15 Q. And you say, "Sleep disturbance, most well
 16 documented symptom." And one of your references is
 17 Leventhall 2003; is that correct?
 18 A. I have that, yes.
 19 Q. So going back to Exhibit 292, your Audiology
 20 Today article, you say here, "Leventhall, in reviewing
 21 the literature on the effects of exposure to
 22 low-frequency noise, found no evidence of hearing loss
 23 but substantial evidence of vibration of bodily
 24 structures, chest vibration, annoyance, especially in

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1 homes, perceptions of unpleasantness, pressure on the
 2 eardrum," et cetera, et cetera.
 3 Do you see all that?
 4 A. And sleep disturbance.
 5 Q. Right. You do know that Dr. Leventhall has
 6 rejected this as a misrepresentation of his research,
 7 right?
 8 A. I'm not surprised. I didn't know that, no.
 9 Q. Well, now you can go to 299, which is the
 10 last thing in the stack that I left for you there.
 11 A. Should I keep this?
 12 Q. You can put it aside for now. We may refer
 13 to it later.
 14 Pleasant Ridge Exhibit 299 is
 15 Dr. Leventhall's testimony before the Wisconsin Public
 16 Service Commission.
 17 Do you see that?
 18 A. Yes.
 19 Q. Have you even seen that before?
 20 A. I have.
 21 Q. You have read that?
 22 A. I read it actually years ago. I think it
 23 was years ago. Let me see what the date is on this.
 24 I also testified in that case, I think, in

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1 that hearing; and I read most of the depositions. I
 2 did read this one.
 3 Q. Okay. So then you are aware that
 4 Dr. Leventhall rejects both Pierpont's hypothesis and
 5 the reliance by anyone on the notion -- on these
 6 notions regarding vibration effects?
 7 A. Yeah. He rejects almost any effects of
 8 turbine noise.
 9 Q. All right. Let's go back for a minute to
 10 this -- your email to Mr. Luetkehans, Exhibit 101?
 11 A. Okay.
 12 Q. Do you have that?
 13 A. Yes.
 14 Q. Part of your discussion here is about
 15 something called the Brown County Board of Health in
 16 Wisconsin; is that correct?
 17 A. Correct.
 18 Q. It's the paragraph that starts: It is --
 19 it's the part that starts, "It is my opinion."
 20 A. Is that next to the last paragraph?
 21 Q. Yes.
 22 A. Yes.
 23 Q. And you refer here to "acoustical
 24 measurements with instrumentation designed for

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1 infrasonic testing that revealed significant
 2 infrasound emissions at distances of up to four
 3 miles."
 4 Do you see that?
 5 A. Correct.
 6 Q. And just to get some basic facts first, what
 7 kind of wind turbines are you talking about in Brown
 8 County?
 9 A. This was -- I don't know the brand name.
 10 They were commercial industrial steel turbines. My
 11 recollection is they were around 1.5 per turbine.
 12 Q. If I told you that they are Nordex 2.5
 13 megawatt turbines, does that ring a bell?
 14 A. Yes. Bigger than -- yes.
 15 Q. And do you recall that they have a total
 16 height of 492 feet?
 17 A. That sounds right.
 18 Q. Clearly they're not General Electric 1.7
 19 turbines, right?
 20 A. Right.
 21 Q. All right. Back to what you say here about
 22 Brown County. You said that this Board of Health
 23 declared the Shirley Wind Project a human health
 24 hazard.

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1 Do you see that?
 2 A. Yes.
 3 Q. What declaration are you talking about?
 4 A. The Brown County Department of Health, Board
 5 of Health, declared in, I believe, November of last
 6 year that, based on all the evidence presented in this
 7 case in which Leventhall, I, and numerous other people
 8 and members of the community testified, that there
 9 indeed was a problem, largely based on the
 10 measurements of noise and infrasound done -- I think
 11 the study was done by five acousticians: Ambrose, the
 12 two Hesslers, David and George, I believe Bob Foreman
 13 -- I'm not sure -- and Schomer, Paul Schomer, for
 14 sure.
 15 Q. Have you actually seen this declaration that
 16 you're referring to?
 17 A. I actually only read about it in the
 18 newspaper. But it was presumably a declaration -- I
 19 read it in a couple different newspapers online. I've
 20 not seen the declaration, no, from the Board.
 21 Q. Has this Board of Health passed some sort of
 22 an ordinance about this issue?
 23 A. I think their decision was -- as I
 24 understand it, their decision is that it's up now to

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1 the wind company to prove that it's not a hazard.
 2 Q. What's your understanding based on?
 3 A. That's what the accounts said. There was
 4 some quotes in these newspaper articles from the Board
 5 of Health. At least, they had quote marks.
 6 Q. What I'm asking you, though, is: Are you
 7 aware of any ordinance that has been passed by the
 8 Brown County Board of Health with respect to these 2.5
 9 megawatt turbines?
 10 A. Any ordinance?
 11 Q. Yes.
 12 A. No, not per se.
 13 Q. You do know that those turbines are still
 14 operating?
 15 A. Yes. I understand they are. Nothing has
 16 happened since then, as far as I know.
 17 Q. So as far as you know, nobody has issued any
 18 kind of a directive that those turbines have to stop
 19 operating; is that right?
 20 A. I don't think the wind company has decided
 21 what it can or wants to do.
 22 Q. That's not my question though, sir. My
 23 question is: As far as you know, has anyone issued
 24 any kind of directive that these turbines are supposed

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1 to stop operating?
 2 A. I don't know. I don't know.
 3 Q. Do you know who Judy Friederichs is? That's
 4 F-r-i-e-d-e-r-i-c-h-s?
 5 A. I don't think I've heard the name.
 6 Q. This one, I'm going to destroy the
 7 pronunciation. It's Chua, C-h-u-a, Xiong, X-i-o-n-g.
 8 Do you know who that person is?
 9 A. X-i-o-n-g is kind of a last name?
 10 Q. I just wanted to know if you had ever heard
 11 the name?
 12 A. I've probably seen the name. I don't know
 13 what you are referring do. I can't say I know the
 14 person.
 15 Q. Let me try it a different way. Has Brown
 16 County's local health officer issued an order finding
 17 any kind of a public health hazard from these 2.5
 18 megawatt turbines?
 19 A. I don't know that she or he has, per se.
 20 No, I don't know. I mean, I don't know who was in
 21 charge of making the determination and putting out the
 22 information that appeared in these newspaper articles
 23 to say that Brown County is a health hazard, the wind
 24 farm.

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1 Q. Has the Public Health Officer issued any
 2 kind of an abatement order, as far as you know?
 3 A. A what order?
 4 Q. An abatement order.
 5 **MR. LUETKEHANS:** I think that's asked and
 6 answered two or three times now.
 7 **MR. BLAZER:** No. I asked about the Board of
 8 Health. Now I'm asking about the Public Health
 9 Officer.
 10 **MR. LUETKEHANS:** No. You asked whether
 11 anybody has ordered it to be stopped. It's the same
 12 question. He said not to his knowledge. So obviously
 13 the Public Health Officer would be the same answer.
 14 Q. Are you aware that Rick James also had
 15 involvement with whatever this process has been in
 16 Brown County?
 17 A. I am, yes.
 18 Q. And you've known him for some time, right?
 19 A. For at least 15 years.
 20 Q. He contributed to Nina Pierpont's book?
 21 A. I think she asked him to read a
 22 prepublication copy. I don't know how much she
 23 depended on him. I wasn't -- I did know him at that
 24 point. He was doing that without my knowledge.

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1 Q. He was your coauthor on that audiology --
 2 A. Of course. I know him very well. I work
 3 with him in many different respects.
 4 Are you suggesting that he was more than a
 5 reviewer for the article -- I mean, for the book? I'm
 6 not sure what your question is.
 7 Q. We can move on. He was your coauthor on the
 8 Audiology Today article?
 9 A. Yes. I'm very proud to say he was.
 10 Q. He's also a member of the Board of the
 11 Society for Wind Vigilance, right?
 12 A. Yes.
 13 Q. Let's switch gears for just a minute. You
 14 mentioned Schomer before in one of your slides. I
 15 think it's slide 43. You talk about the fact that
 16 Schomer believes motion sickness to be similar to
 17 AAGs. That's your shorthand. What are AAGs again?
 18 A. It's an abbreviation for adverse health
 19 effects.
 20 Q. Schomer believes motion sickness to be
 21 similar to AAG's caused by IWT infrasound even though
 22 only acoustic energy involved. That relates to Mr.
 23 Schomer's reliance on the Navy studies, where they
 24 physically show people, right?

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1 A. I think so, yes.
 2 Q. And Pierpont relies on vibration theory as
 3 well. Do you recall that?
 4 A. Yes.
 5 Q. And then could you pull up your slide 35?
 6 A. Okay.
 7 Q. And that's where you list symptoms of Wind
 8 Turbine Syndrome. And one of them, number 3:
 9 "Visceral vibratory vestibular disturbance, VVVD"?
 10 A. Yes.
 11 Q. You also think this motion sickness is a
 12 symptom Of Wind Turbine Syndrome, right?
 13 A. You know, the truth is I believe it now more
 14 than I believed it then, --
 15 Q. Okay.
 16 A. -- based on other evidence.
 17 Q. And you and Mr. James and Ms. Pierpont all
 18 relied on the work of Dr. Neil Todd to support your
 19 theory, right?
 20 A. Yeah. I mean, yes.
 21 Q. Yes is fine for now. And you refer to him,
 22 as a matter of fact, in Pleasant Ridge 292, the
 23 Audiology Today article that you wrote with Mr. James,
 24 correct?

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1 A. That's correct.
 2 Q. And you know the next question. I think
 3 you've been asked it before. You do know that Dr.
 4 Todd, who you rely on, has rejected your
 5 interpretation of his research, right?
 6 A. I know he's rejected Pierpont's book's
 7 interpretation. I didn't know he rejects my
 8 interpretation.
 9 Q. Have you read his rejection of this VVVD
 10 theory?
 11 A. I've read that he rejected it. I'm not sure
 12 I've read a complete statement. I don't know if he
 13 wrote an article or -- I'm aware that he rejected it.
 14 Q. Let me see if I can refresh you a bit
 15 because this has been quoted in a number of different
 16 places.
 17 That really big fat one, 56, which is that
 18 Tule wind proceeding, the one with the tabs in it. I
 19 put those tabs in there for you.
 20 A. All right.
 21 Q. And the tab I want you to turn to is page
 22 2.7-12. Actually, let me make it easier for you, if I
 23 can find it.
 24 A. It's on top, I think. Is there a page

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1 number?
 2 Q. It's at the bottom of 2.7-12. I put a tab
 3 in there for you. You'll see there's a paragraph
 4 there that starts: "The work of Dr. Pierpont relied
 5 heavily on the research of Dr. Neil Todd from the
 6 faculty of Life Science at University of Manchester
 7 who recently reprimanded Pierpont for her
 8 misinterpretation and use of his research.
 9 "Pierpont's Wind Turbine Syndrome Theory has
 10 incorrectly sought to insert airborne noise issues
 11 into a paper that is entirely about vibration through
 12 direct content with the skull.
 13 "Dr. Todd states the following concerning
 14 Pierpont's interpretation of his research:"
 15 And this is the part I want to focus on to
 16 see if this is what you've heard before. And this is
 17 quoting Dr. Todd.
 18 "Our research is being cited to support the
 19 case that Wind Turbine Syndrome is related to a
 20 disturbance of vestibular apparatus produced by low
 21 frequency components of the acoustic radiations from
 22 wind turbines.
 23 "Our work does not provide the direct
 24 evidence suggested. We described a sensitivity of the

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1 vestibular system to low frequency vibration of the
 2 head through direct physical contact at about 100
 3 hertz and not air-conducted sound."
 4 That's what you have heard or read before;
 5 is that correct?
 6 A. That's right.
 7 Q. Okay. So let's move on from Brown County
 8 then. Let's go to your slide 71. Let me know when
 9 you're there.
 10 A. Okay.
 11 Q. And this is your example for what you call
 12 "poor siting of wind turbines."
 13 A. Yes.
 14 Q. When you referred to this slide last month,
 15 you said one of the houses belongs to an individual
 16 named Cary Shineldecker -- it's
 17 S-h-i-n-e-l-d-e-c-k-e-r -- near Ludington, Michigan;
 18 is that correct?
 19 A. In Mason County, yes.
 20 Q. And it's your opinion that he was suffering
 21 from Wind Turbine Syndrome?
 22 A. It is.
 23 Q. You've met personally with Mr. Shineldecker?
 24 A. I've met him a couple of times.

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1 Q. You're aware he's an industrial design
 2 engineer?
 3 A. Yes.
 4 Q. He's in his early 50s?
 5 A. Sounds right. I didn't ask.
 6 Q. His wife's a teacher, right?
 7 A. I don't know. I don't think I met her.
 8 Q. Cary Shineldecker?
 9 A. Right.
 10 Q. And you're aware that Mr. Shineldecker has
 11 been very vocal about his complaints about the wind
 12 turbines near his house, right?
 13 A. Absolutely.
 14 Q. He's posted his complaints on the Internet?
 15 A. He has.
 16 Q. And you've talked to him about his
 17 complaints?
 18 A. Yes.
 19 Q. I'm going to list some of these. You let me
 20 know if these are some of the ones you talked to him
 21 about. Sleep disturbance or sleep deprivation, do you
 22 recall that?
 23 A. For sure, yes.
 24 Q. Tinnitus?

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1 A. I believe. But he's talked to me about his
 2 wife's symptoms. I can't differentiate them right
 3 now. I don't remember.
 4 Q. Ear pressure?
 5 A. I believe so.
 6 Q. Routine headaches?
 7 A. I don't know how often but, yes, headaches.
 8 Q. Diagnosed with ocular migraine headaches?
 9 A. I don't recall that.
 10 Q. Anxiety?
 11 A. Oh, I would say, just based on conversations
 12 in general, yes. He left his home for a while. I'm
 13 sorry, he didn't leave his home, but he's done
 14 lawsuits. I think he's in terrible condition.
 15 Q. Routine awakenings?
 16 A. Yes. That sounds right.
 17 Q. Heart racing?
 18 A. Either he or his wife, yes.
 19 Q. His wife grinding teeth? Do you recall
 20 that? If you don't, that's okay.
 21 A. Not specifically, no.
 22 Q. Depression?
 23 A. Yes.
 24 Q. Home unable to sell in two years on market;

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1 do you remember that?
 2 A. I think that's absolutely true. I just
 3 checked on that when we were working on another
 4 article recently.
 5 Q. I suppose it wouldn't be surprising that
 6 someone who publishes complaints about a home on the
 7 Internet is going to have a hard time selling that
 8 house, right?
 9 A. That may be true.
 10 Q. Do you know what obstructive sleep apnea is?
 11 A. I know what sleep apnea is. I don't know
 12 the medical aspects of sleep apnea. I know that it's
 13 a breathing issue. While you're sleeping, you stop
 14 breathing, essentially. And adults can have it as
 15 well as children.
 16 Obstructive would be related to the fact
 17 that the pulmonary system can't get air. It might be
 18 a neurological issue as well.
 19 Q. Are you aware that one of the symptoms of
 20 obstructive sleep apnea is excessive daytime
 21 sleepiness?
 22 A. Sure.
 23 Q. Loud snoring, are you aware of that?
 24 A. That makes sense.

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1 Q. Observed episodes of breathing cessation
 2 during sleep?
 3 A. Absolutely, yes.
 4 Q. Abrupt awakenings accompanied by shortness
 5 of breath?
 6 A. Are we assuming in these question that he
 7 has obstructive sleep apnea?
 8 Q. I'm just asking if you're aware of those
 9 symptoms being associated with obstructive sleep
 10 apnea?
 11 A. They all make sense given what I do know
 12 about it.
 13 Q. Awakening with a dry mouth or sore throat?
 14 A. That would be associated with mouth
 15 breathing, I assume, if it's true.
 16 Q. Okay. Awakening with chest pain?
 17 A. Not specifically.
 18 Q. Morning headache?
 19 A. Again, I'm not a medical doctor, Mr. Blazer.
 20 I really -- I'm not familiar with all the symptoms.
 21 I'm familiar generally with what sleep apnea is.
 22 Q. Let's try a different one. Do you know what
 23 TMJ is? TMJ is temporal mandibular joint disorder.
 24 **CHAIRMAN CORNALE:** I think we're killing the

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1 young lady here. If you could let him finish, since
 2 he was already halfway through. You're just
 3 overtalking each other.
 4 **MR. BLAZER:** Let's try that one again so she
 5 doesn't skewer me.
 6 Q. TMJ, temporal mandibular joint disorder,
 7 correct?
 8 A. I'm familiar with it.
 9 Q. All right. And do those symptoms include
 10 pain or tenderness of the jaw?
 11 A. Yes, I think so.
 12 Q. Aching pain in or around the ear?
 13 A. Yeah. We're talking about this joint right
 14 here near the ear, the mandible. It's this lower
 15 jawbone, yes.
 16 Q. Aching facial pain?
 17 A. Certainly would be.
 18 Q. I believe you said last month that at least
 19 some of your presentation in this proceeding was
 20 developed as a result of having read the testimony in
 21 this proceeding from Dr. Ellenbogen and Dr. Roberts;
 22 is that correct?
 23 A. I did read those, yes. It's been a while,
 24 but I read them.

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1 Q. And the evidence from Drs. Roberts and
 2 Ellenbogen is part of what you said your presentation
 3 would respond to; is that right? Do you remember
 4 that?
 5 A. I don't recall saying it. I'm not surprised
 6 if I did say it.
 7 Q. Let's be clear. It's the January 21st
 8 transcript starting at page 1354, line 12: "Okay. So
 9 I want to address basically seven questions. These
 10 were largely developed as a result of my having read
 11 the -- what I'll call the deposition testimony of Drs.
 12 Roberts and Ellenbogen.
 13 "Different hearings call for different kinds
 14 of information. But these are the ones that I think
 15 were emphasized and which I think I can respond to in
 16 a reasonable kind of way."
 17 Do you remember that?
 18 A. Yes.
 19 Q. Okay. And you know that Dr. Ellenbogen,
 20 based on your review of his testimony -- it wasn't
 21 deposition testimony; it was testimony in this case.
 22 A. I understand that.
 23 Q. You know that Dr. Ellenbogen conducted
 24 independent medical examinations of some Michigan

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1 residents complaining of Wind Turbine Syndrome, right?
 2 A. Right.
 3 Q. Did you read Dr. Ellenbogen's testimony
 4 regarding his determination that the people he
 5 examined had pre-existing conditions that included
 6 obstructive sleep apnea, abnormal heart rhythm, TMJ,
 7 change in sleep patterns due to a change in
 8 employment, mood disorder, high blood pressure,
 9 neuropathy, alcoholism, and misdosing of medication?
 10 A. I read that.
 11 Q. And two of the people he examined included a
 12 53-year-old industrial designer and a 45-year-old high
 13 school teacher. Do you remember that?
 14 A. Not specifically, no.
 15 Q. This would be from November 18, when
 16 Dr. Ellenbogen testified. It starts on page 234, line
 17 19. And this is Dr. Ellenbogen testifying.
 18 "The first is a 53-year-old industrial
 19 designer who complained, who raised a concern --
 20 excuse me -- of insomnia and of palpitations in their
 21 chest -- boom, boom, boom -- at night and was
 22 absolutely convinced that the wind turbine near his
 23 house was causing the medical -- or these two
 24 problems.

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1 "And I won't bore you with all the details;
 2 but suffice it to say, in talking with him in great
 3 detail, he had in recent years gained a lot of weight,
 4 snoring with sleep apnea, meaning his wife had seen
 5 him gasp and stop breathing in the middle of the
 6 night. This gentleman absolutely had obstructive
 7 sleep apnea.
 8 "As a follow-up, by the way -- I mentioned
 9 the racing heart -- he did end up seeing a doctor who
 10 did measure -- I think it was a 24-hour or 48-hour
 11 electrocardiogram that showed abnormal heart rhythm
 12 that did not relate to the wind turbine."
 13 Do you remember reading that testimony from
 14 Dr. Ellenbogen?
 15 A. I remember reading it.
 16 Q. Next referring to this 45-year old high
 17 school teacher. This is on page 236, starting on line
 18 20.
 19 "Next is a 45-year-old high school teacher.
 20 And she said, 'I have a constellation of symptoms, not
 21 unlike Wind Turbine Syndrome, perhaps that very thing:
 22 headaches, sleepiness, anxiety, forgetfulness, poor
 23 mood. And it's all because of the wind turbine just
 24 down the street.'

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1 "When I spoke with her at length, examined
 2 her, and I could feel on her exam from her headaches.
 3 I mean, she had real pain, discomfort where the
 4 mandible meets the skull, sometimes called temporal
 5 mandibular joint. She had very classic symptoms of
 6 TMJ.
 7 "And finally, for her mood, we talked a lot
 8 about her life. And my board certification as a
 9 neurologist is from the American Board of Psychiatry
 10 and Neurology. And so we talked about her mood in
 11 great detail.
 12 "And she became instantly tearful when we
 13 hit her children, who had just moved out to college.
 14 And she felt a deep sense of loss to her, what some
 15 people call 'empty nest syndrome' or the fact that she
 16 was somewhat estranged from her kids, who went off to
 17 college. So I think she had probably a mood disorder
 18 provoked by life circumstances."
 19 Do you remember reviewing that testimony,
 20 Dr. Punch?
 21 A. I do, and I was mystified by it.
 22 Q. Have you, yourself, ever participated in an
 23 independent medical examination of Mr. Shindeldecker or
 24 his wife?

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1 A. I'm not a medical doctor; so I could not do
 2 a medical examination.
 3 Q. Last month you talked about the fact that
 4 the extreme anti-wind tactics of Nina Pierpont's
 5 husband, Calvin Martin, don't help her. Do you
 6 remember that?
 7 A. That's my opinion. I don't see how it could
 8 help her.
 9 Q. Do you think these people who describe
 10 themselves as "Wind Warriors" like Pierpont and her
 11 husband actually care about what's really wrong with
 12 people like Mr. Shindeldecker or his wife, or are they
 13 just using folks like that to further their own
 14 political goals?
 15 **MR. LUETKEHANS:** Objection. Assumes facts
 16 not in evidence. I don't think there's any evidence
 17 that Ms. Pierpont considers herself a "Wind Warrior."
 18 Whether her husband has, we've kind of gone
 19 through a couple of times and haven't allowed because
 20 of his --
 21 **MR. BLAZER:** I'll rephrase the question,
 22 sir.
 23 Q. Do you think people like Pierpont and her
 24 husband actually care about what's really wrong with

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1 people like Mr. Shindeldecker or his wife, or are they
 2 just using those folks to further their own political
 3 goals?
 4 A. To the first part of your question, yes. To
 5 the second part, no.
 6 Q. Okay. I want to give you another copy of
 7 this. This is probably not out there. This is
 8 Pleasant Ridge 275. It's the excerpts from Pierpont.
 9 We went over this a little bit last month, but I just
 10 want to set the context.
 11 If you go to page 38, under "methods"?
 12 A. Okay.
 13 Q. In the second paragraph there, she says:
 14 "Limited medical records were provided by the adults
 15 of families A and B, A1, A2, B1, B2, and by a young
 16 man in family C, C4.
 17 "I requested records for all families
 18 through F; but since no more were forthcoming, I
 19 stopped asking and pursued those parts of the study
 20 not dependent on physical examination or test results
 21 and for which I had a uniform study tool, the
 22 interview."
 23 Do you remember we went over this last
 24 month?

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1 A. I don't know if we went into this paragraph,
 2 but we talked about the book somewhat.
 3 Q. All right. So she stopped asking about
 4 medical histories. Let's see if we might be able to
 5 figure out why she stopped asking about medical
 6 records.
 7 The excerpt now -- if you can go to page 42?
 8 A. Okay.
 9 Q. It's the section titled "Baseline
 10 Conditions." I'd like you to follow along with me on
 11 what she says about the pre-existing conditions of
 12 these people that she said had Wind Turbine Syndrome.
 13 "Eight adult subjects had current or history
 14 of serious medical illness including lupus, breast
 15 cancer, diabetes, coronary artery disease,
 16 hypertension, atrial fibrillation with
 17 anticoagulation, Parkinson's disease, ulcer, and
 18 fibromyalgia."
 19 Going to the next paragraph, "Seven
 20 subjects had histories of mental health disorders
 21 including depression, anxiety, post traumatic stress
 22 disorder, and bipolar disorder."
 23 You with me so far?
 24 A. Yes.

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1 Q. Next paragraph: "Eight subjects had
 2 pre-existing migraine disorder including two with
 3 previous severe sporadic headaches that I interpreted
 4 as migraine."
 5 Next subject -- next paragraph, excuse me.
 6 A. Was that word minor or migraine?
 7 Q. Migraine. Did I say minor?
 8 A. I heard minor.
 9 Q. "Headaches that I interpreted as migraine."
 10 Next paragraph: "Eight subjects had
 11 permanent hearing impairments, defined subjectively or
 12 objectively, including mild losses, losses limited to
 13 one ear, or impairments of binaural processing."
 14 What's "binaural processing"?
 15 A. Applying to two ears.
 16 Q. Next paragraph: "Six subjects had
 17 continuous tinnitus or a history of multiple discrete
 18 episodes of tinnitus prior to exposure." Do you see
 19 that?
 20 A. Yes.
 21 Q. Again, we're talking about all of these
 22 conditions that all these people had before the wind
 23 turbines, right?
 24 A. Sounds like it, yes.

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1 Q. Okay. Next paragraph: "Twelve subjects had
 2 significant previous noise exposure, defined as
 3 working in noisy industrial or construction settings,
 4 working on or in a diesel boat, truck, bus, farm
 5 equipment or aircraft, a military tour of duty, or
 6 operating lawnmowers or chainsaws for work," correct?
 7 A. Yes, that's what she says.
 8 **Q. Next paragraph, bottom of page 43:**
 9 "Eighteen subjects were known to be motion sensitive
 10 prior to exposure as defined by car sickness as child
 11 or adult, any episode of sea sickness, or a history of
 12 two or more episodes of vertigo," correct?
 13 A. Yes.
 14 Q. Okay. And it was in this context that
 15 Pierpont invented the phrase Wind Turbine Syndrome,
 16 correct?
 17 A. I don't think she invented it in this
 18 context.
 19 Q. Well, she's the one -- I'm sorry.
 20 A. I'd like to answer more fully, if I may.
 21 Q. Sure. Go ahead.
 22 A. We all live our lives. We all get old. And
 23 we all become a little more vulnerable as we get old.
 24 The world Health Organizations says, when

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1 you take people who have these conditions, acute --
 2 I'm sorry -- chronic health conditions and add noise
 3 -- they're not even talking about just wind turbine
 4 noise -- they're going to get worse: young children,
 5 older people, and people with chronic health
 6 conditions.
 7 Autism, I think, is mentioned in some
 8 articles. I don't think the World Health
 9 Organizations talks about autism, per se. But it
 10 doesn't surprise me that people have -- whether
 11 Ellenbogen said it or Pierpont said it -- that people
 12 have pre-existing conditions.
 13 If they leave the turbine area, they get a
 14 little better or completely better in terms of the
 15 kinds of symptoms that have been added on top of these
 16 conditions.
 17 Thank you for allowing me to answer.
 18 **MR. BLAZER:** Absolutely. If I had tried to
 19 stop you, Mr. Cornale would have cut me off anyway.
 20 Q. But I believe we confirmed last month that
 21 the phrase "Wind Turbine Syndrome" did not exist
 22 before Pierpont came up with it, right?
 23 A. That's correct. And that's the reason -- if
 24 I may go back to something you said earlier, that's

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1 the reason I call it definitive. She's simply
 2 defining it as a term.
 3 Q. Do you disagree with Dr. Ellenbogen's
 4 medical diagnosis that the people that he examined had
 5 serious but treatable medical problems that were not
 6 being treated because they had been convinced that
 7 they had Wind Turbine Syndrome?
 8 A. You know, I have no basis to deny his
 9 medical credentials, his findings.
 10 I was mystified by the fact that he did not
 11 mention something that I heard him say in another
 12 presentation earlier. And that is: When one sleeps,
 13 during certain stages of sleep, the ears are always
 14 open. Hearing is always available, particularly for
 15 stimuli that are novel or new or strange and
 16 potentially threatening. He did not say that in his
 17 testimony.
 18 Q. Do you disagree with his assessment that,
 19 based on his medical diagnosis, that whoever it was
 20 that convinced the people that he examined that they
 21 had Wind Turbine Syndrome was -- that this was a huge
 22 disservice to those people?
 23 A. What part of it was a huge disservice? Not
 24 being treated?

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1 Q. Yes, that they weren't being treated for
 2 issues that they had that were in fact treatable
 3 because they were convinced that they had Wind Turbine
 4 Syndrome.
 5 A. Certainly that was his interpretation.
 6 That's all I can say about it.
 7 Q. All right.
 8 A. It's easy to say it's treatable, but he
 9 didn't try to treat them himself, I assume.
 10 Q. You and Rick James have also associated
 11 people who had pre-existing conditions with your
 12 assumption that they're suffering from Wind Turbine
 13 Syndrome, have you not?
 14 **MR. LUETKEHANS:** Objection, form. I don't
 15 think I even understand the question.
 16 **MR. BLAZER:** I'll rephrase it. As I was
 17 saying it, it sounded terrible.
 18 Q. Let's be more specific. You have assumed
 19 that Mr. Shineldecker from Michigan is suffering from
 20 Wind Turbine Syndrome, correct?
 21 A. Some aspects of Wind Turbine Syndrome. Yes,
 22 I've assumed that. Because he got much worse after
 23 the turbines came in.
 24 Q. If you could, go to your slide number 3 in

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1 your presentation.
 2 A. Okay.
 3 Q. And one of the things that you mention here
 4 is that you published a three-part invited blog on
 5 hearinghealthmatters.org; is that correct?
 6 A. That's right.
 7 Q. I've handed you, Mr. Punch, what has been
 8 marked Pleasant Ridge Exhibit 318. That's
 9 part 1 of that three-part invited blog; is that
 10 correct?
 11 A. Correct.
 12 Q. In this blog, you and Mr. James attributed
 13 Ms. Shineldecker's health issues to the wind turbines,
 14 correct?
 15 A. Yes.
 16 Q. And yet when you did that, you had no idea
 17 what their medical condition or history actually was;
 18 is that correct?
 19 A. No, not really.
 20 Q. Oh, you did know what his medical history
 21 was?
 22 A. No. I didn't know what his medical history
 23 was. We had not discussed his prior problems. We --
 24 I viewed some YouTube videos -- a YouTube video with

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1 him testifying before a hearing. And he certainly
 2 linked the onset of his most significant problems to
 3 the siting of nearby wind turbines.
 4 Q. He linked it. Have you ever spoken to a
 5 medical professional, a licensed physician, who linked
 6 his symptoms to something called Wind Turbine
 7 Syndrome?
 8 A. I'm not sure there is such a person. No, I
 9 haven't.
 10 Q. Let's go to -- you mentioned a little bit
 11 ago the World Health Organization -- slide 22 of your
 12 presentation.
 13 A. Okay.
 14 Q. This is where you talk about annoyance and
 15 health, and you link up a couple of different
 16 definitions from the World Health Organizations. Do
 17 you see that?
 18 A. Yes.
 19 Q. Has the World Health Organization accepted
 20 your suggestions?
 21 A. I'm accepting their suggestion.
 22 Q. I'm asking if they've accepted your linkage
 23 of those definitions.
 24 A. I'm trying to interpret what they're saying

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1 about it. I'm not -- I mean, certainly they have not
 2 contacted me or I've not contacted the World Health
 3 Organization to ask them if this is a correct
 4 statement.
 5 But I'm trying to do my best to interpret
 6 what I think they're saying in terms of the
 7 relationship between annoyance and health.
 8 Q. Since you seem to be familiar with what the
 9 WHO has published, have you ever heard the statement
 10 or have you ever heard them acknowledge the
 11 possibility that noise annoyance does not
 12 significantly contribute to disability and, hence,
 13 should not be taken into account when considering the
 14 noise-induced burden of disease?
 15 Does that sound familiar?
 16 A. No, it does not sound familiar.
 17 Q. Okay.
 18 A. May I repeat the last -- middle part of that
 19 slide as hopefully addressing your question?
 20 They define health since 1948 as a "state of
 21 complete physical, mental, and social well-being and
 22 not merely the absence of disease or infirmity." And
 23 they've stuck to that definition since.
 24 **MR. BLAZER:** Let's try it a different way.

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1 Mr. Chairman, I note it's a little after
 2 7:30. You want to keep going, or do you want to take
 3 a break now? I don't have a whole lot left, but it's
 4 up to you.
 5 **CHAIRMAN CORNALE:** Why don't we just keep
 6 going.
 7 Q. Mr. Punch, I've handed you what's been
 8 marked as Pleasant Ridge Exhibit 295. I'll represent
 9 to you it's actually an excerpt from UCLC Exhibit 37,
 10 which is the 2009 WHO night noise guidelines for
 11 Europe. Some of this looks familiar to you, doesn't
 12 it?
 13 A. It does.
 14 Q. Okay. Then if you could, pull up on your
 15 screen your slide 69.
 16 A. Okay.
 17 Q. That's where you summarize both the WHO
 18 limits and what they say about the potential impact on
 19 people at various decibel levels, correct?
 20 A. I tried to say it in one slide, summarized
 21 in that sentence, to save space. It's from table 5.4,
 22 I believe.
 23 Q. It is. And that table 5.4 is on page 108 of
 24 that Exhibit 295 that I handed you?

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1 A. Yes, it is.
 2 Q. Are you aware that the State of Illinois has
 3 its own daytime and nighttime noise limits?
 4 A. The State itself?
 5 Q. Yes.
 6 **MR. LUETKEHANS:** Objection, beyond the
 7 scope.
 8 **CHAIRMAN CORNALE:** If you know that, if you
 9 can answer. And if you don't . . .
 10 A. I know there are states that do. I wasn't
 11 sure about Illinois. I'm not aware of that in
 12 conjunction with this hearing.
 13 Q. This is just going to be if you've ever seen
 14 these.
 15 Mr. Punch, I've handed you what's been
 16 marked as Pleasant Ridge Exhibit 226. Have you ever
 17 seen this before?
 18 A. I don't believe so. I've seen something like
 19 this from other places, but I've not seen this
 20 particular document.
 21 Q. Let's go back to the WHO guidelines -- the
 22 W-H-O guidelines -- Pleasant Ridge 295. The levels in
 23 table 5.4, those are annual average outdoor levels,
 24 correct?

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1 A. They are.
 2 Q. And are you also aware that the WHO
 3 guidelines address outdoor to indoor corrections?
 4 A. Yes.
 5 Q. And that's for converting the outdoor
 6 numbers to indoor numbers, right?
 7 A. Yes.
 8 Q. And if you look on the bottom of page 9, do
 9 you see that it lists a 15 dB correction with windows
 10 open?
 11 A. Yes.
 12 Q. And then at the top of page 11, it talks
 13 about a study that found 10 to 15 dB with windows
 14 open; is that right?
 15 A. I'm sorry, page?
 16 Q. 11, top of page 11.
 17 A. Yes, I'm aware of this. Again, this is not
 18 related to wind turbine noise.
 19 Q. I understand. In the end, the WHO went with
 20 a windows open correction of 21 dB on average, and
 21 that's in table 1.4 on page 11, right?
 22 A. Yes.
 23 Q. Okay. Let's say, for example, that we have
 24 an outside measurement of 41 dB at 1,000 hertz.

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1 According to the WHO, if we then go inside, we deduct
 2 21 dB, resulting in an indoor level of 20 dB, right?
 3 A. According to these numbers, yes.
 4 Q. Okay. And then if we go back to your slide
 5 69, according to the list you duplicated from the
 6 table in the WHO guidelines, that's at well below a
 7 level that results in no substantial biological
 8 effects; is that correct?
 9 A. Both this and my slide relates to non-wind
 10 turbine noise.
 11 Q. That's not my question, sir. My question
 12 is: If you end up at an indoor level of 20 dB,
 13 according to the World Health Organization, you are
 14 well below the level that results in no substantial
 15 biological effects; is that correct?
 16 A. With normal transportation noises and that
 17 sort of noise, yes.
 18 **MR. BLAZER:** That's all I have,
 19 Mr. Chairman.
 20 **CHAIRMAN CORNALE:** Thank you. We'll go
 21 ahead and take -- let's take ten minutes. We'll get
 22 going again at 7:47.
 23 (Recess in proceedings.)
 24 **CHAIRMAN CORNALE:** Mr. Punch, we have

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1 questions from the audience for you.
 2 At this point, we are looking for any
 3 interested parties in the audience that may have
 4 questions for Mr. Punch.
 5 There is one individual over here. You need
 6 to state your name for us.
 7 **MR. HAYES:** John Hayes, H-a-y-e-s.
 8 **CHAIRMAN CORNALE:** Thank you. You may go
 9 ahead.
 10 **MR. HAYES:** Good evening, Dr. Punch.
 11 **MR. PUNCH:** Good evening.
 12 EXAMINATION OF MR. PUNCH
 13 **BY MR. HAYES:**
 14 Q. I'd like to start with a question relative
 15 to my experience. It was brought up about sleep
 16 apnea, and that is something that I have. It was
 17 easily diagnosed and extremely easy to treat.
 18 **MR. BLAZER:** Mr. Chairman, is this person
 19 asking a question?
 20 **MR. HAYES:** You're right. I apologize.
 21 Q. Are you aware that sleep apnea is easily
 22 treated?
 23 A. I know it's treatable. I don't know how
 24 easily it's treatable. But certainly I know people

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1 who have gone through sleep studies and have been
 2 treated.
 3 Q. All right. That would be fine.
 4 **CHAIRMAN CORNALE:** Mr. Hayes, could you
 5 speak a little closer to the microphone. They are
 6 having some trouble hearing you.
 7 **MR. HAYES:** That better?
 8 **AUDIENCE MEMBER:** Yes.
 9 Q. Let's start with this particular question,
 10 Dr. Punch. Does a person have to be a medical doctor
 11 to understand peer-reviewed articles on wind turbine
 12 noise?
 13 A. No, I don't think so -- or any other
 14 subject, really.
 15 Q. Could someone other than a medical doctor
 16 determine the validity of conclusions of a
 17 peer-reviewed article or study on the health effects
 18 of a wind turbine?
 19 A. I would hope so. I mean, I've done a lot of
 20 research in my own field over the years and taught a
 21 course in research design. I hope I've become pretty
 22 adept at being able to interpret other kinds of
 23 articles.
 24 It is not that I understand all the

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1 technicalities of those articles, but I can understand
 2 if the design is weak, if it could have been done in a
 3 better way and that sort of thing. It doesn't take a
 4 medical doctor necessarily.
 5 Many medical doctors don't do research. As
 6 you know, they are in clinical practice. They don't
 7 really deal with research on a day-to-day basis. Some
 8 do, of course. But people in practice typically
 9 don't. Maybe some do some of both.
 10 But you don't have to be a medical doctor,
 11 to answer your question, I don't think.
 12 Q. Okay. If a person retires from the
 13 profession and does not keep up their certification,
 14 do they immediately become incompetent in their field?
 15 A. Are you talking about myself? I'm
 16 certified, by the way. We mentioned this the last
 17 time I was here. Maybe you're talking about somebody
 18 else.
 19 Are you referring -- may I ask who you're
 20 referring --
 21 Q. I'm referring to anyone. That could include
 22 me.
 23 **MR. BLAZER:** To that extent, Mr. Chairman, I
 24 think that's -- I won't say beyond the scope, but

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1 there's no foundation for whether -- for this witness
 2 to be able to know in what field certification may or
 3 may not matter.
 4 **CHAIRMAN CORNALE:** Why don't you move on
 5 from that question. Can you go to the next question
 6 for me?
 7 Q. Yeah. Okay. If a lawyer retires and is no
 8 longer licensed to practice law, would you consider
 9 him to no longer be able to understand legal issues?
 10 **MR. BLAZER:** Same objection, Mr. Chairman.
 11 **CHAIRMAN CORNALE:** Yeah. If you can try and
 12 hone in on questions relating to his specific
 13 specialty, please.
 14 Q. Dr. Punch, are you familiar with the Cape
 15 Bridgewater Wind Farm Study by Steven Cooper?
 16 A. I am.
 17 **MR. HAYES:** I'd like to pass out some copies
 18 of this.
 19 (Distributing documents.)
 20 Q. Dr. Punch?
 21 A. Yes.
 22 Q. Why was this study not included in your
 23 original presentation?
 24 A. I only learned about it when I got back home

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1 after January 22. I don't think it was released until
 2 about that time, about a week after that, I think.
 3 But it was actually dated November 2014 and
 4 was not released -- my understanding is -- and, again,
 5 it's my understanding -- that there was a lot of
 6 discussion about the release of the report. So I
 7 wasn't aware of it at that point, and it really wasn't
 8 available until about a week later.
 9 Q. Would you agree that the -- what I call the
 10 Joint Cape Bridgewater Study by Pacific Hydro -- that
 11 would be the wind farm owners -- hints "Stephen Cooper
 12 offers new evidence that infrasound emissions from
 13 turbines does exist and is associated with adverse
 14 health effects?
 15 **MR. BLAZER:** Objection, foundation.
 16 **MR. LUETKEHANS:** I don't even understand the
 17 objection. Foundation, I guess. It's my witness. If
 18 he has as an opinion, he can -- if you ask him if he
 19 has an opinion about it, he can give it.
 20 **CHAIRMAN CORNALE:** Right.
 21 Q. You are familiar with this study? You have
 22 previously reviewed this study?
 23 A. I reviewed the study. I've read the
 24 executive summary. I've read the conclusions, which

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1 are both pretty long. I've read parts of the
 2 narrative. I've read parts of it. I haven't read it
 3 all. I don't think anybody has at this point.
 4 There were six volumes of appendices. I've
 5 gone through the appendices to see what kind of
 6 information is in there. I haven't obviously read
 7 every word of those either, but I am kind of aware of
 8 what's in the report, what the main findings are and
 9 the implications as I see them.
 10 **MR. BLAZER:** Mr. Cornale, if I may, I can
 11 resolve this potentially. Mr. Hayes can ask him
 12 whatever he wants; but since this was brand new and
 13 wasn't included in anything that Mr. Punch said
 14 previously, I would like the opportunity once he's
 15 done with this to ask some follow-up questions of
 16 Mr. Punch with respect to what Mr. Hayes is doing.
 17 **MR. LUETKEHANS:** Objection. This isn't my
 18 witness. These aren't my questions. I mean, it's my
 19 witness, but these aren't my questions.
 20 If I was going to do that, maybe then; but
 21 this is question from the audience. To allow every
 22 question from the audience to have follow-up when it
 23 hits something new, we're going to be here a long
 24 time; and we've been here long enough.

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1 **CHAIRMAN CORNALE:** In sticking with our
 2 procedure that we have previously followed, I guess
 3 your opportunity may be in a rebuttal.
 4 **MR. BLAZER:** That's fine.
 5 Q. Would you like me to read the question
 6 again, Mr. Punch?
 7 A. I understood your question to be whether I
 8 regard the study to be an indication that infrasound
 9 from wind turbines are a direct cause -- did you use
 10 the word "direct" in your question? Is there a cause
 11 and effect related to wind turbine noise and adverse
 12 health effects?
 13 Q. Yes.
 14 A. I don't know if Cooper used the term
 15 "adverse health effects." He steered away from that,
 16 from viewing this as a medical study, because he's an
 17 acoustician. He's a well-regarded, renowned
 18 acoustician.
 19 But although he steered away from it, as you
 20 know if you read the report, he deals with sensations
 21 to be an umbrella term to describe feelings,
 22 perceptions of things like even headaches, pressure in
 23 the head, tightness in the chest, I believe tinnitus.
 24 And what I would consider adverse health

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1 effects -- but he was again careful not to describe
 2 those as adverse health effects -- just simply
 3 discomfort, uncomfortable, unwanted sensations as
 4 opposed to medically diagnosing those symptoms as
 5 medical issues. Okay?
 6 Q. Okay. In the study that you have a copy of
 7 there, it's not a numbered page, but it's about the
 8 fifth page in. It's called "acknowledgment" on the
 9 top.
 10 A. Yes.
 11 Q. The last paragraph states the following:
 12 "Without the assistance of the six residents, wind
 13 farm manager who provided essential data and
 14 assistance on site, and Pacific Hydro who initiated
 15 and funded the study, the study could not have
 16 occurred. All these people need to be acknowledged
 17 for their participation in the study."
 18 Would it be fair to say that this study was
 19 a joint effort by the wind farm owners and the
 20 residents of the wind farm to better understand the
 21 nature of the noise complaints of some residents?
 22 **MR. BLAZER:** Objection. There is no
 23 foundation for this. This witness can't possibly know
 24 what Pacific Hydro's role was at this time, and an

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1 acknowledgement by the author doesn't indicate that.
 2 **CHAIRMAN CORNALE:** Mr. Punch, do you have
 3 any direct knowledge of that information? Do you have
 4 any direct knowledge of Pacific Hydro and their
 5 holdings?
 6 **THE WITNESS:** And their holdings?
 7 **CHAIRMAN CORNALE:** Their interest. What is
 8 their interest within this?
 9 **THE WITNESS:** I think, based on what the
 10 report says, I have a direct knowledge. I don't have
 11 direct information from the company, obviously, but
 12 only what I've read in the report.
 13 **CHAIRMAN CORNALE:** Okay.
 14 **MR. BLAZER:** That's not direct knowledge,
 15 Mr. Chairman.
 16 **MR. LUETKEHANS:** Since when is direct
 17 knowledge an issue in a zoning hearing. I mean, we've
 18 taken this to a whole nother level. He's had many
 19 experts testify to what's in reports. To now say that
 20 this expert, because he doesn't like the report, has
 21 to know everything that's in it is ludicrous.
 22 **MR. BLAZER:** First of all, the suggestion
 23 that I don't like the report is incorrect. The report
 24 is actually intriguing.

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1 **MR. LUETKEHANS:** If you want to testify,
 2 Mr. Blazer, feel free later, but not now.
 3 **MR. BLAZER:** My point here is: The question
 4 as asked is asking for Mr. Punch's personal knowledge.
 5 If the question is simply have you read this
 6 in this report, I'll stipulate that he's read the
 7 report the report and it says what it says.
 8 **CHAIRMAN CORNALE:** Let's just all stipulate
 9 that that paragraph is correct, and we'll move on to
 10 the next one. Move on to the next question, I mean.
 11 Q. I'm going to read the next question. In
 12 your opinion, did the venture between Stephen Cooper
 13 and the wind developer, Pacific Hydro, produce results
 14 that could be considered unbiased?
 15 **MR. BLAZER:** Objection, foundation.
 16 **MR. LUETKEHANS:** Well, it's an opinion
 17 question. I mean, is he going object to every
 18 question that the public is now asking?
 19 They asked a question. Let him answer the
 20 question. There's no foundation objection for an
 21 expert. He's read the report.
 22 **CHAIRMAN CORNALE:** Mr. Punch, can you answer
 23 that question?
 24 A. My opinion is it's unbiased. It's

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1 independent. The report describes a study that was
 2 done with full cooperation, probably for the first
 3 time in history, of the wind company in terms of
 4 shutting down and turning on the turbines.
 5 Q. Would you turn to the next page, please,
 6 Dr. Punch, under the executive summary.
 7 **MR. BLAZER:** There are page numbers at the
 8 top of the page.
 9 Q. This is page i. I'm sorry. What I'm
 10 calling the third paragraph down starts with the word
 11 "despite."
 12 A. Yes.
 13 Q. I'm going to read that. "Despite the wind
 14 farm satisfying the acoustic criteria denominated on
 15 the permit, the operator of the wind farm, Pacific
 16 Hydro, is in receipt of noise complaints from
 17 residents in the proximity to the wind farm."
 18 Dr. Punch, what does this paragraph mean?
 19 **MR. BLAZER:** Objection. What it means? It
 20 says what it says.
 21 **MR. LUETKEHANS:** What does it mean to you?
 22 **CHAIRMAN CORNALE:** Mr. Punch, go ahead and
 23 answer.
 24 A. My opinion -- the way I interpret it is that

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1 Cooper is saying that the reason he did the study was
 2 because the wind farm, after receiving a number of
 3 complaints from residents near the wind farm after six
 4 years of wind farm's operation -- the study came into
 5 being because the company finally agreed that this
 6 needs to be done.
 7 Q. Thank you. On the same page, i, the fifth
 8 paragraph --
 9 A. Okay.
 10 Q. -- starts with the word "following
 11 discussions."
 12 "Following discussions with residents in
 13 late 2013, permission was given by the residents for
 14 access to their properties to undertake acoustic
 15 testing, both inside and external to dwellings, in
 16 addition to Pacific Hydro permitting measurements on
 17 the wind farm to investigate noise and vibration
 18 emissions from turbines and the substation."
 19 Dr. Punch, why is it important that sound
 20 and vibrations be measured inside the houses?
 21 A. Because that's where people live. A lot of
 22 the complaints, at least worldwide, in general have
 23 been sleep disturbance at night. That's where people
 24 live. And many complain that it's worse inside than

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1 outside.
 2 Q. On the same, page i, the last paragraph --
 3 before that, also on this page somewhere, Stephen
 4 Cooper labeled this term "sensation" as including
 5 headache, pressure in the head, ears, chest, ringing
 6 in the ears, heart racing, or sensation of heaviness.
 7 In the third paragraph, the study found that
 8 the diarized residents' observations identified
 9 sensation as a major form of disturbance from the wind
 10 farm. So that term "sensation" refers back to what I
 11 mentioned earlier.
 12 My question for you is, first of all: Are
 13 you aware that some of the local residents have
 14 testified that they have experienced similar
 15 sensations during visits to nearby wind farms?
 16 A. Some of these residents?
 17 Q. No. Some of the potential -- or some of the
 18 people who live in this proposed Pleasant Ridge Wind
 19 Farm have gone to neighboring wind farms --
 20 A. Yes.
 21 Q. -- to experience -- to see what it's like.
 22 And some of them have testified that they've had
 23 similar sensations.
 24 A. I'm aware of that, yes.

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1 Q. Would it be fair to say that you would
 2 expect some wind farm visitors to experience
 3 sensations?
 4 A. Of this type, yes.
 5 Q. Page ii, the sixth paragraph, it starts with
 6 "the study found." It has some bullets under it.
 7 "The study found a pattern of high severity
 8 of disturbance to be associated with four different
 9 operating scenarios of the wind farm being:
 10 "1. When turbines were seeking to start and
 11 therefore could drop in and out of generation.
 12 "2. An increase in power output of the wind
 13 farm in the order of 20 percent.
 14 "3. A decrease in power of the output of
 15 the wind farm in the order of 20 percent.
 16 "4. The situation where the turbines were
 17 operating at maximum power and the wind speed
 18 increased above 12 meters per second."
 19 **MR. BLAZER:** Mr. Chairman, in fairness and
 20 for the sake of completeness, I don't think this makes
 21 sense unless Mr. Hayes reads in the entire section
 22 under what the study found, starting with "for one
 23 resident."
 24 **MR. LUETKEHANS:** Mr. Blazer has taken many,

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1 many studies and taken pieces out of them, and this
 2 isn't his witness.
 3 **MR. BLAZER:** And Mr. Luetkehans has
 4 repeatedly objected. And the Chairman has repeatedly
 5 directed the witness to either read the entire section
 6 or required me to read the entire section.
 7 **MR. LUETKEHANS:** No. That was only on
 8 impeachment and actual transcripts, not reports. I
 9 was not able to do that on reports.
 10 **CHAIRMAN CORNALE:** Why don't -- hold on. In
 11 the interest of fairness, we'll go with -- we will
 12 read the entire portion thereof that does relate back.
 13 So we need to go back up -- how far back?
 14 **MR. BLAZER:** I think just the bolded part,
 15 Mr. Chairman, where it starts, "The study found."
 16 That's the section that Mr. Hayes had started reading
 17 and then went off to a different paragraph.
 18 **CHAIRMAN CORNALE:** Okay. Then all the way
 19 down through that?
 20 **MR. BLAZER:** I think that would be fair.
 21 **CHAIRMAN CORNALE:** Okay. Mr. Hayes, do you
 22 want to read -- why don't you read from the bold "The
 23 study found." Or I guess I can read it, whatever we
 24 need to do. And then to the portion that you've

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1 already read.
 2 **MR. HAYES:** You want to read it?
 3 **CHAIRMAN CORNALE:** All right. "The study
 4 found that the diarized residents' observations
 5 identified sensation as the major form of disturbance
 6 from the wind farm. For one resident, sensation,
 7 noise, and vibration were observed with the wind farm
 8 shut down.
 9 "While the study found, for the six
 10 residents, that there were no direct correlation
 11 between the power outputs of the turbines and the
 12 residents diary observations with respect to noise, it
 13 found a trend between high-level disturbance, severity
 14 of sensation, and changes in the operating power of
 15 the wind farm."
 16 **MR. BLAZER:** Thank you, Mr. Chairman.
 17 **CHAIRMAN CORNALE:** Okay. Now redirect your
 18 question to Mr. Punch, and we can move on.
 19 Q. All right. Dr. Punch, are these findings
 20 new proof that turbines cause sensations?
 21 A. A cause/effect relationship. The operation
 22 of the wind turbines directly relate to these
 23 sensations that people wrote diarized or wrote in
 24 their diaries and rated it, by the way, from 1 to 5.

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1 Q. All right. On page iv, the first paragraph:
 2 "By including narrow band analysis in the description
 3 of the acoustic environment, the study confirms that
 4 the infrasound obtained in a wind-farm affected
 5 environment is different to that in a natural acoustic
 6 environment."
 7 My question is: Does this statement
 8 indicate with some scientific certainty that there's a
 9 difference in the infrasound around an operating
 10 turbine as compared to the infrasound when the turbine
 11 is not operating?
 12 A. Well, I think the statement really means, in
 13 my view, that the measurements that have been
 14 traditionally used to measure turbine noise are not
 15 distinctive in differentiating natural environments
 16 and wind turbine noise environments.
 17 So the C weighting scale, the A weighting
 18 scale -- A has been most traditionally used. There
 19 are some studies that relate to, for example,
 20 annoyance, those that respond as an annoyance.
 21 But all I think he's saying here is that it
 22 took narrow band analysis, including the very, very
 23 lowest frequencies, to be able to distinguish between
 24 the sound made by wind turbines and the sounds made by

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1 the natural environment.
 2 Maybe that's a little different or close to
 3 what you were saying, but that's how I interpret it.
 4 Q. Thank you. On page 186, the last paragraph
 5 that's in the orange: "Utilizing the Cape Bridgewater
 6 narrow band results superimposed on the one-third
 7 octave band results show there is a difference between
 8 the natural environment and wind-farm affected
 9 environment in the infrasound region. Therefore, one
 10 cannot claim that infrasound levels in the natural
 11 environment are similar to that of wind-farm affected
 12 environments."
 13 My question is: Does this statement in the
 14 Cape Bridgewater Study contradict earlier testimony
 15 based on one-third octave band results that natural
 16 background infrasound, nonoperating turbine, and the
 17 background infrasound of an operating wind turbine are
 18 nearly the same?
 19 A. It's a convoluted question. I'm sorry, I
 20 can't answer.
 21 Q. Well, I can try to --
 22 A. I don't mean to -- the question -- I'm sure
 23 you know what you're saying. I am just not quite
 24 getting the gist of it, the substance of the question.

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1 How is it different from the previous
 2 question?
 3 Q. How is it different than the previous
 4 question?
 5 It's probably getting to what I found in the
 6 study, that where the one-third octave band study
 7 which was presented earlier, in testimony earlier,
 8 that basically said there was no difference between
 9 background infrasound with an operating turbine and
 10 with a non-operating one -- that basically there is no
 11 difference for practical purposes.
 12 But in the study I found, it reported that
 13 statement that basically says, if you superimpose the
 14 one-third octave band on a graph with the narrow band
 15 analysis, that --
 16 **MR. BLAZER:** Mr. Chairman, I'm sorry --
 17 **MR. LUETKEHANS:** Can he at least finish?
 18 **MR. BLAZER:** I recognize Mr. Hayes isn't an
 19 attorney, but now he's testifying as to his opinion of
 20 what this report says. He's testifying to what he
 21 thinks prior testimony in this proceeding has been.
 22 It's just inappropriate.
 23 **MR. LUETKEHANS:** He has the absolute right
 24 to testify as to what he thinks prior testimony is.

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1 He has the right to ask the question. The witness
 2 asked him a question, and he's trying to clarify it.
 3 And I think that's proper. It's clearly proper.
 4 So all he's doing is trying to clarify the
 5 question the best he can. He's not an attorney. This
 6 is the public. Mr. Blazer keeps thinking it's me.
 7 **CHAIRMAN CORNALE:** We understand that
 8 Mr. Hayes is not counsel, and we do want to make it
 9 welcoming for individuals to speak.
 10 Mr. Hayes, we do want to avoid you
 11 testifying though, testifying with evidence. I
 12 understand you're trying to point out previous
 13 testimony, but that gets really difficult. If you
 14 can't get it exact, then you've testified.
 15 **MR. HAYES:** I think we can move on from
 16 that. I think my point can come up later, I think,
 17 somewhere else in some of the material or questions I
 18 ask Dr. Punch. It will come up I think again, maybe.
 19 If I can't ask it very well, then I think I can still
 20 get the idea out there another way maybe.
 21 **CHAIRMAN CORNALE:** Move on to your next
 22 question. Thank you.
 23 Q. Dr. Punch, relative to this study and other
 24 studies you've come across, when the residents were

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1 away from their dwelling in the wind farm, do you know
 2 if they reported changes in sleep disturbance,
 3 headaches, perception of pressure on the body?
 4 A. Yes, they did, a diminution. I don't know
 5 about absence, but certainly less severe or
 6 disappearance.
 7 Q. Okay. Let's go back to page 8. It, I
 8 believe, is the second paragraph. This is what it
 9 reads:
 10 "One of the houses is abandoned with the
 11 occupants advising they reside elsewhere so as to be
 12 removed from the wind farm."
 13 In your search of the literature, have homes
 14 in other wind farms been abandoned?
 15 A. Of course. Yes.
 16 Q. Do you believe that, if a home is abandoned,
 17 that it is something that's justifiable for the --
 18 under any circumstances?
 19 **MR. BLAZER:** Objection.
 20 **CHAIRMAN CORNALE:** That one is going to be a
 21 little bit beyond Mr. Punch's expertise.
 22 Q. On the same page, page 8, the fifth
 23 paragraph, it states the following. And I'm going to
 24 -- after I read the first four words, I'm going to

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1 just tell you what the fourth word means.
 2 It starts out: "All of the residents. . ."
 3 And what that means in the context, that would be
 4 those who participated in the study. It would not be
 5 all of the residents of the wind farm.
 6 ". . . indicated that, over time, their
 7 sensitivity to noise from the wind farm has increased
 8 and there is a regular occurrence of sleep disturbance
 9 to the point their health has been affected to varying
 10 degrees."
 11 Again, keep in mind that in this case the
 12 term "noise" is the same as "sensations," which would
 13 be the headache, ringing in the ears, and those things
 14 we mentioned earlier.
 15 Dr. Punch, in your opinion, based on
 16 peer-reviewed studies, will the noise or sensation
 17 effects on some of the residents of the proposed
 18 Pleasant Ridge Wind Farm be similar to the
 19 participants in the Cape Bridgewater Study?
 20 A. I believe that some will be affected,
 21 whether they are leasing land or not, depending on how
 22 close they are to the turbines and their individual
 23 sensitivities.
 24 Not everybody will, obviously, but some.

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1 And we don't know how many. Percentages are not
 2 known.
 3 Q. All right. On page 214, the 11.1
 4 "nonacoustic findings," there are quite a few of them.
 5 Someplace, I think I've lost something I
 6 needed because I really didn't want to go through that
 7 whole thing.
 8 I believe it would be the first bullet:
 9 "The residents' observation and identification of
 10 sensation separately to vibration and noise indicates
 11 that the major source of complaint from the operation
 12 of the turbines would appear to be related to
 13 sensation rather than noise or vibration."
 14 Have you come across anything similar to
 15 this in other studies?
 16 A. Well, first, I have to say: In his study,
 17 the way he cast his design, the way he designed this
 18 study, given the purpose of the study, which was
 19 pretty well circumscribed, I think he probably wanted
 20 to stay away from noise and vibration because he
 21 couldn't directly measure --
 22 In fact, he experienced vibration himself,
 23 he said, in one part of the report, through the floor
 24 of one of the homes or maybe more than one home. But

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1 he just didn't have time to measure it. So he didn't
 2 really directly measure vibration.
 3 So he's I think here saying that he can't
 4 say it was noise and vibration, but he can say it was
 5 sensation because this came up over and over again in
 6 the diaries.
 7 Q. Okay. Here's a question that's going to ask
 8 for your opinion.
 9 After reading and studying this Cape
 10 Bridgewater Study, I personally feel the most
 11 important fact determined by this study is that there
 12 now is definitive proof that wind turbines absolutely
 13 do produce or cause physical symptoms in some of the
 14 wind farm residents.
 15 The correlation of the severity of the
 16 sensations to changes in power output of the wind
 17 turbines when the reporting residents could not have
 18 known about the power output changes proves that these
 19 sensations are real, not imaginary.
 20 Dr. Punch, do you agree with my opinion?
 21 A. I agree wholeheartedly with your opinion.
 22 Q. Dr. Punch, are you aware that there are peer
 23 reviews for this Cape Bridgewater Study?
 24 A. Well, there are peers who read and reviewed

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1 the study and commented on it, yes.
 2 **MR. HAYES:** I'd like to pass out some copies
 3 of the peer reviews.
 4 (Distributing documents.)
 5 **CHAIRMAN CORNALE:** I want to briefly remind
 6 everybody in the audience to try and keep it down in
 7 the audience while they are testifying. We are having
 8 a hard enough time hearing; so if everybody could keep
 9 it down, we would appreciate that.
 10 Q. Can you find -- I believe it's Schomer's
 11 peer review of the Cape Bridgewater Study?
 12 A. Is that what you just passed out?
 13 Q. It's one of them.
 14 A. Yes. It was actually the second of two.
 15 Q. I apologize.
 16 A. It is one of them, but it's --
 17 Q. I passed out the wrong one, but you hang on
 18 to it because I'll get to that one eventually.
 19 **CHAIRMAN CORNALE:** Let the record indicate
 20 -- let's clarify this very quickly -- the Schomer
 21 article from Paul V. Schomer dated February 2015,
 22 we'll marked that as Exhibit Hayes 2 -- strike that.
 23 We'll need to remark the Schomer 20th of February 2015
 24 as Hayes 3.

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1 **MR. HAYES:** I apologize for that getting
 2 that one labeled. This would be the February 10
 3 Schomer summary.
 4 Q. On the front page of this peer-reviewed
 5 study, in the third paragraph, it starts out with "Six
 6 subjects, three couples." Got that?
 7 A. Yes.
 8 Q. I'm going to read that.
 9 "Six subjects, three couples from different
 10 homes are participants in this study. They do not
 11 represent the average resident in the vicinity of the
 12 wind farm. Rather, they are self-selected as being
 13 particularly sensitive and susceptible to wind farm
 14 acoustic emissions so much that one couple has
 15 abandoned their house.
 16 "Cooper finds that these six subjects are
 17 able to sense attributes of the wind turbine emissions
 18 without there being an audible or visual stimulus
 19 present. More specifically, he finds that the
 20 subjects' responses correlate with the wind turbine
 21 power being generated but not either sound or
 22 vibration."
 23 Dr. Punch, in simple terms, does this
 24 paragraph state that wind turbines do produce

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1 sensations in humans, some of which might not be the
 2 best for their health and could lead to home
 3 abandonment?
 4 A. The last word was? Leading to what?
 5 **MR. BLAZER:** Sorry, I have to object to the
 6 latter half of that question as to leading to home
 7 abandonment and health issues.
 8 Dr. Punch already testified that this report
 9 doesn't address health issues, and we've already
 10 determined he can't comment on what might or might not
 11 be an appropriate reason to abandon a house.
 12 **MR. LUETKEHANS:** That's not the point. If
 13 you want to talk about home abandonment, I would
 14 agree.
 15 The rest of the question, could lead to
 16 adverse health effects, goes completely along with the
 17 rest of his testimony; and we would ask that --
 18 there's no reason that should be objected to.
 19 **MR. BLAZER:** Dr. Punch already testified
 20 that Cooper steered away from concluding health
 21 effects.
 22 **MR. LUETKEHANS:** That doesn't mean that
 23 Dr. Punch couldn't determine whether there were health
 24 effects based on that.

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1 **CHAIRMAN CORNALE:** Okay. The objection is
 2 well taken. The portion thereof with home abandonment
 3 is beyond the scope.
 4 The portion concerning the health -- I guess
 5 he has testified that they did stray away from that,
 6 rather sensation. So he didn't draw the correlation
 7 between health and sensation, Cooper, in his original
 8 -- I might be misspeaking. It is Cooper, yeah.
 9 So can you move on, Mr. Hayes, with that?
 10 **MR. HAYES:** Yes.
 11 **MR. LUETKEHANS:** He can ask Dr. Punch
 12 whether he can make that statement. That's what he's
 13 asking him. He's not asking what Cooper did. He's
 14 asking whether Dr. Punch has an opinion as to whether
 15 these sensations can lead to adverse health effects,
 16 and I think that's a fair question.
 17 **CHAIRMAN CORNALE:** All right. Mr. Hayes,
 18 can you move on past this one? It's hard because --
 19 Mr. Luetkehans, it's hard to take the objection or --
 20 or you're defending Mr. Hayes, and Mr. Hayes is up
 21 here as a citizen; so we do give him some liberty in
 22 questioning.
 23 A lot of this, Mr. Hayes, may be a good
 24 opportunity as you testify to present a lot of this.

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1 And that's your --

2 **MR. HAYES:** I certainly can move on.

3 **CHAIRMAN CORNALE:** Can you do that?

4 **MR. HAYES:** I can go on to the second page

5 and the second paragraph.

6 **CHAIRMAN CORNALE:** Okay. Yeah, move on.

7 Q. The second page and the second paragraph of

8 this. It starts out: "This study finds."

9 "This study finds that six people sense the

10 operation of the turbines via other pathways than

11 hearing or seeing and that the adverse reactions to

12 the operations of the wind turbines correlates

13 directly with the power output of the wind turbine or

14 turbines and fairly large changes in power output."

15 In nearly all of the wind farm article

16 studies that I have read, which is, you know,

17 certainly not all of them, some of the residents that

18 were in these studies or articles, have reported

19 adverse health effects.

20 Could this statement by Dr. Schomer based on

21 the Cape Bridgewater Study that changes in output

22 power by wind turbines results in an increase in the

23 severity of reported health effects also be true for

24 other wind farms? Or could this be true for, you

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1 know, all or most wind farms?

2 **MR. BLAZER:** Same objection, Mr. Chairman.

3 **MR. LUETKEHANS:** He has the right to ask him

4 about whether he sees adverse health effects coming

5 out of this study. That's what he came in to testify

6 to. He has the right to ask that question and let the

7 witness answer.

8 **CHAIRMAN CORNALE:** I do agree with that.

9 Here is where we went astray, Mr. Hayes.

10 You read that paragraph, and then there wasn't a

11 direct question right after that.

12 Then you threw in some testimony. And I

13 think that's where Mr. Blazer objected. And he's

14 somewhat founded in that.

15 So you can read that and then ask him if

16 that is legitimate based on his experiences.

17 I can't help you testify -- or I can't help you

18 question him. But at the same time, I can help move

19 this along as best as possible.

20 **MR. HAYES:** Could I ask him this question.

21 Q. You know, I've read it. I can reread it.

22 Could I just simply ask him: Would that statement

23 from Mr. Schomer's study -- "This study finds that the

24 six people sense the operation of the turbines via

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1 other pathways than hearing or seeing and that the

2 adverse reactions to the operations of the wind

3 turbines correlates directly to the power output of

4 the turbines and fairly large changes in power" -- is

5 that true for other wind farms?

6 A. I don't see why it could not be true for

7 other wind farms, one might argue, of comparable

8 output capabilities and same distances.

9 Q. The third paragraph starting with the third

10 sentence starts with, "The important point here is."

11 A. Yes.

12 Q. "The important thing here is that something

13 is coming out of the wind turbines to affect these

14 people, and that something increases or decreases as

15 the power output of a turbine increases or decreases.

16 "Denying infrasound as the agent

17 accomplishes nothing. It really does not matter what

18 the pathway is, whether it is infrasound or some new

19 form of rays or electromagnetic field coming off the

20 turbine blades. If turbines are the cause, then the

21 wind farm is responsible and needs to fix it."

22 Dr. Punch, do you agree with Dr. Schomer's

23 conclusion there?

24 A. I do. I've made a similar comment

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1 somewhere; I forget where. Certainly I believe that,

2 yeah. I mean, He's making a pretty direct

3 cause/effect statement.

4 Q. Same page, fourth paragraph. It starts with

5 the word "some." It's a long paragraph.

6 "Some may ask: This is only six people; why

7 is it so important?

8 "The answer is that, up until now, wind farm

9 operators have said there is no known cause and effect

10 relations between wind farm emissions and the response

11 of people living in the vicinity of the wind farm

12 other than those related to visual and/or audible

13 stimuli. And these lead to some flicker, which is

14 treated, and some annoyance with noise.

15 "The study proves that there are other

16 pathways that affect some people, at least six. The

17 wind farm operators simply cannot say there is no

18 known effects and no known people affected.

19 One person affected is a lot more than none. The

20 existence of just one cause-and-effect pathway is a

21 lot more than none. It only takes one example to

22 prove that a broad assertion is not true, and that is

23 the case here.

24 "Wind farms would be in the position where

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1 they must say: We may affect some people. And
 2 regulators charged with protecting the health and
 3 welfare of the citizenry will not be able to say they
 4 know of no adverse effects. Rather, if they choose to
 5 support the wind farm, they will do so knowing that
 6 they may not be protecting the health and welfare of
 7 all the citizenry."
 8 Dr. Punch, do you agree with this statement
 9 by Dr. Schomer?
 10 A. I do. It's a very profound statement, I
 11 think. That's what a lot of people who are classified
 12 as "anti-wind" have been trying to say for a long
 13 time.
 14 And may I say that Dr. Schomer is one of the
 15 most respected acousticians in this country and
 16 probably in this world because he is the Director of
 17 Standards -- Standards Director at the Acoustical
 18 Society of America, which is the most reputable
 19 acoustics organization at least in this country.
 20 Q. Thank you. Next is a peer reviewed study by
 21 Dr. Bob Thorne. It's a two-page one. At the top, it
 22 says: "Noise Measurement Services." It's dated
 23 January 21, 2015.
 24 A. Is that in your Exhibit 3?

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1 Q. That would be in Exhibit 2. Should be -- I
 2 think it would be in Exhibit 2. Should be with --
 3 A. Was it renumbered 3? Is that you're
 4 referring to?
 5 Q. I don't believe I numbered Number 3.
 6 A. Give me the name again. Thorne?
 7 Q. Up at the top, it says, "Noise Measurement
 8 Services."
 9 A. Okay. That's Bob Thorne, yes. Okay, I do
 10 have it.
 11 Q. On page 2, the outcome listed as number 3 by
 12 Dr. Thorne is -- when you turn to the second page, it
 13 starts out: "Infrasound is firmly identified."
 14 "infrasound is firmly identified as a
 15 standard and normal part of emissions of a wind farm.
 16 The character of the infrasonic emissions is
 17 identified as being measurably different from ordinary
 18 wind. That is, infrasound generated by/from turbines
 19 consists of trains of pressure pulses and must be
 20 measured through narrow-band analysis and interpreted
 21 accordingly.
 22 Standard measures with third-octave bands
 23 and G-weighting are found to be not valid identifiers/
 24 measures of wind turbine affected noise."

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1 Dr. Punch, do you agree with these findings?
 2 A. I certainly -- yes, I do. He's referring to
 3 what Cooper called the wind turbine "signature,"
 4 another WTS abbreviation, but it's a different
 5 abbreviation.
 6 The signature being an acoustic series of
 7 pulses that can be traced back to the blade-pass
 8 frequency, the number of times the blade passes the
 9 tower, plus the first, I believe, five harmonics. And
 10 he calls that the "wind turbine signature" that should
 11 be used in future medical studies.
 12 Q. And the last paragraph on the same page
 13 starts out with "The present."
 14 "The present situation cannot continue
 15 without change. The report has raised hard questions
 16 for Pacific Hydro to discuss with the residents. It
 17 is to be hoped -- and expected -- that support is
 18 given for the next steps of resolving the issue of
 19 adverse effects and restoring individual amenity and
 20 well-being to its original status prior to the
 21 operation of the wind farm."
 22 Dr. Punch, which is better: Preventing
 23 adverse effects of turbines before they occur or
 24 trying to fix them after they have occurred?

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1 A. Well, I and a lot of other people have said
 2 before: It's a lot easier than mitigation afterward.
 3 Q. Okay. Dr. Punch, in your opinion, what are
 4 the best or possible solutions to preventing adverse
 5 turbine effects before they occur?
 6 A. Well, as I pointed out in my supplementary
 7 statement, which was entered I think as an exhibit
 8 earlier, in general, noise can be stopped at the
 9 source -- at the receiver or the receptor, the person,
 10 the resident -- or the pathway.
 11 And the only real thing -- we've already
 12 talked here tonight about how it's nearly impossible
 13 or impractical to put barriers around the receptor,
 14 like the basement we talked about, the cement
 15 basement. And the wind turbine industry has done some
 16 things to reduce the noise at the source; but as we
 17 all know, it's causing some problems in some people.
 18 So the only thing we can really do
 19 effectively is to make the distance longer between the
 20 source and the people.
 21 Q. Would not building them at all be a possible
 22 solution?
 23 A. Well, I'm not going to go into the anti-wind
 24 stance. If I'm going to be labeled that by other

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1 people, I don't want to say yes to that.
 2 But certainly it would be a solution --
 3 everybody, I think, would agree with that -- to that
 4 problem.
 5 **MR. HAYES:** All right. Now I'm going to
 6 cause you a problem Mr. Cornale. The next exhibit I
 7 do have labeled as 3, but I can maybe just change it
 8 to a 4 or something.
 9 **CHAIRMAN CORNALE:** Let me just get this
 10 clarified for the record.
 11 We need to mark Hayes Exhibit 4 and
 12 correspond that to the Investigation of the Acoustic
 13 Impact of Pacific Hydro's Wind Turbines at Cape
 14 Bridgewater, Victoria, Australia, Participating
 15 Residents's statement, 21 January 2015.
 16 Q. Dr. Punch, on the front page of this, the
 17 third paragraph down starts with "The inclusion."
 18 A. I'm a little confused about what document
 19 I'm looking for. I wasn't handed one just recently,
 20 and I was handed something earlier. I'm not sure if I
 21 was given what you're referring to or not. Is it this
 22 one?
 23 (Discussion off the record.).
 24 Q. Now you have it?

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1 A. I do.
 2 Q. The third paragraph down starts with "the
 3 inclusion."
 4 A. I must be on the wrong one.
 5 I have it now. Number 4, yes.
 6 Q. I think the title has been read, maybe.
 7 Anyway, the third paragraph starts out with this:
 8 "The inclusion of sensation as a descriptor
 9 of an impact describes exactly what we have felt all
 10 these years. Although the screeching of the turbines
 11 when turning together with the incessant thumping is
 12 still noise that significantly and regularly disturbs
 13 us, especially at night."
 14 And for everybody that's out in the audience
 15 I want to make sure -- this is something that was
 16 presented by the six participants of the study, the
 17 Cape Bridgewater Study. They wanted to have some
 18 input into it. And this is what they as an individual
 19 group of six had submitted. And this is one of the
 20 statements that they have made, from the participants.
 21 My question about the statement here from
 22 the participants: Could the sleep disturbance that
 23 they refer to -- could that lead to health or adverse
 24 health effects for these six residents?

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1 A. "Regularly disturbs us at night" I assume
 2 does mean sleep disturbance. And as I presented on
 3 January 21, some evidence -- that there is evidence --
 4 well, NIH -- I don't know if I talked about the
 5 National Institute of Health at that point, but the
 6 NIH certainly has something to say about what sleep
 7 does to our bodies and to us. The WHO, World Health
 8 Organization, has things to say about that as well.
 9 Certainly, most of us -- I personally do
 10 have experience with inability to sleep sometimes. I
 11 know it affects me, and I know it affects other
 12 people. And that's well documented. It can lead to
 13 physiological affects, stress. Cortisol levels go up
 14 and so forth.
 15 Q. All right. The fourth paragraph, which
 16 states: "Mr. Cooper's report identifies there's a
 17 specific pattern of infrasound frequencies at Cape
 18 Bridgewater Wind Farm when it is operating which are
 19 not present when the turbines are shut down.
 20 "These infrasound frequency patterns were
 21 measured in our homes at levels up to 20 decibels
 22 higher than those at the Shirley Wind Farm in
 23 Wisconsin, recently declared to be a hazard to human
 24 health by the Town Health Board."

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1 Dr. Punch, should this statement by the
 2 residents of the Cape Bridgewater Wind Farm be of
 3 concern to the residents of the proposed Pleasant
 4 Ridge Wind Farm and the Livingston County Board?
 5 **MR. BLAZER:** Objection. Beyond the scope.
 6 **CHAIRMAN CORNALE:** Okay. That is beyond the
 7 scope of this witness. Can you move on?
 8 **MR. HAYES:** Yes.
 9 **CHAIRMAN CORNALE:** Thank you.
 10 Q. Page 2 -- turn the page -- the second and
 11 third paragraphs.
 12 "The assertions made by others that our
 13 symptoms results from scare mongering, the nocebo
 14 effect, are untrue and always have been.
 15 "The inclusion of complete shutdown periods
 16 of the wind farm facility during the investigation
 17 reminded us of the general peace, serenity, and
 18 well-being of our lives before the wind farm facility
 19 started operating.
 20 "The investigation also demonstrated that
 21 the current noise pollution guidelines operating in
 22 Victoria are useless and do not protect us from harm."
 23 Dr. Punch, what is the significance of these
 24 two paragraphs?

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1 A. Well, I think it calls attention back to
 2 what most of us think -- a lot of us think -- that
 3 there are people who -- even people with pre-existing
 4 conditions can leave the vicinity of wind turbines and
 5 feel better.
 6 And it's been shown over and over that if
 7 you leave and feel better, you come back and you feel
 8 worse, and you do it over and over -- this has
 9 happened many, many times. I would say hundreds of
 10 times, at least, maybe more.
 11 It's like the cross-over experiments that
 12 epidemiologists like to say is one of the best
 13 measures of cause/effect. If the timing -- the
 14 synchrony -- between the activity leaving or coming
 15 back is synchronized with the effects, the reactions,
 16 then there has to be some attention to the fact that
 17 it could be cause/effect.
 18 There's an article in 1965 by a gentleman
 19 who headed the Royal Society of Medicine in Britain,
 20 Great Britain. I believe his name is Austin Hill. He
 21 wrote a fine article about cause/effect. And you
 22 really don't have to have peer-reviewed
 23 epidemiological studies to know that it's
 24 cause/effect.

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1 Schomer and Hessler, in their second
 2 rebuttal or second -- excuse me -- comment on the
 3 Cooper study, talk about -- Schomer is a colorful
 4 character, and he talked about beans and gas.
 5 It doesn't take a doctor to know that, if
 6 you eat a lot of beans, you might well have gas. But
 7 a doctor could tell you how and why it occurs. But
 8 you don't really need a medical doctor to tell you
 9 that the two are related.
 10 Q. Okay. On the second page, paragraphs 9 and
 11 10 -- again, reminding people this is from the
 12 statement by the six residents.
 13 "We thank Pacific Hydro for finally taking
 14 our complaints seriously and funding the study.
 15 "We expect that they will now face the
 16 facts, difficult as they may be, and rectify the
 17 problems at Cape Bridgewater, address proper
 18 compensation to those who have been harmed, and join,
 19 indeed lead, the drive for reform of regulation of
 20 wind power facilities informed by the results of this
 21 investigation.
 22 "We demand that the Victorian Government do
 23 as the USA Brown County Health Department have done in
 24 respect to the Shirley Wind Project in Wisconsin and

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1 declare Cape Bridgewater Wind Farm a hazard to human
 2 health, take the necessary action to ensure our health
 3 is no longer damaged and restore our homes and have it
 4 back to its normal state."
 5 I'm going to ask the question. It's going
 6 to be objected to. You might as well get started.
 7 Dr. Punch, what actions could be taken by
 8 the Livingston County Board to prevent these events
 9 from happening with the proposed Pleasant Ridge Wind
 10 Farm?
 11 **MR. BLAZER:** Mr. Hayes, I have to agree with
 12 you. You're right. I object. Beyond the scope.
 13 **CHAIRMAN CORNALE:** That's beyond the scope
 14 of our witness.
 15 Q. Dr. Punch, are there other important
 16 conclusions or ideas, whatever, from the Cape
 17 Bridgewater Study that I might find helpful in
 18 understanding the health effects of wind farm turbines
 19 on families that have not been discussed?
 20 A. Well, I think it's very hard to answer that
 21 question from a consumer point of view. The report is
 22 really written for wind turbine companies and
 23 acousticians in, I think, forging ahead with future
 24 studies. Certainly the conclusions they draw -- that

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1 Cooper draws are very germane, you know, to the issue.
 2 I took some notes thinking this question
 3 might come up or questions like yours might come up.
 4 I need to kind of look through these notes, if I may
 5 take a minute, just to see if there's anything
 6 relating to your question.
 7 Q. Okay.
 8 A. One thing that I'm sure has come up many
 9 times before and that I would reiterate here is that
 10 infrasound is very different from other sounds in that
 11 it doesn't follow a normal attenuation as you increase
 12 the distance. Infrasound travels much further than
 13 other even low frequency sounds or certainly anything
 14 higher than about 20 hertz or even 200 hertz.
 15 Nobody, I think, these days disputes that
 16 wind turbines emit infrasound and that infrasound
 17 causes the kinds of problems that I think Cooper has
 18 described.
 19 Would you repeat the germ of your question,
 20 the basic -- are there other things that --
 21 Q. Well, this Cape Bridgewater Study is very
 22 extensive. Just without the appendices, it was 235
 23 pages.
 24 A. Right.

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1 Q. And I went through several times and looked
 2 for the things that I thought were most important.
 3 And I'm just asking you: Was there something that you
 4 thought was important in there that I didn't ask
 5 about?
 6 A. I've already mentioned the wind turbine
 7 signature. That was one of the key bottom lines of
 8 this study, that that is a way for acousticians to
 9 measure turbine noise or sound emanating from
 10 turbines.
 11 Cooper talked about A-weighting is not
 12 likely to be useful. If you want something that
 13 correlates to annoyance or even sleep disturbance,
 14 it's not a good measure to look for sounds inside a
 15 home, inside as opposed to outside. It's not good for
 16 distinguishing between when the turbines go on and off
 17 necessarily. The wind turbine signature, of course,
 18 does distinguish those conditions.
 19 It's also not useful in distinguishing
 20 between wind noise in nature and wind turbine noise,
 21 particularly when the wind speed is relatively high.
 22 You're picking up too much -- I mean, that's kind of
 23 looking at what's important for acousticians.
 24 And I think that was one thing that Cooper

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1 hoped would come out of the study, I would guess. I
 2 haven't read most of it.
 3 If I may just -- you had more questions,
 4 right?
 5 Q. I have just a few more questions. They
 6 won't take too long.
 7 A. I'm not questioning the length of time. I
 8 just want to know whether I should hold a final
 9 comment, if I may.
 10 Q. You might just hold off on that for a
 11 moment. All right? I have just a few questions still
 12 about this study. It just recently came out.
 13 I came across some criticisms of Cooper's
 14 study. The criticism was that he's not a medical
 15 doctor.
 16 Do you agree that that's a valid criticism
 17 for saying the study is no good?
 18 A. We've already talked about that, I believe.
 19 My opinion is you don't have to be a medical doctor to
 20 interpret results that he found as related to
 21 cause/effect.
 22 Q. I gave you -- I believe it's labeled maybe
 23 Exhibit 3? It's the second response by Schomer, I
 24 believe.

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1 A. Yes.
 2 Q. The February 20th one?
 3 A. I have it, yes.
 4 Q. You may have already kind of hit on this
 5 anyway. But on the very first paragraph there, the
 6 last two sentences:
 7 "This is not a medical study, and these are
 8 not medical conclusions. As predicted, this study is
 9 being made into something that it's not."
 10 Maybe I should have read more of this so I'm
 11 not misleading anybody. I'm just going to read the
 12 whole paragraph so I don't mislead anybody.
 13 "On February 10, 2015, George Hessler and I
 14 warned that, rather than making a patently groundless
 15 arguments, something like an expert's physical
 16 analysis could be expected proving that this is not a
 17 valid sample of the public at large, proving the study
 18 did not do something else it was never intended to do.
 19 "Now we see the assertion that this was a
 20 medical study and that Stephen Cooper, George, and I
 21 are not qualified to make medical judgments."
 22 **CHAIRMAN CORNALE:** Hold on. We're going to
 23 have to get you another battery.
 24 (Pause in proceedings.)

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1 **CHAIRMAN CORNALE:** Go ahead, Mr. Hayes.
 2 Q. Dr. Punch, we may have already covered this.
 3 I believe you may have already answered what was going
 4 to be my question, whether or not the fact that he
 5 wasn't a medical doctor -- and I believe what I just
 6 read said it was not a medical statement. I'll just
 7 leave it at that.
 8 You can go ahead if you've got some kind of
 9 an answer to that other question I kind of asked you.
 10 Was there any kind of other concluding statements
 11 about the Bridgewater --
 12 A. It was this, that Steve Cooper anticipated
 13 criticism from the wind industry even after the
 14 cooperation he got from them, given the results he
 15 found.
 16 He anticipated criticisms based on the
 17 number of subjects. It's not a statistically valid
 18 sample. That was said about Pierpont's work, who
 19 interviewed 23 people about the condition of 38
 20 people.
 21 It's been said about many other studies.
 22 But in research, there is a trade-off between the
 23 number of measurements you can make in a practical
 24 world given funding and time issues and the number of

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1 subjects.

2 I think he said it elsewhere in one of these

3 two sets of comments, that one is more than none,

4 right? I mean, six is quite a few people when they're

5 so consistently responding in the way they did.

6 My final comment, I guess, or my feeling,

7 after having read the study, after having done some

8 research myself, is that: This is one of the most

9 astoundingly methodologically sound studies I have

10 ever read. And I hope I don't have to come back to

11 rebut or hear rebuttal.

12 **MR. BLAZER:** I'm done with you.

13 **THE WITNESS:** Good.

14 A. It is just a very, very meticulously

15 well-done study. The appendices, if you go through

16 those, you will see pictures of the setup of equipment

17 inside and outside the homes. He talked about

18 calibration issues and how he took care of those.

19 He talked about some barriers including

20 weather and the things that got in the way and some

21 things he would have liked to have done. That's

22 pretty sensible for him to do, I think. He's very

23 realistic.

24 He talked about what people wrote in their

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1 diaries. He wrote up a beautiful, almost

2 unchallengeable study in that regard.

3 And to think that you could test in the way

4 that he or perhaps his colleagues helped him do this,

5 in a larger, much larger, population is unfathomable.

6 I can't imagine having to do that kind of work over

7 many more subjects.

8 So you can't do this kind of research with a

9 lot of people, but at least he set out to accomplish a

10 particular task. It was not a compliance study. It

11 had nothing to do with compliance with the local

12 ordinances and so on.

13 And he set forth methods that were

14 replicable. He found some new discoveries, the wind

15 turbine signature, that other people can use in the

16 future; and I think he set a good pattern for the

17 future of research.

18 And the findings were -- as you've read,

19 many of the findings in Schomer's report and Cooper's

20 report are, I think, rock solid.

21 Q. Okay. We're going to leave that at this

22 point. I have a few questions for you in reference to

23 Pleasant Ridge Exhibit 269, the Michigan report.

24 A. The guidelines or -- I think those were

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1 taken away from me, weren't they?

2 Q. Maybe you can answer the question. Let's

3 just try that first.

4 A. Okay.

5 Q. Mr. Blazer asked you questions about a

6 Michigan report you were involved in titled

7 "Recommended Update of Sample Zoning for Wind Energy

8 Systems," Pleasant Ridge Exhibit 269.

9 A. Okay.

10 Q. Do you recall that?

11 A. I do now, yes.

12 Q. Mr. Blazer pointed out one or two sentences

13 in the report, saying that the report recommended a 45

14 decibel A-weighted noise level for wind turbines.

15 Do you remember that?

16 A. I do.

17 Q. Was that 45 decibel the actual

18 recommendation of the committee that put out the

19 report?

20 A. No, it wasn't. The report that you're

21 referring to was never formally adopted in Michigan.

22 We were stopped from our activity because we were

23 recommending 40. I think that's in this report.

24 Subsequently, we did a minority report,

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1 which I also talked about last January -- last month.

2 Somewhere in this report we talk about 40 dBA as being

3 the recommended value. The rationale for selecting 40

4 dBA is on page 3. So that's what we selected. That's

5 what the committee came up with.

6 When you work with committees, as you know,

7 you have to compromise. Some of us were trying to get

8 it to 35. But after being 55 for so many years, we

9 thought 40 was a good compromise.

10 Q. Is that 40 decibels the same that's in the

11 -- set forth in the Pleasant Ridge Exhibit 269?

12 A. I'm sorry, I can't say. I'd have to go back

13 and look at what the definition of the measurement

14 conditions are and so on.

15 Q. Okay.

16 A. I did look at that application, but I've

17 forgotten that information.

18 Q. The reports or studies that Mr. Blazer

19 provided you, Dr. Punch, were they peer reviewed?

20 I've learned that some of them were not.

21 A. Many of them -- most of them -- if you're

22 talking about the January 22nd documents, no, they

23 were not peer reviewed. They didn't appear in the

24 peer-reviewed literature. I'll put it that way.

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1 Q. Do studies sanctioned by local, regional,
 2 state, or provisional government bodies have the same
 3 basic objective as wind companies?
 4 **MR. BLAZER:** Objection, foundation.
 5 **CHAIRMAN CORNALE:** That's going to be beyond
 6 his scope.
 7 Q. Dr. Punch, in your research, does the
 8 noise/infrasound seem to affect children or people
 9 with autism spectrum disorder?
 10 A. There have been some folks who say it does.
 11 In "my research," if you mean my review of literature,
 12 essentially yes.
 13 There's an early study by Fitz (phonetic) --
 14 not too early, 2007 -- that mentions autism. There's
 15 another study -- now I can't recall the authors.
 16 There's at least a couple of places in the literature
 17 that refer to the fact that autistic children,
 18 children with -- I guess the convention today is to
 19 call them on the "autism spectrum."
 20 Do they seem to suffer more than other
 21 children in terms of their response to noise? It's
 22 believed by a lot of people at least that they are
 23 more sensitive to noise. I have an autistic
 24 stepchild, and he's 45, and I know that to be true of

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1 him.
 2 It is documented in the one study. I can't
 3 recall the authors. I wish I could. But it's pretty
 4 well documented in there. Oh, Krogh, K-r-o-g-h, in
 5 '12, I believe, 2012. It's described pretty well in
 6 that document.
 7 Q. Okay. The study at the Shirley Wind Project
 8 in Wisconsin and subsequent declaration by the Board
 9 of Health, could you expand on the determination that
 10 it is hazardous to human health?
 11 **MR. BLAZER:** Objection, foundation. He's
 12 already testified he doesn't know what they did.
 13 **CHAIRMAN CORNALE:** That is correct. He
 14 previously testified that he is not sure of the
 15 details.
 16 Q. In your presentation, I believe, you have
 17 said the majority who live near wind turbines do not
 18 report adverse health effects. Does that mean that at
 19 least 51 percent do not report? So up to 49 percent
 20 could be affected and the statement would still be
 21 true?
 22 **MR. BLAZER:** Objection, calls for
 23 speculation. There's no testimony, no evidence that
 24 he knows what percentage may or may not be affected.

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1 **MR. LUETKEHANS:** That wasn't the question.
 2 The question was: Could up to 49 percent be affected
 3 and the majority statement still be true? That was
 4 the question. That's all it was.
 5 **MR. BLAZER:** But then it calls for
 6 speculation.
 7 **MR. LUETKEHANS:** Calls for what, math?
 8 **MR. BLAZER:** Calls for speculation.
 9 **MR. LUETKEHANS:** Calls for math. 51:49.
 10 Even I can figure that out.
 11 **MR. BLAZER:** Calls for speculation.
 12 **CHAIRMAN CORNALE:** Can you restate the
 13 question in any way that --
 14 **MR. LUETKEHANS:** He can't restate the
 15 question because there's no speculation to restate.
 16 **CHAIRMAN CORNALE:** Okay. Reread the
 17 question for us.
 18 Q. You have said the majority who live near
 19 wind turbines do not report adverse health effects.
 20 Does that mean at least 51 do not report; so up to 49
 21 percent could be affected, and this statement would
 22 still be true?
 23 Do you believe it could be true and that
 24 there are some people who are affected whose

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1 complaints are never heard or made public?
 2 **MR. BLAZER:** Again, it calls for
 3 speculation, Mr. Chairman. Do I believe -- does he
 4 believe? Could be heard? It could be 99 percent and
 5 1 percent. We have no idea. There's no foundation
 6 for this witness to be able to answer that question.
 7 **CHAIRMAN CORNALE:** The first part is
 8 speculative. The second part could be taken as
 9 nonspeculative, the part that dealt with are there
 10 some that live with it and don't report.
 11 A. I believe so. Quite a few, possibly.
 12 Many of them are under contracts not to say
 13 much. That's my understanding. I've seen gag clauses
 14 -- not recently. I haven't seen anything about gag
 15 clauses in what would be in the application in this
 16 case.
 17 But people were discouraged minimally from
 18 bringing forth comments or negative reactions to wind
 19 turbines in the early days. I don't know if it's
 20 still true. I know they were also encouraged to be
 21 proponents of future projects.
 22 Q. Do studies show there is a difference
 23 between the noise from wind turbines and the noise
 24 from aircrafts, airports?

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1 A. Yes. I thought I included a slide on that.
 2 But I didn't spend a lot of time on that; so you might
 3 have missed it. I believe I did, early on in the
 4 presentation.
 5 Wind turbine noise is distinctly different
 6 and unique in a number of ways from other noises. If
 7 you look at the spectrum levels, particularly the
 8 intensity at different frequencies, wind turbine noise
 9 tends to have more infrasound than most transportation
 10 or even other industrial type noises or other
 11 environmental noises.
 12 Q. Are you saying that maybe the thumping sound
 13 that some people report and do hear from the turbines
 14 is different than the jet engines from an airplane
 15 taking off and landing?
 16 A. Yes, there are spectrum differences. The
 17 thumping is a distinctive thing probably with wind
 18 turbines. Any fan will, you know, in your home -- a
 19 floor fan, you know, it oscillates, and it passes
 20 wires and other obstacles behind it usually and in
 21 front of it.
 22 You get a little bit of that sense. But you
 23 don't get the three-blade thump, thump, thump, the
 24 whoosh, whoosh, whoosh that you do with other sounds.

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1 Q. Okay. Regarding the nocebo effect, are
 2 there scientifically valid studies showing the
 3 physiological forces -- showing that psychological
 4 forces are a major driver of perceptions of wind
 5 turbine noise?
 6 A. I think I made a statement in my
 7 presentation that there aren't -- in my opinion, there
 8 aren't scientifically valid studies to show that,
 9 although I do believe in the power of suggestion.
 10 If I divide up the room -- let me just
 11 quickly do a little analogy -- divide up the room.
 12 And I tell you I'm going to tell you about the effects
 13 of alcohol on the body. And I give you a set of
 14 instructions and you a set of instructions, and I use
 15 alcohol in one group and not the other.
 16 Then that's a legitimate experiment because
 17 you're using the substance, right? We're using
 18 alcohol. And I do a measure of performance on it or
 19 an opinion survey on the effect and so on.
 20 But that's a very different study from
 21 saying I'm going to give -- you know, it's a very
 22 different study from saying what I just said. I'm
 23 going to do a study where I tell you about either the
 24 adverse or the positive effects of alcohol, and I

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1 don't give either one of the groups anything. The
 2 group that's been told positively or negatively the
 3 effects of alcohol, what that will be, are probably
 4 going to show effects from the nocebo effect.
 5 But the problem with the studies that have
 6 been done: There was no alcohol. There was no
 7 infrasound. And I think the results would have been
 8 drastically different. That's why I say I don't think
 9 these studies are scientifically valid. There are two
 10 -- there are actually three, one by Taylor, that is
 11 fairly similar.
 12 Q. In the Cape Bridgewater Study, one of the
 13 things that I took away from that was that it kind of
 14 disproved, in my opinion anyway, the nocebo effect by
 15 the residents writing down sensations when the
 16 turbines were increasing and decreasing in power or
 17 changing and they didn't know that.
 18 Is that an example of what you're talking
 19 about?
 20 A. In a way, the nocebo effect in that case is
 21 -- well, they weren't really told anything. They came
 22 in experiencing the effects and complaining about
 23 those effects. I don't think that was a nocebo study.
 24 I think the reference to nocebo -- I believe

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1 it was in the Schomer/Hessler comments -- was the fact
 2 that they couldn't see or hear anything and, yet, they
 3 experienced something negative. So they're denying
 4 that nocebo was any part of the reactions or the
 5 sensations.
 6 Q. Okay. Someone testified that, when they are
 7 near turbines, there is pressure in their ears, head.
 8 Can this be explained scientifically?
 9 A. The mechanisms are not really known, I don't
 10 think, by anybody. Some people think it's vestibular.
 11 It's probably inner ear. But there are also
 12 mechanisms in the body -- let me start that over.
 13 The basic senses of vision, hearing, taste,
 14 touch, and smell are not the only senses we have. The
 15 body is full of cells and organs that can sense
 16 through resonance, through acoustic energy,
 17 vibrations. I'll call them vibrations because,
 18 anytime a surface moves in relation to another
 19 surface, that's sensing movement.
 20 So movement is at the heart of some of these
 21 perceptions and, I think, that some of the
 22 explanations that are given Alec Salt relate to that
 23 kind of movement.
 24 Todd, as mentioned here tonight, talks about

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1 body bone conduction. Basically he's saying it comes
 2 through bone conduction.
 3 Intuitively, if you think about it, you
 4 would think that sound vibrates in the head if it's
 5 loud enough. But it has to be really loud. It has to
 6 be really loud, even infrasound. So it's not a viable
 7 mechanism that I can support through my reading of the
 8 literature.
 9 But the body itself senses it. For example,
 10 the vestibule, the balance part of the inner ear, is
 11 much more sensitive to movement -- because that's what
 12 its purpose is, to determine position in space -- than
 13 the cochlea part of inner ear.
 14 I don't know if that answers your question.
 15 Q. I think it --
 16 A. It's complicated. Again, we don't know the
 17 exact mechanisms, but there are biologically plausible
 18 explanations out there.
 19 **MR. HAYES:** Thank you for your patience with
 20 me. That's all questions that I have; so I'll let
 21 someone else ask you questions.
 22 **CHAIRMAN CORNALE:** Do we have anybody else
 23 in the audience with questions? Anybody out there?
 24 Do we have any questions?

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1 **EXAMINATION OF MR. PUNCH**
 2 **BY MR. SLAGEL:**
 3 Q. When Mr. Blazer was talking about Mr.
 4 Shindelcker possibly having sleep apnea or some other
 5 medical condition, can you dispel that theory?
 6 **MR. BLAZER:** I have to object. I apologize.
 7 But he already answered the question. He testified
 8 that he doesn't know anything about Mr. Shindelcker's
 9 medical conditions.
 10 **CHAIRMAN CORNALE:** He is correct.
 11 Q. Do you know if he has those conditions when
 12 he leaves his house?
 13 **MR. BLAZER:** Same objection, Mr. Chairman.
 14 He's already testified that he doesn't know anything
 15 about Mr. Shindelcker's medical conditions.
 16 **MR. LUETKEHANS:** That's not a medical
 17 condition question. It's a factual question that he
 18 may or may not have learned from an interview. The
 19 question is a real one that should be answered.
 20 **CHAIRMAN CORNALE:** We'll allow that one.
 21 Q. He said he personally knew Mr. Shindelcker.
 22 A. Yes. My understanding is, when he leaves
 23 his home, he doesn't have the problems or at least not
 24 nearly the severity of the problem. That's why he put

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1 his home up for sale. He knew if he got away from it,
 2 he would be better; he would get better or be better.
 3 Q. Would it surprise you to know that last week
 4 they turned off the turbines for five nights, and he
 5 slept fine for those nights?
 6 **MR. BLAZER:** Objection. Objection.
 7 Q. Is there anything else you would like to say
 8 on the subject?
 9 **MR. BLAZER:** Objection.
 10 A. Not under the circumstances.
 11 **CHAIRMAN CORNALE:** All right. Dr. Punch, I
 12 believe we got through everybody for questions for
 13 you. Thank you.
 14 **THE WITNESS:** Thank you.
 15 **CHAIRMAN CORNALE:** So it looks like we're
 16 going to be back here on Wednesday at 6:30. We're
 17 going to continue down the list of those previously
 18 signed up. We have a few that were on the list from
 19 last week that we're going to get to first, and then
 20 we'll go ahead and just continue down the list.
 21 If you've signed up previously and planned
 22 to testify, it's a good idea to start having yourself
 23 ready for the meetings. We may get to you. There's
 24 going to be fewer and fewer opportunities to pass at

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1 this point.
 2 So if you pass and we get through everybody,
 3 we may get back to you on the same night. And if you
 4 pass again, you have missed your opportunity. So do
 5 come prepared. 6:30 at the Walton Center Wednesday
 6 night.
 7 Then I need a motion to recess. Vitzthum
 8 motions. Zimmerman seconds. All in favor. Opposed.
 9 Just one note for everybody: The Mayor of
 10 Forrest is set to testify on Wednesday evening for
 11 sure.
 12
 13 (Hearing recessed at 9:30 p.m.
 14 to reconvene on 02/25/15 at 6:30 p.m.)
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CERTIFICATE OF REPORTER

I, BRENDA L. ZEITLER, CSR-RPR, License No. 084-004062, do hereby certify that the foregoing transcript, consisting of pages 591 through 680, both inclusive, constitutes a true and accurate transcript of the original stenographic notes recorded by me of the foregoing proceedings had before the Livingston County Zoning Board of Appeals at Walton Centre, Fairbury, Illinois, on the 23rd day of February, 2015.

Dated this 16th day of March, 2015.

Brenda L. Zeitler, CSR-RPR
Illinois License No. 084-004062

<p>A</p>	<p>2475:3 Aching (2) 2487:12,16</p>	<p>adept (1) 2508:22 admitted (1) 2454:12</p>	<p>2549:11;2552:16 agreed (1) 2518:5</p>	<p>analysis (5) 2523:2,22;2525:15; 2540:20;2553:16</p>
<p>A1 (1) 2493:15</p>	<p>acknowledge (1) 2502:10</p>	<p>adopted (1) 2557:21</p>	<p>ahead (9) 2454:3;2496:21; 2506:21;2507:9;</p>	<p>and/or (1) 2538:12</p>
<p>A2 (1) 2493:15</p>	<p>acknowledged (1) 2514:16</p>	<p>adult (2) 2494:13;2496:11</p>	<p>2517:22;2549:23; 2554:1,8;2569:20</p>	<p>annotated (1) 2455:7</p>
<p>AAGs (2) 2478:17,17</p>	<p>acknowledgement (1) 2515:1</p>	<p>adults (2) 2485:14;2493:14</p>	<p>air (1) 2485:17</p>	<p>annoyance (8) 2470:24;2501:14; 2502:7,11;2523:20,20; 2538:14;2551:13</p>
<p>AAG's (1) 2478:21</p>	<p>acknowledgment (1) 2514:8</p>	<p>adverse (22) 2456:4;2457:14; 2478:18;2511:13;</p>	<p>airborne (1) 2481:10</p>	<p>annual (1) 2504:23</p>
<p>abandon (1) 2533:11</p>	<p>acoustic (10) 2478:22;2481:21; 2517:14;2518:14;</p>	<p>2513:11,15,24;2514:2; 2533:16;2534:15;</p>	<p>air-conducted (1) 2482:3</p>	<p>answered (5) 2468:8;2477:6; 2554:3;2568:7,19</p>
<p>abandoned (4) 2527:10,14,16; 2532:15</p>	<p>2541:6;2543:12; 2566:16</p>	<p>2537:2;2539:4; 2541:19,23;2542:4;</p>	<p>aircraft (1) 2496:5</p>	<p>anticipated (2) 2554:12,16</p>
<p>abandonment (4) 2533:3,7,13;2534:2</p>	<p>acoustical (2) 2472:23;2539:17</p>	<p>2544:23;2560:18; 2561:19;2564:24</p>	<p>aircrafts (1) 2562:24</p>	<p>anticoagulation (1) 2494:17</p>
<p>abatement (2) 2477:2,4</p>	<p>acoustician (2) 2513:17,18</p>	<p>advising (1) 2527:11</p>	<p>airplane (1) 2563:14</p>	<p>anti-wind (3) 2492:4;2539:12; 2542:23</p>
<p>abbreviation (3) 2478:18;2541:4,5</p>	<p>acousticians (5) 2474:11;2539:15;</p>	<p>Advisory (1) 2464:23</p>	<p>airports (3) 2464:10,15;2562:24</p>	<p>Anxiety (3) 2484:10;2490:22; 2494:21</p>
<p>able (9) 2494:4;2508:22; 2510:2,9;2521:9;</p>	<p>2549:23;2551:8,23</p>	<p>affect (4) 2537:13;2538:16; 2539:1;2559:8</p>	<p>al (2) 2455:3;2470:4</p>	<p>apnea (13) 2485:10,11,12,20; 2486:7,10,21;2489:6; 2490:4,7;2507:16,21; 2568:4</p>
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<p>abnormal (2) 2489:6;2490:11</p>	<p>across (3) 2526:24;2529:14; 2552:13</p>	<p>2540:24;2560:20,24; 2561:2,21,24</p>	<p>alcoholism (1) 2489:9</p>	<p>apparel (1) 2481:20</p>
<p>above (2) 2462:20;2520:18</p>	<p>action (1) 2549:2</p>	<p>affordability (1) 2463:24</p>	<p>Alec (1) 2566:22</p>	<p>Appeals' (1) 2453:5</p>
<p>Abrupt (1) 2486:4</p>	<p>actions (1) 2549:7</p>	<p>afterward (1) 2542:2</p>	<p>Alliance (1) 2467:10</p>	<p>appear (2) 2529:12;2558:23</p>
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<p>absolute (1) 2525:23</p>	<p>actual (2) 2521:8;2557:17</p>	<p>affordability (1) 2463:24</p>	<p>allowed (2) 2459:20;2492:19</p>	<p>apparel (1) 2481:20</p>
<p>Absolutely (7) 2483:13;2485:2; 2486:3;2489:22;</p>	<p>actually (21) 2456:22;2460:20; 2461:21,22;2464:7;</p>	<p>again (22) 2457:12;2464:18; 2465:9;2468:20;</p>	<p>allowing (1) 2497:17</p>	<p>apparent (1) 2476:22</p>
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<p>accordingly (1) 2540:21</p>	<p>address (4) 2488:9;2505:3; 2533:9;2548:17</p>	<p>agree (13) 2459:1;2462:19; 2511:9;2530:20,21;</p>	<p>Among (1) 2461:16</p>	<p>around (10) 2462:11;2463:14;</p>
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