

BEFORE THE OHIO POWER SITING BOARD

- - -

In the Matter of the :  
Application of Firelands :  
Wind, LLC, for a :  
Certificate of :  
Environmental :  
Compatibility and Public : Case No. 18-1607-EL-BGN  
Need to Construct a :  
Wind-Powered Electric :  
Generation Facility in :  
Huron and Erie Counties, :  
Ohio. :

- - -

PROCEEDINGS

before Mr. Jay S. Agranoff and Mr. Michael Williams,  
Attorney Examiners, Ohio Power Siting Board,  
conducted via Webex, called at 9:07 a.m. on Tuesday,  
October 6, 2020.

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VOLUME II

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1 Tuesday Morning Session,  
2 October 6, 2020.

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4 ALJ WILLIAMS: Let's get back on the  
5 record.

6 At this time we will entertain  
7 Applicant's next witness.

8 MR. SECREST: Thank you, your Honor. May  
9 the Applicant call Rhett Good to the stand.

10 ALJ WILLIAMS: Good morning, Mr. Good.  
11 Good morning, Mr. Good. You are a smaller box.  
12 Hopefully it will become larger but I will work on my  
13 settings. I can see I now have visual. You are  
14 still -- there you are. Can you hear me just fine?

15 THE WITNESS: I can hear you.

16 ALJ WILLIAMS: Fantastic. If you would  
17 raise your right hand and I am going to swear you in.

18 (Witness sworn.)

19 ALJ WILLIAMS: All right. Please  
20 proceed.

21 MR. SECREST: Thank you, your Honor.

22 (EXHIBIT MARKED FOR IDENTIFICATION.)

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RHETT GOOD

being first duly sworn, as prescribed by law, was  
examined and testified as follows:

DIRECT EXAMINATION

By Mr. Secrest:

Q. Would you please state your full name for  
the record.

A. My name is Rhett Good.

Q. By whom are you employed and what is your  
business address?

A. I'm employed by Western EcoSystems  
Technologies, Incorporated. Our address is 408 West  
6th Street, Bloomington, Indiana 47403.

Q. Do you have in front of you what's been  
marked as Exhibit 32 -- Applicant's Exhibit 32, your  
prefiled direct testimony?

A. I do.

Q. And is that a true and accurate copy of  
your direct testimony that was prefiled in this case?

A. It is, although I have one change.

Q. So what change do you have?

A. Yes. On page 24, line 17, through  
page 25, line 1, I would like to change that -- the  
paragraph there and replace it with the following:

1           "The Project has obtained a Technical  
2 Assistance Letter from the U.S. Fish and Wildlife  
3 Service that outlines the measures the Project will  
4 use to avoid the potential take of the Indiana and  
5 northern long-eared bat. These measures include  
6 feathering blades of all turbines below 6.9 meters  
7 per second at night during the spring and fall  
8 migration periods, and during the summer maternity  
9 period turbines located within 2-1/2 miles of an  
10 Indiana bat roost. The Project's implementation of  
11 the U.S. Fish and Wildlife Service recommended  
12 measures will also reduce potential impacts of the  
13 Project to other bat species. The Project may also  
14 elect to develop a Habitat Conservation Plan in the  
15 future and obtain an Incidental Take Permit which  
16 would require measures to minimize impacts to listed  
17 bat species, and mitigation for the impacts. Options  
18 exist for reducing bat mortality under a Habitat  
19 Conservation Plan, including feathering turbine  
20 blades during low wind speeds or use of acoustic  
21 deterrents, which also significantly reduces bat  
22 mortality. Minimization measures within a Habitat  
23 Conservation Plan would require U.S. Fish and  
24 Wildlife Service review and approval, and will  
25 significantly reduce mortality of other bat species."

1           Q.    Thank you, Mr. Good.  Do you have any  
2 other revisions to your testimony?

3           A.    I do not.

4           MR. SECREST:  Thank you.  Your Honors, I  
5 tender Mr. Good for cross-examination.

6           ALJ WILLIAMS:  Thank you.

7           Mr. Van Kley.

8           MR. VAN KLEY:  Thank you, your Honor, and  
9 good morning, Mr. Good.

10          THE WITNESS:  Good morning.

11                               - - -

12                               CROSS-EXAMINATION

13          By Mr. Van Kley:

14               Q.    I'll be asking you some questions today  
15 on behalf of the Black Swamp Bird Observatory and the  
16 local resident intervenors.

17                    Let's start by discussing your personal  
18 involvement in the formation of the Application that  
19 Firelands has filed with the Board for the Emerson  
20 Creek wind project.  Can you tell me which, if any,  
21 of the reports included in this application were  
22 prepared by you?

23           A.    Yes.  Give me a second.  I am listed as a  
24 coauthor on a few of those.  I'll have to look those  
25 up to make sure I get those correct.  I thought I had

1 a copy of my testimony in front of me but I don't.

2 Can you hand me one of those, Chris? Thank you.

3 MR. SECREST: For the record, the witness  
4 has been handed his direct testimony.

5 ALJ WILLIAMS: Thank you, Attorney  
6 Secrest.

7 MR. SECREST: You're welcome, your Honor.

8 THE WITNESS: I apologize. I am having  
9 trouble finding the exhibits associated with the  
10 Application. Give me a second. Can I ask for some  
11 help from my counsel here?

12 MR. VAN KLEY: That would be fine.

13 THE WITNESS: Sure. Chris, which one of  
14 those would be the exhibit?

15 MR. SECREST: If I may direct Mr. Good to  
16 Application Exhibits R, S, and T.

17 THE WITNESS: This one, thank you.

18 MR. VAN KLEY: I would note that part of  
19 Exhibit 2 is in Applicant's Exhibit 6 so that  
20 document should be provided to the witness as well  
21 since I have some questions about it.

22 THE WITNESS: I believe I was listed as  
23 coauthor on one of these and I am having trouble  
24 finding it right now.

25 MR. SECREST: Attorney Van Kley, maybe we

1 could proceed with the questions as to the exhibits  
2 and then, after a break, the witness could confirm  
3 that that's the entirety of the exhibits. Would that  
4 help you?

5 MR. VAN KLEY: That would be fine.

6 ALJ WILLIAMS: Let's go ahead and have  
7 him wait to confirm any other information outside  
8 your line of questioning under oath after a break,  
9 but for now we can maybe dive in and direct him as to  
10 questions you have.

11 THE WITNESS: And I can say I indeed have  
12 all the reports but I -- yeah, as far as which ones I  
13 am listed as coauthor on, yeah, I can go back through  
14 those and get back to you on that.

15 ALJ WILLIAMS: Thank you.

16 Q. (By Mr. Van Kley) Have you visited the  
17 project area for the Emerson Creek wind project?

18 A. I have.

19 Q. Okay. On how many occasions?

20 A. I believe I was at the project in 2010  
21 during some initial site visit with Fish and Wildlife  
22 Service and ODNR, and then I was -- I also visited  
23 the site in March of this year to familiarize myself  
24 with the final project boundary.

25 Q. During any of these visits did you

1       conduct any bird surveys?

2               A.    We -- we did look -- we did examine some  
3       of the existing records of bald eagles' nests while  
4       we visited the site this spring.  I don't know if I  
5       would call that an official survey but we did look  
6       for eagle nests during our visit.

7               Q.    So you were not personally involved in  
8       any of the counting of bird individuals or  
9       identification of bird species that were included in  
10      the reports for the Application?

11              A.    That's correct.

12              Q.    Did you have any supervisory role over  
13      the people who did conduct those activities?

14              A.    For some of the reports, yes.

15              Q.    What was that role?

16              A.    Some of the passerine migration surveys,  
17      large bird surveys, raptor nest surveys, were  
18      completed by members of my team so I reviewed many of  
19      the reports and I was -- they work for me as part of  
20      my office.

21              Q.    How long was your visit when you went to  
22      the project area to meet with the U.S. Fish and  
23      Wildlife Service?

24              A.    I think we were there a half day or so.

25              Q.    And how long was your visit when you went

1       there in March of this year?

2               A.     We visited the site over the course of  
3       two days. We were on site probably a total of 8 to  
4       10 hours.

5               Q.     During that visit, what did you do with  
6       respect to the eagle nests?

7               A.     We visited the nest records that were  
8       available. Within a mile or two of the project.

9               Q.     Did you make observations of the  
10      occupation or lack of occupation for those nests  
11      during that visit?

12              A.     We did, yes. Chris Farmer was leading  
13      that effort. I was present. I was driving. I was  
14      helping look for nests. Chris was keeping the  
15      records of the nests which were occupied.

16              Q.     You said Mr. Farmer. Who else was with  
17      you on that visit?

18              A.     Dan Kramer. He is one of our field  
19      biologists that completed many of the surveys in the  
20      project.

21              Q.     Let's go to your written direct testimony  
22      which has been identified as Applicant's Exhibit 32.

23              A.     Yes, I have that one.

24              Q.     And I would like to direct you to page 4  
25      of that testimony.

1           A.    I have that.

2           Q.    Let's take a look at paragraph 7b.

3           A.    Yes, I see that.

4           Q.    Directing your attention to the last  
5 sentence, that sentence reads as follows: "Surveys  
6 were completed March 12 to 15, prior to leaf out, to  
7 increase the observer's ability to find nest  
8 structures." Do you see that sentence?

9           A.    Yes, I see that sentence.

10          Q.    Okay. And to put this in context, these  
11 were surveys being conducted for raptors, correct?

12          A.    That's correct.

13          Q.    Now, you refer to your -- in your  
14 testimony to raptors, did that -- did that term  
15 include eagles?

16          A.    Not -- not for the purpose of my  
17 testimony but certainly eagles are a raptor and they  
18 were recorded during these surveys. Chris Farmer is  
19 testifying today regarding the eagle surveys  
20 specifically.

21          Q.    So with respect to the raptor nest  
22 surveys that are referenced in this paragraph of your  
23 testimony, did those raptor surveys look for eagles  
24 as well as other types of raptors?

25          A.    Correct.

1           Q.    It says here that the surveys were  
2 completed from March 12 to 15, correct?

3           A.    Yes, that's what it says, yes.

4           Q.    At that time of the year, which species  
5 of raptors do you expect would have been occupying  
6 their nests?

7           A.    By mid March definitely eagles would be  
8 on the nest. You know, I would say red-tails are  
9 starting to occupy nests at that time. But  
10 definitely eagles would be on the nest.  
11 Red-shouldered hawks are probably starting at that  
12 time. Cooper's hawks and sharp-shinned hawks are  
13 probably starting at that time as well.

14          Q.    Now, when you say those species are  
15 probably starting by that time, do you mean that some  
16 of them may be incubating by that time and not others  
17 or do you mean that all of them start occupying their  
18 nests by that time?

19          A.    I would say the majority should be  
20 starting to build nests, either they've arrived at  
21 their territory or will soon be. So that period  
22 would overlap the majority of time when most raptors  
23 would be on their nest.

24          Q.    Well, during -- at that period of time,  
25 which of those species would you expect to actually

1 be incubating eggs on their nest?

2 A. Bald eagles, and, again, I would say the  
3 majority of red-tailed hawks, and many of the other  
4 species should be -- well, yeah, they should be egg  
5 laying and some will be incubating.

6 Q. Are there some species of raptors you  
7 would expect in Ohio that would not be occupying a  
8 nest by March 15?

9 A. It's certainly possible that some late  
10 arrivers may not be on the nest at that time. The  
11 majority should be.

12 Q. Going to page 5 of your testimony, the  
13 first paragraph. I would like to direct your  
14 attention to the last sentence of that paragraph  
15 which states as follows: "Eleven active red-tailed  
16 hawk nests, one active great-horned owl nest, and 21  
17 unoccupied non-eagle raptor nests were found within  
18 the 2018 Project area and a one mile buffer." Do you  
19 see that sentence?

20 A. I do.

21 Q. Now, when this sentence refers to  
22 unoccupied raptor nests, did that mean that no  
23 activity -- does this mean that the activity -- that  
24 the nests had not yet been occupied to any extent by  
25 the raptors?

1           A.    What that means at that time we did not  
2 observe signs of activity during the survey so there  
3 were no birds on the nest. We didn't observe, you  
4 know, feathers, birds around the nest, or signs of  
5 greenery that would suggest the nest was occupied.

6           Q.    So the survey found 32 non-eagle raptor  
7 nests; is that correct?

8           A.    Non-raptors. So there was 11 active  
9 red-tailed nests, one great-horned owl nest, and 21  
10 other nests that were empty but were consistent  
11 structure with a raptor, but were too small, they  
12 didn't have characteristics to be consistent with an  
13 eagle.

14          Q.    So there were 33 non-eagle raptor nests  
15 found total, correct?

16          A.    11 plus 21 which would be 32, and then if  
17 you count the great-horned owl, that would be 33.

18          Q.    Yeah. And of that number, 21 were not  
19 occupied.

20          A.    Yes.

21          Q.    Were there any signs that those  
22 non-occupied raptor nests had deteriorated?

23          A.    I would need to go back to the report.  
24 We do often record condition. I don't remember off  
25 the top of my head.

1           Q.    Are you aware of any rule of thumb or  
2           other information that would indicate what percentage  
3           of raptor nests are expected to be unoccupied in an  
4           area?

5           A.    Yeah, I am not. In my experience it's  
6           quite variable. Raptors will maintain multiple nests  
7           in each of their territory so you certainly do expect  
8           empty nests -- empty stick nests during a typical  
9           survey.

10          Q.    Would you refer down to page 5 of your  
11          testimony, go to the paragraph that has the date of  
12          June 13, 2018 on it. And I would like to direct your  
13          attention to the second paragraph under June 13,  
14          2018. And looking at the second paragraph, the  
15          second paragraph, second sentence, that sentence  
16          reads as follows: "Six active red-tailed hawk nests,  
17          two active great-horned owl nests, and 12 unoccupied,  
18          unknown raptor nests were found within the revised  
19          Project area and one mile buffer." Do you see that  
20          sentence?

21          A.    I do.

22          Q.    Okay. So here we have 12 unoccupied  
23          raptor nests other than eagle nests and we have 8  
24          occupied non-eagle raptor nests, correct?

25          A.    Yes. We have got 8 occupied active

1       nests, 12 unoccupied unknown.

2               Q.    Now, let's go to page 6 of your  
3       testimony. And I would like to direct you to the  
4       bullet point paragraph that has the date of May 6,  
5       2011, Spring 2011, on it.

6               A.    Line 24?

7               Q.    Yes, sir. And this paragraph discusses  
8       the results of another raptor test -- or another  
9       raptor survey included in the Application, correct?

10              A.    Yes.

11              Q.    Now, let's go to page 7 under the same  
12       date. Going to the first full paragraph on that  
13       page, I would like to direct your attention to the  
14       second sentence which states: "Seven active  
15       red-tailed hawk nests and nine inactive, unknown  
16       species raptor nests were found within the 2011  
17       Project area." Do you see that sentence?

18              A.    Yes, the very last sentence of that  
19       statement.

20              Q.    So that survey found that 9 out of 16  
21       non-eagle raptor nests were inactive at that time.  
22       I'm talking about just in the project area as  
23       discussed by this second sentence of that paragraph.

24              A.    Right. Yes, that's correct.

25              Q.    And then the third sentence of that

1 paragraph states that "Seven active red-tailed hawk  
2 nests, and six inactive unknown species raptor nests  
3 were found within one mile of the 2011 Project area,"  
4 correct?

5 A. Correct.

6 Q. So there at that location there were 6  
7 out of 13 nests were not occupied at the time,  
8 correct?

9 A. Well, within the project it was 7 out of  
10 16. Outside the project it was 7 out of 13 were  
11 active.

12 Q. Let's go to page 10 of your testimony. I  
13 would like to direct your attention to the largest  
14 paragraph which is in the middle of the page and  
15 specifically let's look at the second-to-the-last  
16 sentence of that paragraph which discusses tundra  
17 swans.

18 A. I see that.

19 Q. All right. It states there that "100  
20 tundra swans were recorded on one occasion during the  
21 spring, and likely occurred in the Project  
22 periodically during the spring migration period." Do  
23 you see that sentence?

24 A. I do.

25 Q. Have you done any investigation to

1 determine whether tundra swans are present in the  
2 project area at times of the year other than spring?

3 A. We have. There were a couple of  
4 year-long surveys in which tundra swans were observed  
5 during winter. So they are certainly migrant but  
6 they also occur here during migration -- or during  
7 winter.

8 Q. Uh-huh. Were the report -- were the  
9 results of the winter survey included in the  
10 Application?

11 A. They're included in my testimony. I'm  
12 not sure if they are included in the Application or  
13 not. I can go back through and check if you would  
14 like.

15 Q. Yeah. Well, let's first ask a few  
16 introductory questions to see where you might find  
17 that information in the Application. During what  
18 year or years were those winter surveys conducted?

19 A. You have to give me a second to look that  
20 up. 2018 and 2019.

21 Q. And can you identify the report in which  
22 the results of these winter surveys were contained?

23 A. There is a report that was cited in my  
24 testimony and I believe it's included as an  
25 attachment in Chris Farmer's testimony that describes

1 those February 2018 to April 23, 2019, surveys.

2 Q. Okay. Would you give me the dates of  
3 those surveys again, please.

4 A. Yeah. My testimony says surveys were  
5 completed February 8, 2018 to April 23, 2019 -- 2019.

6 Q. And where do you see that in your  
7 testimony?

8 A. It's Question 9, line 13.

9 Q. What page of the testimony?

10 A. Page 18.

11 Q. So going to page 18 of the testimony,  
12 Answer 9, it appears that the surveys that you have  
13 been referring to were surveys for large birds and  
14 eagles, correct?

15 A. Correct.

16 Q. Did Firelands do any winter surveys for  
17 other types of birds?

18 A. Firelands did, I believe, some passerine  
19 migration and bird surveys.

20 Q. They didn't do those during the winter,  
21 did they?

22 A. No. I'm sorry I didn't know -- I thought  
23 you were referring in general.

24 Q. No. My question was, has Firelands  
25 conducted any bird surveys during the winter for

1 species other than the large birds and eagles that  
2 were surveyed and described in Answer 9 of your  
3 testimony.

4 A. So your question is did they do any --  
5 any surveys, other than large bird or raptor surveys,  
6 did Firelands, in winter.

7 Q. During the winter, yes.

8 A. Are you referring to the previous surveys  
9 by other consultants or are you referring to  
10 more-recent surveys we did within the current  
11 boundary which did include Firelands?

12 Q. I'm -- I'm asking about any surveys that  
13 were included in the Application regardless of which  
14 consultants did them.

15 A. I believe Firelands did complete some  
16 year-long surveys for eagles that did include the  
17 winter. I think that's part of Chris Farmer's  
18 testimony.

19 Q. Yeah. Well, my question was whether --  
20 whether, other than the large birds and eagles that  
21 were surveyed during the winter as stated in Answer 9  
22 in your testimony, were there any surveys done of  
23 other bird species during the winter?

24 A. Yes. Well, the owl surveys were part of  
25 the breeding season; they were probably on the edge

1 of winter. Otherwise, no, I'm not aware of any.

2 Q. With respect to the owls that were  
3 surveyed for this project, the species that were  
4 surveyed were limited to just three species of owls,  
5 correct?

6 A. Yes. That's all the ODNR requested  
7 surveys for.

8 Q. And those surveys were done for the  
9 screech owl, correct?

10 A. Yes.

11 Q. And the great-horned owl?

12 A. Correct.

13 Q. And the barn owl?

14 A. Correct.

15 Q. Now, are you aware that there are other  
16 species of owls present in this area of Ohio besides  
17 those three species during the winter?

18 MR. SECREST: Objection, vague as to  
19 "area of Ohio."

20 MR. VAN KLEY: Oh, I can rephrase it.

21 ALJ WILLIAMS: Thank you.

22 Q. (By Mr. Van Kley) Are you aware there are  
23 other species of owls present in the counties in --  
24 in which the project area is located, besides the  
25 three species of owls that were surveyed?

1           A.    Yeah, I would expect northern saw-whet  
2           potentially to be present. I wouldn't be surprised  
3           if there are records in the project.

4           Q.    What about short-eared owls, would you  
5           expect those to be present in that area?

6           A.    Short-eared and snowy could occur  
7           irregularly during the winter. I suppose you could  
8           rarely have observations of something like northern  
9           hawk-owl. Those are three others that could be  
10          present.

11          Q.    Would you expect the long-eared owl to be  
12          present?

13          A.    Yeah, that one could potentially be  
14          present.

15          Q.    But there were no surveys done during the  
16          winter to try to find the owls that might be present  
17          in the project area other than the three species that  
18          you've already indicated were surveyed, correct?

19          A.    That's right. There were no targeted owl  
20          surveys. Now, we did do general large bird surveys  
21          so if one of those species was flying during the day,  
22          we would have seen it if it occurred in our point  
23          counts during the time we did surveys, but no  
24          targeted owl surveys.

25          Q.    Uh-huh. During those large bird surveys

1 that were conducted during the winter, was there any  
2 efforts made to specifically look for owls that were  
3 visiting from up north?

4 A. That's one of the general purposes of the  
5 general large bird survey is to get a sample of the  
6 use of all large birds flying during the day. So  
7 something like a snowy owl would certainly be  
8 visible. Short-eared owl less so. They're probably  
9 more active in the very late, early morning periods.

10 Q. And the northern -- or the saw-whet owl  
11 doesn't usually fly during the daytime, does it?

12 A. Correct.

13 Q. And the long-eared owl doesn't usually  
14 fly during the daytime?

15 A. Yeah, you're right, usually not.

16 Q. Are you aware that there are species of  
17 passerines that may be present in the project area  
18 during the winter that would not be found there  
19 during the other seasons of the year?

20 A. Certainly there could be -- there are a  
21 few species that come down in winter, yes.

22 Q. It's more than a few species, isn't it?

23 A. Yeah. I don't have the number off the  
24 top of my head but there's a few that come to mind.

25 Q. Isn't it common for some species of birds

1 that breed in Canada to then migrate to Northern Ohio  
2 during the wintertime?

3 A. Yeah, certainly some of those species do.

4 Q. For example, some species of finches will  
5 come down to Northern Ohio from Canada during the  
6 winter?

7 A. Yes, that's correct.

8 Q. Let's go to page 11 of your testimony.  
9 Actually we'll start on page 9 to set the context of  
10 these questions. And I would like to direct your  
11 attention to the bullet point before the July 20,  
12 2012, Avian Survey Report, prepared by Tetra Tech.

13 A. I see that.

14 Q. Okay. Now, let's go to page 11. On the  
15 top of the page, the paragraph starting with the word  
16 "Twelve." That paragraph contains information from  
17 the July 20, 2012, Avian Survey Report by Tetra Tech,  
18 correct?

19 A. Yes.

20 Q. I would like to direct your attention to  
21 the last two sentences of that paragraph which states  
22 as follows: "The authors concluded that the project  
23 does not appear to be of great importance to special  
24 status or migratory birds. The Project does receive  
25 use by migrant -- migrating and nesting birds; I

1 agree with the conclusion that the Project does not  
2 appear to be located in a concentrated migration  
3 corridor based on the survey results." Do you see  
4 those two sentences of your testimony?

5 A. I do.

6 Q. Okay. Would you go to this Tetra Tech  
7 report in the Application because I have a few  
8 questions about it.

9 A. Okay. Exhibit S?

10 Q. Yes. It should be in Exhibit S. For  
11 those of you who are using an online version of  
12 Exhibit S, you will find this report starting at PDF  
13 page 186.

14 ALJ WILLIAMS: Mr. Van Kley, I'm sorry.  
15 I have got S1, 2, 3, and 4. S4 for the 2011 --  
16 July 20, 2012, Tetra Tech report?

17 MR. VAN KLEY: Yes. It's the July 20,  
18 2012.

19 ALJ WILLIAMS: Okay. Report to Jennifer  
20 Norris of ODNR. It's S4 in whatever I just opened  
21 electronically.

22 THE WITNESS: Yeah, I have that now.

23 Q. (By Mr. Van Kley) Mr. Good, have you  
24 found that report in your packet?

25 A. Yes, I have it now.

1           Q.    Okay.  Great.  All right.  Can you point  
2           out to me where in this report you found the  
3           conclusion that the project does not appear to be  
4           located in a concentrated migration corridor based on  
5           the survey reports?

6           A.    They referred to migration when they  
7           address raptor -- raptor migration rates during the  
8           raptor migration surveys.  And then they refer to  
9           areas of -- what was the term -- of great importance  
10          to special status or migratory birds.  I don't see  
11          the term "concentrated migration corridor" in here.  
12          I believe that might be my term.

13          Q.    Yeah.  All right.  Well, let's start with  
14          your observation about what the report states about  
15          raptor migration.  Where do you find that information  
16          in the Tetra Tech report?

17          A.    Well, let's see here, I'll find the page  
18          for you.  If you go to section 4.2, page 13.  They  
19          describe the Diurnal Raptor and Bird Migration  
20          Survey.

21                  ALJ WILLIAMS:  That's 5.2, correct?

22                  THE WITNESS:  Page 13, section 4.2 is  
23          where -- it begins with the survey results.

24                  ALJ WILLIAMS:  All right.  Thank you.

25          Q.    Which language in section 4.2 of the

1 Tetra Tech report provide you with any information  
2 concerning your conclusion that the project does not  
3 appear to be located in a concentrated migration  
4 corridor?

5 A. Section 4.2.3 describes encounter rates  
6 and raptor species abundance.

7 Section 4.2.4 describes the raptor  
8 species encounter rates. Those encounter rates are  
9 quite low compared to the number of raptors typically  
10 observed at well-known hawk migration count stations  
11 which are located in concentrated migratory  
12 corridors.

13 Q. With respect to bird species other than  
14 the raptors, what, if any, information were you  
15 relying on from the Tetra Tech report of July 2012 to  
16 form your conclusion that the project does not appear  
17 to be located in a concentrated migration corridor?

18 A. So the Greater Sandhill Crane Migration  
19 Survey is another one that was focused on sandhill  
20 crane and the observed sandhill crane use.

21 And if you -- the other section, 4.2.7,  
22 where they address other large birds.

23 Q. Did you rely on any other information  
24 from the Tetra Tech report to make your conclusion  
25 that the project does not appear to be located in a

1 concentration -- in a concentrated migration  
2 corridor?

3 A. Those are the main areas where we -- I  
4 reviewed and came to the same conclusion the authors  
5 did.

6 Q. So the information that you relied on for  
7 the conclusion was limited to the survey on large  
8 birds or surveys on large birds.

9 MR. SECREST: Objection to the extent it  
10 mischaracterizes his testimony.

11 ALJ WILLIAMS: Sustain the objection. If  
12 you could please rephrase.

13 MR. VAN KLEY: I am asking him whether  
14 that is true or not. I am not characterizing his  
15 testimony.

16 THE WITNESS: Am I supposed to answer  
17 that one?

18 MR. VAN KLEY: Yes.

19 ALJ WILLIAMS: Can we have the question  
20 reread?

21 THE WITNESS: Can you repeat the  
22 question, please?

23 MR. VAN KLEY: Yeah. I can repeat the  
24 question.

25 Q. (By Mr. Van Kley) So the information that

1       you used -- that you relied on for your conclusion  
2       that the project does not appear to be located in a  
3       concentrated migration corridor was limited to  
4       information that you had about large birds.

5           A.     That's correct. Yeah, yes, that's  
6       correct. If you are just referring to this report,  
7       yes. Now, if you are talking about the overall  
8       conclusion for the risk assessment for the entire  
9       project, that's a different question.

10          Q.     Let's go to page 5 of this report. That  
11       is the Tetra Tech report that we've been discussing.

12          A.     Yeah. Go ahead.

13          Q.     All right. I would like to refer you to  
14       section 3.2 which is entitled "Diurnal Raptor & Bird  
15       Migration Survey."

16          A.     Yes, I see that.

17          Q.     All right. Now, this pair -- this  
18       section identifies the dates in which the Diurnal  
19       Raptor and Bird Migration Survey was performed as  
20       reflected in the first paragraph under the heading or  
21       section 3.2, correct?

22          A.     If your question is does this paragraph  
23       describe when the survey was completed, it does.

24          Q.     Yes. Thank you. The survey was  
25       performed from March 15 to April 28, 2011, and from

1 September 1 to October 28, 2011, correct?

2 A. Yes, that's correct.

3 Q. There were no days of that survey that  
4 were performed in May of the year?

5 A. Not according to this paragraph. For  
6 that survey.

7 Q. Yeah. Are you aware of any other  
8 information in the Tetra Tech report that we're  
9 looking at that indicates that any surveys were done  
10 for the purpose of evaluating bird migration during  
11 May of any year?

12 A. Not in this report. I believe they did  
13 some breeding bird surveys. They did refer to some  
14 bald eagle specific surveys that would have included  
15 May. But those results aren't presented here.

16 Q. In the area of Ohio in which the project  
17 is located, what is the peak time of migration for  
18 passerines? Meaning you would expect to find the  
19 most species of passerines.

20 A. Is that related to this large bird  
21 question or were you on a separate line here?

22 Q. No, it's not related to large birds. Let  
23 me reask the question.

24 You are aware, are you not, that  
25 passerines -- that many passerines migrate through

1 the counties in which the project area is located  
2 during the month of May?

3 A. Yes.

4 Q. And, in fact, during May is the time  
5 period in which there are more species of passerines  
6 migrating through that area than any other time of  
7 the spring?

8 A. There is a large number that come through  
9 in May. You know, again, if you are referring to  
10 this diurnal raptor survey, that was targeted at a  
11 different group of birds that are largely done by  
12 May. So I don't know -- are you referring to this or  
13 just in general passerine migration rates?

14 Q. Well, I'm referring to what is  
15 characterized in section 3.2 as the "bird migration  
16 survey efforts."

17 A. Right. Okay. So in 3.2, the Diurnal  
18 Raptor and Bird Migration Survey, that is a survey  
19 targeted largely for raptors which have a different  
20 migration period generally than passerines.

21 Q. Just to make sure that the record  
22 contains this information, let me ask you to provide  
23 us with a definition of what a passerine is.

24 A. A passerine is a small, generally  
25 considered a small songbird. It does include a wide

1 variety of species.

2 Q. It includes the family of birds known as  
3 the wood warblers?

4 A. Yes.

5 Q. Are you aware of the reputation of Erie  
6 County for the presence of wood warblers during the  
7 spring migration?

8 A. I am aware of -- yeah, I am aware that  
9 the shoreline along Lake Erie is a well-known  
10 bird-watching area where a large number of migrating  
11 songbirds will concentrate at times or migrate around  
12 the lake or concentrate before they cross the lake.

13 Q. Are you aware of what counties those  
14 areas are found in?

15 A. I would say the entire lake shore of Lake  
16 Erie is a good spot to go watch warblers if you want  
17 to watch.

18 Q. And that includes areas in Erie County?

19 A. Certainly, yeah.

20 Q. Have you heard of a wildlife area known  
21 as Marsh?

22 A. I have heard of Magee Marsh.

23 Q. Have you --

24 ALJ WILLIAMS: I'm sorry. We are  
25 breaking up a little bit on the question. Is it wet

1 marsh?

2 MR. VAN KLEY: Magee, M-a-g-e-e.

3 ALJ WILLIAMS: Thank you. I wanted to  
4 make sure that was on the record.

5 Q. Have you ever visited Magee Marsh?

6 A. I have not.

7 Q. Are you aware of the reputation of Magee  
8 Marsh in bird-watching circles?

9 A. I am aware of it, yes.

10 Q. And what have you heard about it?

11 A. Like I said previously, it's a -- it's a  
12 spot where a lot of bird watchers go. They can watch  
13 migrating songbirds, passerines, that are stopping  
14 over. It's a place for them to get their eyes on  
15 them pretty easily. It sounds like it is a pretty  
16 neat experience.

17 Q. Do you know how -- what the distance  
18 between Magee Marsh and the closest part of the  
19 project area is?

20 A. Oh, I want to say it's 10 to 20 miles.  
21 It might be further. I think it's over 10. I think  
22 it's 15 to 20 plus.

23 Q. How long does it take a passerine to fly  
24 15 to 20 miles?

25 A. That depends on wind speeds. 15 to

1 20 miles. Oh, if they are flying 5 to 15 miles an  
2 hour, you know, it could take an hour at the  
3 quickest.

4 Q. Let's talk a little bit more about  
5 migration for passerines. During the migration  
6 periods of the year, do passerines fly through a  
7 particular area of migration on a steady basis or  
8 does migration usually occur in spurts or pulses?

9 A. I would say generally for -- are you  
10 referring to passerines?

11 Q. Yes.

12 A. Pulses.

13 Q. And what is a pulse?

14 A. A pulse is a time period when conditions  
15 are favorable and a larger number of passerines will  
16 migrate.

17 Q. During a typical migration period, how  
18 many pulses of passerines would you expect to occur?

19 A. Good question. Roughly, you know, it  
20 will depend on the year and the weather conditions.  
21 You know, if you have got a long spate of bad weather  
22 that's holding up birds, it could occur in a few  
23 pulses. If you have got more favorable conditions of  
24 the year, it will occur more frequently.

25 Off-the-cuff, 20 percent of the days, 25, but, again,

1       that's quite variable.

2               Q.     So if a -- if bird surveys during the  
3       migration period are not conducted during any of the  
4       pulses, then those surveys wouldn't list the majority  
5       of the passerines going through the surveyed area,  
6       correct?

7               A.     Correct.

8               Q.     With respect to the migratory bird  
9       surveys for passerines contained in the  
10      Application -- were those surveys conducted  
11      continuously through the migration period or were  
12      they less than continuous?

13              THE COURT REPORTER:   Mr. Van Kley.  
14      Mr. Van Kley.  Wait, wait.  Wait.

15              ALJ WILLIAMS:   Hold on a second.

16              THE COURT REPORTER:   Mr. Van Kley, I  
17      didn't --

18              ALJ WILLIAMS:   Ms. Gibson, I think you  
19      lost part of the question?

20              THE COURT REPORTER:   Yes.

21              ALJ WILLIAMS:   Mr. Van Kley, would you  
22      reask it?

23              MR. VAN KLEY:   Sure.

24              ALJ WILLIAMS:   While you are searching  
25      for it, Mr. Van Kley, there is a little bit of a lag

1 in the pickup when you start to ask questions when it  
2 transitions back from the witness to you, so I don't  
3 know, it's fine, it's very workable, but just so you  
4 know that when we missed "Magee Marsh" there was like  
5 a half-second lag in the microphone going back to  
6 you.

7 Q. (By Mr. Van Kley) With respect to the  
8 migratory bird surveys for passerines contained in  
9 the Application for Emerson Creek wind, were those  
10 surveys conducted for the entirety of the migration  
11 season or were they conducted for less than  
12 100 percent of the migration season?

13 A. So the survey period does cover the vast  
14 majority of the migration period. Within that  
15 migration period, the protocol is to sample days  
16 which are prescribed as once weekly.

17 Q. So if I'm understanding your answer  
18 correctly, the surveys were done once per week during  
19 the migratory bird season for passerines?

20 A. Correct. It is a common technique in the  
21 wildlife field to sample and so many times you don't  
22 survey every single day a certain species could be  
23 present. So the ODNR protocol, like virtually every  
24 wildlife protocol out there, is set up to sample a  
25 portion of those days when those species are present.

1           Q.    And during the day of the week in which  
2 the passerine migration was surveyed, how much of  
3 that day was used for the surveys?

4           A.    So the protocol is set up to sample birds  
5 during the day for 10 minutes at each point that are  
6 surveyed once per week and they're designed to sample  
7 those birds that are stopping over and obtain a  
8 relative estimate of species-use of those birds that  
9 are stopping over.

10          Q.    And during how many hours of that day was  
11 the survey conducted?

12          A.    You were cutting out there again.

13               MR. VAN KLEY:  Yeah.  There is a noise  
14 that -- that I am hearing continually through these  
15 discussions which I think may be causing the problem.  
16 It's kind of a scraping noise, it sounds like --

17               ALJ WILLIAMS:  It sounds like that right  
18 there.  Like jet engines.  Yeah, I mean, it seems to  
19 correlate with the microphone transfer as you begin  
20 to ask the next question.  It bleeds through a little  
21 bit.  I'm certainly by no means an IT expert being  
22 able to diagnose or repair.  It's very workable  
23 absent the transitions but we can certainly try to  
24 work through logging on, re-logging on, or taking a  
25 break if you would like, Mr. Van Kley, but it appears

1 to be really limited to when you start to ask the  
2 next question.

3 MR. VAN KLEY: Yeah. I was noticing it  
4 yesterday at other times as well. And I was not  
5 talking and other people were talking and sometimes  
6 even when nobody was talking.

7 ALJ WILLIAMS: Yeah, I'm not sure.  
8 Again, the Bench is certainly able to follow along.  
9 We've been running lockstep with the questions and  
10 answers. If we want to try to have the witness and  
11 yourself log off and re-log back on during the break,  
12 we can try that.

13 MR. VAN KLEY: Yeah. I don't think  
14 that's going to make any difference, but let's just  
15 proceed.

16 ALJ WILLIAMS: Thank you, sir.

17 Q. (By Mr. Van Kley) Yeah, I think where I  
18 was at was asking you during how -- to tell me how  
19 many hours a day that the passerine bird migration  
20 survey was performed during the days that it was  
21 performed.

22 ALJ WILLIAMS: I'm sorry. I have lost  
23 all volume. I'm sorry. Heather, are we still -- I  
24 see lips moving but I cannot hear anything right now.

25 MS. CHILCOTE: Mike, I can hear you okay.

1 Can you hear me at all?

2 ALJ AGRANOFF: I can hear both of you.

3 ALJ WILLIAMS: You can hear? I've lost.  
4 Please hold while I try to figure out why I'm not --  
5 do you want to try to demote and re-elevate me?

6 MR. VAN KLEY: I just heard that scraping  
7 noise again too.

8 ALJ WILLIAMS: Jay, you still hear them?

9 ALJ AGRANOFF: Yeah. I'm good.

10 ALJ WILLIAMS: Heather, can they hear me?  
11 Can they hear me through their microphones?

12 ALJ AGRANOFF: Yes, I do.

13 ALJ WILLIAMS: Heather, you are on mute  
14 still. Can you hear me?

15 MS. CHILCOTE: I can hear you, Mike. Can  
16 you hear me? You can't hear me. Jay, can you let  
17 him know I am coming down to check his settings.

18 ALJ WILLIAMS: Okay. Why don't we take a  
19 10-minute break.

20 ALJ AGRANOFF: Thank you. Why don't we  
21 take a 10-minute break and see whether or not we can  
22 resolve Judge Williams's technical difficulties and  
23 it's probably a decent breaking point anyway so.  
24 We'll come back at about 10:40, 10:45. Thank you.

25 (Recess taken.)

1 ALJ WILLIAMS: Let's go back on the  
2 record.

3 MR. VAN KLEY: All right. Mr. Good, can  
4 you hear me okay now?

5 THE WITNESS: Yes, I got you.

6 ALJ WILLIAMS: A lot of echo.

7 Q. (By Mr. Van Kley) Let's go back to our  
8 discussion about the raptor nests and pick up a loose  
9 end there before I resume my discussion about  
10 passerine migration.

11 We had been talking about a number of  
12 unoccupied non-eagle raptor nests during our  
13 discussion with you this morning and I wanted to ask  
14 you to explain the significance of the term  
15 "unoccupied" as used in the reports concerning the  
16 raptor nests.

17 A. Can you tell me more about what you mean  
18 by significance of that? Are you referring to the  
19 significance to the risk assessment or are you  
20 referring to the significance of -- what the  
21 definition is? Can you tell me more about that?

22 Q. I'm simply asking you what the definition  
23 is.

24 A. Okay. Yeah. So the definition of an  
25 unoccupied nest is there were no birds on the nest or

1 we didn't observe any other signs of activity during  
2 the survey such as like, you know, the nest didn't  
3 look like it had been well maintained. There was no  
4 birds in the vicinity. There was no decoration on  
5 the nest.

6 Q. Does the fact that a nest was unoccupied  
7 at the time the survey was done mean that the nest  
8 would no longer be used in the future?

9 A. If your definition of "future" is future  
10 years, no. Certainly nests could be occupied in the  
11 future or become unoccupied in the future. They will  
12 reuse nests from previous years.

13 Q. All right. So let's resume our  
14 discussion about passerine migration. If I recall,  
15 the question that was on the table when we took our  
16 break was this: Can you tell me the number of hours  
17 during the day that the passerine migration surveys  
18 were conducted on the day -- on the one day per week  
19 that those surveys occurred?

20 A. So that would depend on the number of  
21 counts or surveys that day given that we have got a  
22 four-hour window. If you do 3 points per hour, 2 or  
23 3 points per hour, 12, up to 10, 12 points at the  
24 maximum per day. 12 times 10 is 120 minutes so  
25 that's two hours max. That's on a single day.

1 I was -- I was curious so I went back and  
2 reviewed all of the survey work that had been done  
3 and tallied up the total number of hours across all  
4 the surveys, you know, this is not just passerines  
5 but all the breeding bird, all of the large bird, all  
6 of the passerine surveys, and the totals of hours for  
7 all of that effort was, I was impressed, it was over  
8 2,300 hours, over 2,300 hours of survey effort that  
9 went into the Application.

10 Q. And that includes surveys of every type  
11 of bird that was surveyed in the reports included in  
12 the Application.

13 A. Yeah, that's inclusive of all types of  
14 surveys; that's not just passerine. All types of  
15 surveys except the eagle nests.

16 Q. So with respect to the surveys of  
17 passerine migration, those surveys were conducted  
18 during no more than 120 minutes per day on the one  
19 day per week of the migratory period covered by the  
20 surveys.

21 A. No. That's the max that it could be  
22 surveyed in a day by a single observer. So the total  
23 number of hours in a week would depend on the number  
24 of surveys and so I believe there were upwards of  
25 50-some points that were surveyed in different years

1 so it depends on the number of points surveyed in a  
2 given year.

3 THE COURT REPORTER: I don't know why but  
4 Mr. Good is cutting out. He's cutting in and out.

5 ALJ WILLIAMS: I'm hearing that as well,  
6 Ms. Gibson.

7 If you could amplify your microphone or  
8 talk more directly into it.

9 THE WITNESS: Is this better if I scoot  
10 closer to the microphone?

11 ALJ WILLIAMS: It seems to be, yes.

12 THE WITNESS: Okay. Well, if you don't  
13 mind a very close facial view for the next hour and a  
14 half, I will scoot closer.

15 ALJ WILLIAMS: Okay.

16 Q. (By Mr. Van Kley) The majority of  
17 passerine birds migrate during the night; is that  
18 correct?

19 A. Yes. For most species, yes.

20 Q. There were no bird surveys conducted at  
21 night for passerine migration; is that correct?

22 A. Correct. Yeah. So, you know, this  
23 project falls within an area the ODNR felt was low  
24 enough risk that it didn't merit nocturnal surveys  
25 for migrating passerines. The ODNR has gone to great

1 effort to map areas in this state they feel are  
2 higher survey effort areas. This project falls  
3 outside of that area; therefore, the Fish and  
4 Wildlife Service, the ODNR, and the various  
5 consultants that have been involved didn't conduct  
6 any nocturnal surveys because of that low -- lower  
7 risk determination.

8 Q. And what was the -- that determination of  
9 lower risk based on?

10 A. So the ODNR, I believe, has, you know,  
11 mapped -- yeah, they use their collective knowledge  
12 to map areas they feel like were potentially higher  
13 risk. I think a lot of it factored into was based on  
14 presence of topography, water -- things like the lake  
15 shore, forest underpinning corridors, presence of  
16 species records. There's a number of different  
17 factors ODNR used to map that effort.

18 Q. Are you familiar with the term "stopover"  
19 as related to bird migration?

20 A. Yes, I am.

21 Q. Okay. And how would you define that  
22 term?

23 A. It's a -- stopover is a term used to  
24 describe when a bird stops migrating, descends an  
25 elevation, you know, feeds or rests the habitat on

1 the ground.

2 Q. Uh-huh. To put it simply, it means the  
3 bird stops flying, comes to the ground, and feeds and  
4 rests, right?

5 A. That's correct.

6 Q. And is there any tendency by migrating  
7 birds to stop over in a particular type of habitat?

8 MR. SECREST: Objection, vague. Birds in  
9 general?

10 MR. VAN KLEY: Yes.

11 ALJ WILLIAMS: I'll let him answer.

12 A. Well, it depends on the species, so are  
13 there certain species you are interested in knowing  
14 more about? Are you referring to passerines?

15 Q. Well, we can break it down and talk about  
16 passerines. Is there a particular type of habitat  
17 that a passerine is more likely to use in a stopover?

18 A. Yeah, the ODNR guidance did address this,  
19 and so they recommend we survey forested areas or  
20 shrubbery areas, areas with woody structure basically  
21 for -- for -- to measure stopover use by migrating  
22 passerines.

23 Q. And relatively speaking, how much of the  
24 project area contains habitats or contains habitat  
25 features that are more than likely to be used by

1 passerines for stopovers?

2 A. I would -- well, based on turbine  
3 location, zero, so all turbines will be located  
4 outside of a forest, but I am assuming you are  
5 referring to kind of the official project boundary  
6 that was submitted as part of the Application, and I  
7 believe the forest covers roughly 7 percent in that  
8 boundary.

9 Q. Uh-huh. All right. So given -- given  
10 the amount of habitat conducive for stopover by  
11 passerines, would you expect most of the passerines  
12 to fly over the project area instead of using it for  
13 a stopover?

14 A. No. I mean, certainly it depends on the  
15 time of night where that bird is in its migration.  
16 If it's over the project and the sun is coming up,  
17 it's going to try and find suitable stopover habitat  
18 in the project area. So, yeah, it depends on the  
19 time when that bird -- whenever the sun is coming up.

20 Q. Uh-huh. If the bird is flying during the  
21 night before the sun is coming up, is it more likely  
22 to fly through the project area instead of stopping  
23 over in the project area?

24 A. So I think you are asking -- could you  
25 repeat that question? I'm sorry, I didn't quite

1 follow you there.

2 Q. If a passerine is flying through the  
3 project area at night before the sun starts to arise,  
4 is it more likely to keep flying, rather than  
5 stopping in the project area?

6 A. Correct.

7 Q. How far do passerines typically fly  
8 between stopovers?

9 A. You know, it depends on wind speed and  
10 where they are at as far as their migration occurs.  
11 I don't know the exact number off the top of my head.  
12 I would guess it's, you know, if they are flying 15  
13 to 20 miles an hour and you've got, you know, four to  
14 five hours, or seven or eight hours, again, it could  
15 be 20, it could be a hundred miles. It really  
16 depends on the species. It depends on the wind  
17 direction, the wind speed. They will fly even  
18 further, you know, if they are crossing large bodies  
19 of water.

20 Q. A stopover can occur sooner if the bird  
21 is flying during bad weather than otherwise would  
22 occur during nice weather?

23 A. Yes. During certain unfavorable  
24 conditions, birds will choose not to migrate.

25 Q. Would you agree that the majority of bird

1 fatalities are nocturnal migrants? That is -- let me  
2 start over. I didn't ask that very well.

3 Would you agree that the majority of bird  
4 fatalities from collisions with wind turbines are  
5 nocturnal migrants?

6 A. Yeah, I believe most studies have  
7 documented that. I would say over half of the  
8 species and mortalities of the birds that you find  
9 are likely migrants.

10 Q. Let's go back to your testimony which was  
11 identified as Applicant Exhibit 32. I would like --  
12 okay. I would like you to go to page 18. And we are  
13 going to look at the last paragraph on that page.

14 A. I have that.

15 Q. All right. I would like to refer you to  
16 the second-to-the-last sentence on that page which  
17 reads: "Raptor use was low relative to many  
18 wind-energy facilities." Do you see that sentence?

19 A. I do see that sentence.

20 Q. Can you tell us the number of other  
21 wind-energy facilities you reviewed for the purpose  
22 of making this statement?

23 A. I can bring up that report if you would  
24 like a very specific number. It will take me a few  
25 minutes.

1           Q.    Why don't you give me a general number  
2 first and then we can decide whether we want  
3 specifics.

4           A.    I believe -- I would guess there's  
5 over -- across the nation, I believe that graph  
6 probably has over 20 to 30 plus facilities in that  
7 graph.

8           Q.    Okay. And can you tell me how many of  
9 those facilities have raptor use that was higher than  
10 the figure you are using for Emerson Creek wind?

11          A.    I will need to pull up that report to  
12 give you a very specific number, but I can say that  
13 compared to facilities across the nation, most  
14 facilities have low -- or higher raptor rates of use,  
15 especially those facilities in the western U.S. where  
16 raptor mortality is highest, you know, the raptor use  
17 recorded at the site was quite -- quite lower than  
18 those facilities that had higher mortality.

19          Q.    Why don't we go to that report and take a  
20 look. If you could tell us where -- where to find  
21 that report, I would appreciate it.

22               MR. SECREST: Your Honor, may I hand the  
23 witness a copy of Dr. Farmer's testimony?

24               ALJ WILLIAMS: Yes, please.

25               MR. SECREST: Thank you.

1 THE WITNESS: Okay. I have that report  
2 up.

3 ALJ WILLIAMS: Can you list which  
4 attachment you are looking at?

5 THE WITNESS: Attachment CF-4 of Chris  
6 Farmer's testimony.

7 ALJ WILLIAMS: So I've got the  
8 electronic. It's on page 56 of 116; is that correct?

9 THE WITNESS: I don't have the PDF in  
10 front of me. I can't answer that one.

11 ALJ WILLIAMS: I'm reasonably confident  
12 it's Attachment CF-4 to Mr. Farmer's testimony.

13 THE WITNESS: The report is dated  
14 April 3. It covers the survey period I referenced.

15 ALJ WILLIAMS: Okay. Attorney Van Kley.

16 Q. (By Mr. Van Kley) All right. Mr. Good, I  
17 have that in front of me. Could you point out where  
18 in that document we can find the information about  
19 raptor use at other wind projects that we've been  
20 discussing?

21 A. Yes. Give me a minute.

22 Yeah, 48 other publicly-available wind  
23 energy facilities compared to this one.

24 Q. Okay. Do you find that in the report?

25 A. See page 15.

1 ALJ WILLIAMS: So we are on PDF page 78  
2 of 116.

3 Q. All right. I believe I see the reference  
4 that you have identified. That would be contained in  
5 the second paragraph under the heading "Diurnal  
6 Raptors" on page 15 of the report.

7 A. That's correct. And you can find it in  
8 graphical form in Appendix D.

9 ALJ WILLIAMS: Appendix D?

10 THE WITNESS: Yeah, D as in dog.

11 ALJ WILLIAMS: Okay.

12 Q. (By Mr. Van Kley) All right. Let's go to  
13 that appendix then. And it looks like that appendix  
14 starts on PDF page 103.

15 ALJ WILLIAMS: Got it. Thank you.

16 MR. VAN KLEY: I don't see a report page  
17 number there.

18 THE WITNESS: That's right. It doesn't  
19 have a report page number.

20 Q. (By Mr. Van Kley) All right. So  
21 Appendix D is a graphic portrayal of the other wind  
22 farms that you consulted in order to come up with the  
23 statement that raptor use was low in the Emerson  
24 Creek wind project area compared to many other wind  
25 energy facilities, correct?

1           A.    Yes, that's correct.

2           Q.    Do you know approximately how many wind  
3 farms exist in the United States?

4           A.    I would guess over 300, but I don't  
5 know -- I don't know the exact number.

6           Q.    If there were 300 wind farms --

7           A.    So this is a graph of the publicly  
8 available -- all of the publicly-available data we  
9 can get our hands on are the actual pre-construction  
10 use estimates and so many of the midwestern and  
11 eastern facilities, while that data hasn't -- isn't  
12 available publicly, and I think one of the main  
13 reasons is initially there was a large focus on  
14 raptor mortality, much of that occurred in the  
15 western U.S.

16                As, you know, as researchers and others  
17 started looking at raptor fatalities in the midwest  
18 and east, those fatalities rates are very low so most  
19 people stopped reporting them because, you know, most  
20 of the fatality rates are very low in the midwest and  
21 eastern U.S.

22                But the interesting part you can see when  
23 you look at this graph, those facilities with the  
24 highest raptor fatality rates are generally here on  
25 the far left here, High Winds, Diablo, Altamont Pass,

1 and many of those western projects out west, they  
2 have much higher raptor fatality rates than projects  
3 in the midwest and eastern U.S. So from that  
4 perspective we can look at this figure and say all  
5 right, compared to those facilities where we know  
6 raptor mortality rates are very high, our use rate  
7 here was very low.

8 Q. So the raptor fatality rates -- let me  
9 start over.

10 So the raptor mortality rates for wind  
11 farms that have the lower such rates are less likely  
12 to be reported publicly.

13 A. I think we are -- what was happening was  
14 those, you know, a lot of those researchers stopped  
15 putting those estimates in the post-construction  
16 monitoring reports because it became -- it wasn't a  
17 focus. It's not a real issue for the midwest or  
18 eastern U.S. Raptor mortality rates are just  
19 generally low, so most researchers stopped really  
20 focusing on that question.

21 Q. Let's go to page 24 of your written  
22 testimony identified as Applicant's Exhibit 32. And  
23 we are going to talk about bats for a little while.  
24 With regard to page 24 of your written testimony, I  
25 would like to refer you to the sentence starting at

1 line 9. And that sentence reads as follows:  
2 "Mortalities of all of these species have been  
3 documented at wind-energy facilities, although  
4 typically in much lower numbers than eastern red,  
5 hoary bat, and silver-haired bat." Do you see that  
6 sentence?

7 A. I do.

8 Q. Are the three species of bats named in  
9 this sentence larger than the species of bats listed  
10 in or referenced in the prior sentence of this  
11 testimony?

12 A. Yes. They are larger in size.

13 Q. If a bat is larger, is its carcass easier  
14 to find during post-construction mortality surveys?

15 MR. SECREST: Objection, speculation.

16 ALJ WILLIAMS: I will let him answer and  
17 explain.

18 A. So the answer is it depends, and so it  
19 depends on the substrate you're searching and the  
20 type of search you are doing, and so yeah, the answer  
21 is it depends.

22 Q. Okay. So let's break that down a little  
23 bit. What do you mean by substrate that's being  
24 searched?

25 A. Yeah. So many searches in the midwest

1 and the eastern U.S. occur on the gravel road and pad  
2 around the turbine. The rock is very white and so  
3 any bat carcass that shows up is highly visible.

4 Searcher-efficiency rates on roads and  
5 pads are typically 90, close to 100 percent. On  
6 roads and pads there, you know, should -- you know, I  
7 would not expect any sort of detection difference  
8 between those three species you mentioned and a  
9 Myotis or a tricolored bat. Tricolored bat is a bit  
10 smaller. It's probably closer in size to eastern  
11 red. They are fairly close but the little browns  
12 are -- they are smaller.

13 If you do a dog base search -- so I guess  
14 I'll back up there.

15 In my experience, when they do road and  
16 pad surveys, I find the same pattern. And there's  
17 been road and pad surveys completed at 1,500  
18 different projects. I see the same pattern. The  
19 Myotis are rare fatalities at most projects.

20 If we want to break that down further,  
21 you know, in a cleared plot situation where you are  
22 searching for carcasses in a corn and soybean field  
23 that's been cleared, it increases searcher  
24 efficiency.

25 You know, there's a -- there is a --

1       there is -- a very large hoary bat probably is easier  
2       to detect than a little brown bat.  However, most --  
3       I would say, you know, most of the carcass  
4       searcher-efficiency trials that are completed they  
5       don't use a hoary bat.  In fact, it's kind of rare to  
6       use a hoary bat.  Most of those carcasses are, you  
7       know, anymore, are saved for research purposes.

8               So it's a mix.  It's a mix of the  
9       silver-haired and eastern-reds which are quite a bit  
10      smaller than the hoary bat so in those situations you  
11      would expect a difference.  I would not expect a huge  
12      difference.

13             And so, you know, if you are driving at  
14      the idea that *Myotis* is a common fatality is just  
15      not -- I think the road and pad data make that clear.  
16      The surveys that have completed carcass surveys with  
17      dogs are also bearing that out.  You know, a dog has  
18      more of a scent-based detection and, you know,  
19      carcass size will -- will have an effect, you know,  
20      there should be a bigger scent and all, but probably  
21      less on a visual basis.

22             So just based on the sheer, you know,  
23      numbers, it's clear that, you know, *Myotis* are killed  
24      less often but they certainly do occur.

25             ALJ WILLIAMS:  You are cutting out a

1 little bit. I don't know if there is a way to  
2 increase your amplification or just try to focus on  
3 projecting.

4 THE WITNESS: Okay. Yeah, I'll project  
5 better. Sorry about that.

6 ALJ WILLIAMS: Thank you.

7 A. So based on the raw numbers found, as  
8 well as, you know, the detection rates I cited for  
9 different substrates, you know, Myotis certainly do  
10 occur as fatalities at projects but in lower numbers.

11 Q. How far from the base of the turbine  
12 tower do you expect a bat to travel before hitting  
13 the ground after it has collided with a turbine?

14 A. Unlike birds, bats -- the majority of  
15 bats fall closer to turbines. You know, most of the  
16 studies are finding that 70, 80 percent are falling,  
17 you know, 40 to 60 meters depending on the size of  
18 the project curtailment that's happening at the  
19 project. The size of the turbine, not the project.  
20 The size of the turbine.

21 Q. Does the size of the bat cause the bat to  
22 fall any closer to the turbine than it otherwise  
23 would if it was a larger species of bat?

24 MR. SECREST: Objection, vague.

25 ALJ WILLIAMS: I will let him answer.

1           A.    I think what you are trying to ask is  
2   Myotis, because they are smaller, do they fall  
3   further or closer.

4           Q.    Yes.

5           A.    That's a physics-based question.  I don't  
6   believe there's any empirical -- I know that people  
7   have completed some modeling how far carcasses will  
8   fall based on the size of the carcass.  I can't  
9   remember off the top of my head what those values  
10  were for different values of small versus large bats.  
11  I can say based on the empirical data that I have  
12  looked at with Myotis fall distributions, it's --  
13  it's definitely similar, I would say, but that  
14  dataset is smaller than the bat fatalities because  
15  Myotis is the rarest fatality.

16          Q.    What is the size of the Indiana bat?

17          A.    Oh, roughly a couple, 3, 4 inches in  
18  length.  It depends on what you mean by "size."  You  
19  know, I don't know the weights off the top of my head  
20  but I will say that 3 to 4 inches is probably the  
21  body length.  If their wings are out, they are going  
22  to be longer width -- width-wise.

23          Q.    Are you familiar with the Fowler Ridge  
24  wind project in Indiana?

25          A.    I am familiar with that project.

1           Q.    How did you become familiar with that  
2   project?

3           A.    I -- I completed most of the monitoring  
4   at Fowler Ridge -- I won't say I completed. I -- I  
5   served as project manager for much of the monitoring  
6   that was completed. I did some of the field work  
7   supported by the --

8           ALJ WILLIAMS:  You're trailing off,  
9   Mr. Good.

10          THE WITNESS:  Yeah. I was just saying  
11   yeah, I was -- I served as project manager for many  
12   of the monitoring studies that have been completed at  
13   Fowler Ridge.

14          Q.    And do those monitoring studies include  
15   the study of bat mortalities?

16          A.    Yes.

17          Q.    During those surveys did you find or did  
18   your crew find dead Indiana bats?

19          A.    Yes.

20          Q.    How many have been found there to your  
21   knowledge?

22          A.    So I believe it was 2 or 3 total relative  
23   to thousands and thousands of other bat carcasses  
24   that have been picked up over the years.

25          Q.    Now, did you come to any conclusions as

1 to the number of Indiana bat mortalities that were  
2 estimated per year based on the number of Indiana bat  
3 mortalities that were found during the searches?

4 A. We -- my study, I did not, no. We -- the  
5 Fowler Ridge Habitat Conservation Plan did come up  
6 with -- well, I guess we did. So in my studies we  
7 have estimated mortality rates for the Indiana bats  
8 based on the level of overall bat mortality and the  
9 relative species composition that Indiana bats  
10 comprise of the total mortality.

11 Q. And what was the result of those  
12 estimates?

13 A. Off the top of my head, I think it was  
14 like 9 to 12 per year depending on -- I mean, I can't  
15 remember the exact number.

16 Q. Okay.

17 A. It was in that ballpark for the year.

18 Q. And that's for Indiana bats.

19 A. Yes. That's for Indiana bats, that's  
20 right.

21 MR. VAN KLEY: All right. I have no  
22 further questions at this time.

23 ALJ WILLIAMS: Thank you, Attorney Van  
24 Kley.

25 Any redirect?

1 MR. SECREST: I do, your Honor. However,  
2 may I request about a 10-minute break or so in order  
3 to get my documents together?

4 ALJ WILLIAMS: That would be fine. We  
5 will reconvene at 11:45.

6 MR. SECREST: Great. Thank you, your  
7 Honor.

8 ALJ WILLIAMS: Thank you.

9 (Recess taken.)

10 ALJ WILLIAMS: Let's go back on the  
11 record.

12 MR. SECREST: Thank you, your Honor.  
13 Prior to examining Mr. Good, I did have a question  
14 that was raised yesterday. There are a couple  
15 exhibits I would like to introduce on Mr. Good's  
16 redirect. Those are referenced in his direct  
17 testimony; however, they were not previously  
18 circulated to the Bench and counsel.

19 ALJ WILLIAMS: Can you distribute those  
20 via e-mail so that all the parties will have access  
21 to them as part of the redirect?

22 MR. SECREST: Yes, your Honor. Let me  
23 confer with my co-counsel as to how long that may  
24 take. One moment, your Honor.

25 ALJ WILLIAMS: Okay.

1 MR. SECREST: Thank you.

2 Apologies, your Honor. I know we just  
3 came back from a break. However, it wasn't  
4 determined until that break that we would actually  
5 use some of these exhibits, and I do think it's going  
6 to take 10 minutes or so to distribute those to  
7 everybody.

8 ALJ WILLIAMS: Attorney Van Kley, are you  
9 okay if we go ahead and take lunch now and we will  
10 come back and finish?

11 MR. VAN KLEY: Yes. I would suggest that  
12 so we can take a look at the exhibits during the  
13 break and that will speed up the -- our recross  
14 certainly when we come back.

15 ALJ WILLIAMS: Attorney Secrest, if you  
16 could send those before you get your lunch, that  
17 would be great. If you do have exhibits that are  
18 going to be used on redirect, that would be the plan,  
19 distribute those electronically maybe after a short  
20 break but before redirect. So, and then obviously  
21 follow up with the court reporter as appropriate at  
22 the end of the day's business.

23 MR. SECREST: Very well, your Honor.  
24 Thank you.

25 One other question, at least from our

1 end, I have not heard any of the feedback that I was  
2 previously hearing, so is anybody else hearing it  
3 now?

4 ALJ WILLIAMS: The feedback is gone. I  
5 got to tell, it is very faint, so if you guys are  
6 able at lunch to find a way to get the microphone  
7 closer, to amplify the microphone. Attorney Van Kley  
8 was loud and clear. I had him about as loud as I  
9 could handle on my headset. I could barely hear the  
10 witness. So just really focus on trying to -- and I  
11 could tell he was trying to amplify so try to get him  
12 closer to the microphone or try to further amplify.

13 MR. SECREST: Okay. We will do that.

14 ALJ WILLIAMS: The screeching now is  
15 definitely gone. And I think before we break I know  
16 we had tasked -- I don't want your question to be  
17 lost, Attorney Van Kley, the number of articles that  
18 might have been coauthored by the witness, so I think  
19 you are still entitled to that question. So if we  
20 could spend some time in the break to get that  
21 information as well, that would be appreciated,  
22 Attorney Secrest.

23 MR. SECREST: Certainly. Thank you, your  
24 Honor.

25 ALJ WILLIAMS: Okay. It's 12:51 now.

1       Why don't we go ahead and reconvene -- we'll just  
2       reconvene at 1 o'clock.

3               Thank you.   We are off the record.   Thank  
4       you.

5               (Thereupon, at 11:51 a.m., a lunch recess  
6       was taken.)

7                               - - -

1 Tuesday Afternoon Session,  
2 October 6, 2020.

3 - - -

4 ALJ WILLIAMS: Let's go back on the  
5 record.

6 Before we took our lunch break, there was  
7 discussion regarding distributing some information  
8 before redirect. I received an e-mail from Attorney  
9 Pirik at 12:07, so I wanted to make sure once we got  
10 back on the record everybody has received that. If  
11 you didn't receive an e-mail on or about 12:07, shake  
12 your head, raise your hand. Attorney Margard, no?  
13 Anybody else not get it?

14 Ms. Pirik, can you confirm you sent that  
15 to Attorney Margard or direct it to him now?

16 MR. SECREST: I believe Ms. Walker raised  
17 her hand as well, your Honor.

18 MR. MARGARD: I will say Ms. Pirik has  
19 had some difficulty e-mailing me before. I don't  
20 know if it is me or not, but we've had some issues.  
21 I don't doubt she sent it, but it didn't arrive so if  
22 you would resend it.

23 ALJ WILLIAMS: I see you talking, but I  
24 can't hear you. Can you hear him? I didn't sit on  
25 my speaker this time so.

1 MR. MARGARD: Try again. Testing, one  
2 two.

3 ALJ WILLIAMS: Jay, you can hear  
4 everybody?

5 ALJ AGRANOFF: I can.

6 ALJ WILLIAMS: I am going to plug my  
7 microphone back in and see if I can get a better  
8 connection.

9 MR. VAN KLEY: Does the State have a  
10 limit on the amount of size you can receive in an  
11 e-mail, Vern?

12 MR. MARGARD: It does. Yeah, it does.

13 ALJ AGRANOFF: Both Judge Williams and I  
14 received the copy.

15 MR. MARGARD: Yeah. My office probably  
16 has different limits than yours.

17 ALJ AGRANOFF: That's true.

18 MR. VAN KLEY: It's 15 megabytes.

19 MR. MARGARD: Mr. Williams, can you hear  
20 me now?

21 ALJ WILLIAMS: I can. Yes, it's the old  
22 school, turn it off, turn it back on. I unplugged my  
23 cord and plugged it back in, and you are all loud and  
24 clear now.

25 MR. MARGARD: Figure out which button you

1       leaned on this time. I was saying that the Company  
2       has e-mailed things to me before that I have not  
3       received. I know that, and the problem may well be  
4       on my end. And I would just ask if they would please  
5       resend it so.

6               MR. SECREST: Ms. Pirik did just resend.

7               MR. MARGARD: Thank you, sir.

8               MR. SECREST: Certainly.

9               ALJ AGRANOFF: I believe, Ms. Walker, you  
10       indicated as well you didn't receive it?

11              MS. WALKER: That's right. I did not  
12       receive it.

13              ALJ AGRANOFF: Okay.

14              ALJ WILLIAMS: Ms. Pirik, can you send it  
15       to her as well?

16              MR. SECREST: It already has been. Thank  
17       you.

18              ALJ WILLIAMS: Okay. I am going to  
19       forward the one I got on the chance it will survive  
20       spam from me, as well from Applicant.

21              MR. SECREST: Mr. Margard's just bounced  
22       back.

23              ALJ AGRANOFF: Which e-mail address do  
24       you have for Mr. Margard? I've had problems with  
25       Mr. Eubanks where there are two different e-mails

1 that were being used. Which one should he be using,  
2 Vern?

3 MR. MARGARD: It's Werner, W-E-R-N-E-R  
4 dot Margard, M-A-R-G-A-R-D, at Ohio Attorney General,  
5 all one word, dot gov. That's the e-mail the Company  
6 has been using. I have no reason to believe it's not  
7 an issue on my end. I certainly don't want to hold  
8 up the proceedings. I am sure we can arrange for  
9 delivery of those exhibits later if there's an issue,  
10 perhaps we can deal with it as a one-off, but I don't  
11 anticipate there being an issue.

12 ALJ WILLIAMS: Okay. If it becomes an  
13 issue as redirect or recross is occurring, let us  
14 know.

15 Karen, are we on the record?

16 To clarify on the record, I did forward  
17 only to Attorneys Margard and Walker, the message is  
18 simply forwarded, so that was Ms. Pirik's e-mail  
19 along with instructions, verbiage from the Bench, was  
20 forwarded, so you may receive it as well.

21 So again, unless we hear objections from  
22 counsel Margard or Walker, we'll proceed through  
23 redirect, recross, and so on. So there are no  
24 objections to what's going on, okay? Head nods from  
25 both counsel.

1                   With that, we will redirect. Attorney  
2       Secrest.

3                   MR. SECREST: Thank you, your Honor.

4                   - - -

5                   RHETT GOOD

6       being previously duly sworn, as prescribed by law,  
7       was examined and further testified as follows:

8                   REDIRECT EXAMINATION

9       By Mr. Secrest:

10           Q.     Good afternoon, Mr. Good.

11           A.     Good afternoon.

12           Q.     How many Ohio wind projects have you  
13       worked on?

14           ALJ WILLIAMS: You're muted, Mr. Good.

15           THE WITNESS: Can you hear me now?

16           ALJ WILLIAMS: We can.

17           A.     Okay. Great. I think -- the total  
18       number is over 10, but those that have been filed  
19       through OPSB are, I believe, five different ones.  
20       Timber Road, Hog Creek, Blue Creek, Icebreaker,  
21       Hardin.

22           Q.     And in what year was the first project  
23       that you worked on in Ohio?

24           A.     That would have been the Blue Creek  
25       project which I believe was 2009, '10ish. In that

1 time frame.

2 Q. Thank you, Mr. Good. Based on your  
3 experience in Ohio, you're familiar with the Ohio  
4 Department of Natural Resources pre- and  
5 post-construction monitoring protocols?

6 A. Yes. I've implemented those protocols on  
7 a number of different projects in Ohio.

8 Q. And for the projects that you worked on  
9 in Ohio, have you worked with ODNR?

10 A. Yes. Every project I'm involved with, I  
11 recommend to the clients that we include the U.S.  
12 Fish and Wildlife Service and the ODNR on the survey  
13 protocols and survey results.

14 Q. Great. Thank you.

15 MR. SECREST: Your Honor, I had -- we had  
16 previously identified the ODNR On-Shore Bird and Bat  
17 Pre- and Post-Construction Monitoring Protocols as  
18 Applicant's Exhibit 47. May I have it marked as  
19 such?

20 ALJ WILLIAMS: So marked.

21 (EXHIBIT MARKED FOR IDENTIFICATION.)

22 MR. SECREST: Thank you, your Honor.

23 ALJ AGRANOFF: Mr. Secrest, you are  
24 getting some feedback on your end.

25 MR. SECREST: Okay. Thank you.

1           Q.     (By Mr. Secrest) Mr. Good, did you  
2     testify you're familiar with these protocols?

3           A.     Yes, yes, I'm familiar with those.

4           Q.     And do you see on the first page of  
5     Applicant's Exhibit 47 there is two bullet points,  
6     Minimum and Moderate?

7           A.     Yes, I see those.

8           Q.     What do those refer to?

9           A.     Those refer to the level of survey effort  
10    that the ODNR recommends that the project proponents  
11    use to assess the risk at projects. Minimum and  
12    moderate -- and they're cumulative. So certain  
13    surveys require for minimum and moderate and  
14    extensive.

15          Q.     And did you testify on cross-examination  
16    that the level of survey for the Emerson Creek  
17    project was moderate?

18          A.     I did, yes, so the -- the moderate  
19    category includes a number of different surveys that  
20    were completed at this project. Passerine migration  
21    surveys, bat acoustic and bat mist nest surveys,  
22    raptor migration surveys, breeding bird surveys,  
23    those were all completed at this site.

24          Q.     Thank you, Mr. Good.

25                 And you referenced the survey effort

1 being cumulative. By that do you mean that the  
2 Applicant, because it was classified as moderate, had  
3 to complete the minimum survey efforts as well?

4 A. Correct.

5 Q. And based upon your familiarity with the  
6 project, did the Applicant, in fact, complete all  
7 surveys set forth in the ODNR protocols under the  
8 minimum survey effort and moderate survey effort?

9 A. Yes. In fact, they completed more than  
10 what was recommended by the ODNR. So in addition to  
11 the surveys within the protocol they recommended for  
12 the moderate category, they also completed three  
13 different years of large bird use surveys that also  
14 included a winter period which are not included in  
15 the ODNR protocols.

16 They also exceeded the protocols in a  
17 number of different ways including the total number  
18 of survey points that are recommended by the ODNR  
19 within the project were exceeded for a number of  
20 different survey categories, surveys were conducted  
21 under multiple years and -- yes, those are the two  
22 ways in which the surveys were exceeded, the guidance  
23 were exceeded.

24 Q. Thank you, Mr. Good.

25 And if you would please refer to page 8

1 of Applicant's Exhibit 47.

2 A. Okay.

3 Q. Is radar monitoring included as a survey  
4 necessary for the moderate level?

5 A. It is not. And so, you know, some of the  
6 original correspondence on the project did recommend  
7 that the project complete radar monitoring. There  
8 were some initial forested and barren areas within  
9 the initial versions of the project that were -- were  
10 slated within the protocol for completing radar  
11 monitoring.

12 However, during a site visit and further  
13 review of the project with both ODNR and the Fish and  
14 Wildlife Service, we visited those sites and came to  
15 agreement, you know, the Fish and Wildlife Service  
16 and ODNR looked at the area and indicated this is not  
17 the type of area we're concerned about as far as  
18 passerine migration goes and, therefore, radar  
19 monitoring was not recommended at this site.

20 Q. Thank you, Mr. Good.

21 May I direct your attention to  
22 Applicant's Exhibit 1, specifically K, Attachment K  
23 to the Application.

24 A. Which Exhibit is K? Are you referring to  
25 a certain type of report?

1 MR. SECREST: May I present the witness  
2 with the exhibit, your Honor?

3 ALJ WILLIAMS: Please.

4 MR. SECREST: Thank you.

5 THE WITNESS: Thank you.

6 ALJ WILLIAMS: Mr. Secrest, I have K1  
7 through 12. Are you in a certain segment?

8 MR. SECREST: I am, your Honor. I'm in  
9 K6.

10 ALJ WILLIAMS: Thank you.

11 Q. (By Mr. Secrest) Mr. Good --

12 A. Okay.

13 Q. -- once you are on K6, will you please go  
14 to the thirteenth page.

15 A. K, are you referring to the December 19,  
16 '17 survey recommendations? I'm not sure if I am on  
17 the right page.

18 Q. I am not. We are on Exhibit K,  
19 Attachment 6.

20 A. Attachment 6.

21 Q. There's a June 9, 2010, letter, from the  
22 Ohio Department of Natural Resources.

23 A. No. 6. Give me a second.

24 ALJ WILLIAMS: For those who are  
25 following along electronically, it's PDF page 14.

1 MR. VAN KLEY: What was that PDF number  
2 again?

3 ALJ WILLIAMS: Page 14 of 18.

4 MR. VAN KLEY: Page 14 of 18.

5 ALJ WILLIAMS: Within K6.

6 MR. VAN KLEY: I must be in the wrong  
7 document. Exhibit K of the Application.

8 ALJ WILLIAMS: K should be separated into  
9 12 different subparts. We're in K6.

10 MR. VAN KLEY: All right. I better find  
11 it online then.

12 MR. SECREST: In the exhibits we  
13 circulated, the Section K was broken out into 6 -- or  
14 12 different attachments, I believe all labeled as  
15 such.

16 THE WITNESS: I do have the June 9, 2010,  
17 letter, is that what you are referring to?

18 MR. SECREST: That is.

19 Mr. Van Kley, do you want us to wait a  
20 moment?

21 MR. VAN KLEY: Yeah, if you could. I am  
22 trying to find that document.

23 ALJ WILLIAMS: Mr. Secrest, is there any  
24 way -- there's a bit of reverb. I don't know if  
25 there is a way to back further away from the

1 microphone or lower your volume.

2 MR. SECREST: Mr. Good, will you mute  
3 when not speaking. Is that better, your Honor?

4 ALJ WILLIAMS: It is.

5 MR. SECREST: Thank you.

6 MR. VAN KLEY: In the copies of the  
7 Application that were distributed as exhibits, which  
8 folder or which page?

9 ALJ WILLIAMS: K6.

10 MR. SECREST: Mr. Van Kley, if you look  
11 under -- it's Exhibit 1 to Nate Pedder's testimony  
12 and then you should see it broken up by Exhibit  
13 letter and number.

14 MR. VAN KLEY: Yes. Okay. Yes, I see  
15 that. Thank you.

16 MR. SECREST: Certainly.

17 MR. VAN KLEY: Okay. And which PDF page  
18 on K6 are we looking at?

19 ALJ WILLIAMS: 14 of 18.

20 MR. VAN KLEY: Okay. I'm there. Thank  
21 you.

22 MR. SECREST: Certainly.

23 Q. (By Mr. Secrest) Mr. Good, may I direct  
24 your attention to the second paragraph of this letter  
25 in which it states "Though this project area

1 encompasses portions of Slate Run, which has  
2 previously been identified as a potential migratory  
3 corridor (Figure 1), the habitat within the proposed  
4 project would not be what the DOW considers high  
5 quality stopover habitat." Do you see that,  
6 Mr. Good?

7 A. I do.

8 Q. Mr. Good, despite the project boundary  
9 having moved since 2010, based upon your experience  
10 and your review of the project area, is it still your  
11 opinion that it does not present high quality  
12 stopover habitat?

13 A. Yes, that is my opinion. I believe it's  
14 also the opinion of both wildlife agencies as well.  
15 They reviewed all the studies and came to the  
16 conclusion no further studies are needed for this  
17 project.

18 Q. Thank you, Mr. Good.

19 Reaching that conclusion that no  
20 additional studies were necessary for this project,  
21 are you aware whether ODNR concluded that the level  
22 of survey or the survey effort was sufficient for  
23 this project to establish risk for the wildlife that  
24 was surveyed?

25 A. Yes, I am. So all the surveys completed

1 to date were reviewed with the ODNR in various  
2 meetings, and the ODNR agreed no further surveys were  
3 needed for this project.

4 Q. Thank you, Mr. Good.

5 While we are on the topic of surveys, you  
6 were asked on cross-examination to identify any  
7 surveys for which you were the author or the coauthor  
8 that accompanied the Application. Have you now done  
9 so?

10 A. I have, and I apologize there are a  
11 number of reports there and I was having trouble  
12 locating those initially. So I was listed as a  
13 coauthor on Exhibit S, No. 3; Exhibit R, No. 4;  
14 Exhibit V, No. 2; and Exhibit X, No. 2.

15 Q. Thank you.

16 On cross-examination you were asked  
17 questions related to bats and carcass surveys.  
18 Please tell us, what are bias trials?

19 A. Bias trials are surveys completed during  
20 post-construction monitoring surveys to estimate how  
21 many carcasses are missed because a searcher just  
22 didn't detect them, and also how many are either  
23 removed by scavengers before someone could have a  
24 chance to detect it or were otherwise rendered  
25 undetectable by, say, farming activities or

1 decomposition.

2 Q. With regard to carcass persistence rates,  
3 do those differ by region?

4 A. They certainly do. And they can be quite  
5 variable. I have been involved in projects where the  
6 persistence rate for bats was 15 to 30 days. I've  
7 been involved in projects where bats were removed  
8 within a couple of days of being placed. Similar for  
9 birds. I would say the one area where it's less  
10 variable would be for raptors. Raptors tend to  
11 remain on the landscape quite a long time.

12 Q. And with regard to -- will you mute,  
13 please. Thank you.

14 With regard to bias trials and searcher  
15 efficiency and scavenger rate, is it standard  
16 practice in the industry to apply adjustment factors  
17 to post-construction monitoring to account for missed  
18 carcasses and scavenged carcasses?

19 A. Yes. In fact, that's a requirement for  
20 most post-construction monitoring protocols. It's --  
21 it's very important to have an estimate not only of  
22 how many you found but how many you missed. So that  
23 is the standard for virtually every study I've been  
24 involved in.

25 Q. And with regard to these

1 post-construction monitoring surveys, are there  
2 conservative estimates associated with them as well?

3 A. Yes, there are. There are some  
4 conservative assumptions built into post-construction  
5 monitoring surveys. A couple of those include, one  
6 we do, every carcass we find within the search plot  
7 died due to collision with turbines and so we know  
8 that's an overestimate because, you know, especially  
9 in the case of birds, you know, bird mortality occurs  
10 in nature through predation, disease, various  
11 factors. The few studies that have measured  
12 background mortality have estimated upwards of 20,  
13 30 percent of birds found on the landscape could be a  
14 result of background mortality.

15 You know, for a number of our surveys  
16 we -- we will also find a feather spot and so  
17 especially with a feather spot in which we find a  
18 pile of feathers, we have no idea if that bird died  
19 due to collision, if it was killed by a raptor or  
20 a -- or a fox or -- we just don't know but those are  
21 conservatively included in those fatality estimates.

22 Some of the other -- other conservative,  
23 I think, methods that are included in a lot of these  
24 analyses would be, you know, I think a lot of times  
25 whenever humans are checking the status of a -- of a

1 carcass during a persistence trial, sometimes the  
2 carcass can be moved within the plot but not removed  
3 from the plot. So this came to light when we started  
4 using dogs for carcass searches and the dogs are able  
5 to detect that it had moved but a human would not,  
6 and so for the vast majority of studies that have  
7 been conducted we're probably estimating carcass  
8 persistence would be quicker than it really is based  
9 on some of those results.

10 ALJ WILLIAMS: I am afraid -- I am the  
11 tech police here. It looks like your microphone is  
12 now probably hanging off of your shirt collar and  
13 it's kind of bouncing around on your shirt collar  
14 there to the left. So try to keep that steady, that  
15 would help us.

16 THE WITNESS: Thank you.

17 MR. SECREST: Thank you, your Honor.

18 Q. (By Mr. Secrest) Mr. Good, you were asked  
19 some questions on cross-examination about tundra  
20 swans. Do you recall those?

21 A. I do.

22 Q. And have you reviewed mortality studies  
23 or literature related to the susceptibility of  
24 waterfowl, including swans, to wind turbine  
25 fatalities?

1           A.    Yes.  I'm familiar with those and I have  
2 completed a few of those as well.

3           Q.    And what do those studies tell you about  
4 waterfowl susceptibility to wind turbine fatalities?

5           A.    Yes.  The waterfowl are interesting.  
6 They are often one of the most commonly-observed  
7 species at most wind energy projects in the midwest  
8 and east.

9                   For example, Canada geese are often  
10 observed in large numbers flying right at the same  
11 height as turbine blades, yet waterfowl and  
12 waterbirds are rarely found as fatalities at wind  
13 projects.  They comprise a very, very small number  
14 relative to their abundance at wind projects.

15                   Top of Iowa was a case where a master's  
16 student did a study.  There's a wind project located  
17 in the middle of three wildlife management areas and  
18 those -- those wildlife management areas held tens of  
19 thousands of geese, yet not a single fatality of  
20 Canada geese occurred at that project.

21                   Tundra swans are closely related to  
22 geese.  One particular example involving tundra swans  
23 involves, I believe, some of the testimony cited by  
24 Dr. Smallwood.  That's a project, the study he is  
25 referring to is called the Wolfe Island project.

1 There's a series of post-construction monitoring  
2 reports in his testimony that illustrate how tundra  
3 swans are not susceptible to wind turbine mortality.

4 At Wolfe Island there is thousands of  
5 tundra swans that winter and fly through that project  
6 area and as well as during migration. Yet, I believe  
7 there might have been close to 500 carcasses picked  
8 up and not a single tundra swan fatality occurred  
9 which further illustrates the low susceptibility of  
10 waterfowl to mortality and this -- it's a common  
11 finding among all post-construction monitoring  
12 projects.

13 Now, that's not to say a few waterfowl  
14 don't incur fatalities so the risk isn't zero but the  
15 numbers found are very, very small relative to  
16 waterfowl abundance at wind projects.

17 Q. Thank you, Mr. Good.

18 MR. SECREST: Your Honor, may I present  
19 Mr. Good with one of the exhibits we circulated --  
20 will you mute, please? It was cited from his  
21 testimony. It's titled "A Comprehensive Analysis of  
22 Small-Passerine Fatalities from Collision with  
23 Turbines at Wind Energy Facilities."

24 ALJ WILLIAMS: You may.

25 MR. SECREST: Thank you, your Honor. May

1 I also have that marked as Applicant's Exhibit 84.

2 ALJ WILLIAMS: So marked.

3 (EXHIBIT MARKED FOR IDENTIFICATION.)

4 MR. SECREST: Thank you.

5 Q. (By Mr. Secrest) Mr. Good, do you have  
6 the document I'm referencing in front of you?

7 A. I do.

8 Q. Please tell me a little bit about this  
9 study.

10 A. Yes. This is a study that was basically  
11 a meta-analysis that reviewed all the existing wind  
12 energy post-construction monitoring reports that were  
13 publicly available at the time. The purpose was to  
14 estimate passerine mortality across all those  
15 facilities and compare the level of mortality  
16 occurring to population sizes of passerines and other  
17 sources of bird mortality.

18 So the -- you know, the project involved  
19 adjustments to some of the estimates from existing  
20 facilities. There was efforts to try to make the  
21 estimates more comparable particularly through making  
22 adjustments for the type of statistical analysis that  
23 was completed at each of the studies in order to make  
24 sure those estimates were comparable. They also only  
25 included projects that, you know, were monitored

1 during spring and fall migration periods which are  
2 the highest periods of risk for migrating passerines.

3 The survey -- or the estimate found that,  
4 you know, at the time the estimated overall passerine  
5 mortality, the cumulative mortality of all wind  
6 projects in the U.S. was estimated to be within  
7 134- to 230,000 at the time. Those estimates ended  
8 up being pretty close to some other estimates that  
9 were calculated later by Dr. Loss which are used now  
10 by the Fish and Wildlife Service and other agencies  
11 to compare sources of mortality for birds, and direct  
12 conservation efforts.

13 The study found that, you know, for  
14 basically almost all the passerines involved, the  
15 mortality occurring was less than .01 percent, I  
16 believe, of the total population size and that's from  
17 the cumulative mortality of all wind projects at the  
18 time.

19 You know, wind energy development has  
20 increased since that time but, you know, since 2013,  
21 the number of installed capacity has probably  
22 increased 30 to 50 percent, but even if you double  
23 some of these estimates, you would come to the same  
24 conclusion, the level of mortality occurring at  
25 this -- at -- the cumulative mortality occurring from

1 wind energy to passerines is very, very low, orders  
2 of magnitude lower, than other sources of bird  
3 mortality.

4 Q. Thank you, Mr. Good.

5 If I can direct you to page 5. Under the  
6 "Results" heading, there is a "Fatality Rate  
7 Estimates for Small Birds" and a "Bias-Corrected  
8 Estimates of Fatality Rates for Small Birds." Do you  
9 see that?

10 A. Which section on page 5 are you at?

11 Q. Under the "Results" section.

12 A. Yes, I see that.

13 Q. Good. Thank you.

14 With regard to the results and the  
15 estimates of bird fatalities per megawatt per year,  
16 are those consistent with what your studies have  
17 determined and your general understanding of small  
18 bird fatality?

19 A. Yes. Those values are similar to what I  
20 see at even newer wind generation projects in the  
21 midwest. Generally, most fatal -- most projects are  
22 in the range of 2 to 4 birds per megawatt per year  
23 with, you know, some being lower and higher. That's  
24 certainly consistent with my experience as well.

25 Q. And is that what you would anticipate for

1 the Emerson Creek wind project?

2 A. Yes. You know, based on 2,300 hours of  
3 surveys that have been completed at the project, as  
4 well as over 300 post-construction monitoring studies  
5 at wind energy facilities across the nation, and the  
6 fact that this project is located in a tilled,  
7 agriculture-dominated landscape, located outside  
8 known migration corridors, located outside of IBAs, I  
9 would anticipate the bird mortality rate to be within  
10 the range of other midwest projects here.

11 Q. Thank you. Excuse me.

12 Also under the "Results" section,  
13 specifically the heading "Composition of Fatalities  
14 by Bird Type, Passerine Family, and Small-passerine  
15 Species," it states: "Small passerines accounted for  
16 62.5 percent of the 4,975 observed fatalities at wind  
17 energy facilities; this included birds found  
18 incidentally, outside of standardized surveys.  
19 Upland game birds (8.2 percent) and diurnal raptors  
20 (7.8 percent) were the next most commonly found bird  
21 types."

22 With regard to diurnal raptors making up  
23 7.8 percent of the fatalities, is that consistent  
24 with your research as well and the studies you have  
25 performed on wind projects?

1           A.    Yes, although I would say it's probably a  
2   bit high.  These are raw numbers compared to basic  
3   raw numbers of raptors found which are quite large  
4   and much more easily detected than a passerine would  
5   be.  So I think those are probably on the high side  
6   but definitely within the range of what I viewed.

7           Q.    And you had -- in your testimony you  
8   referenced the overall continent-wide effects on  
9   small bird populations.  Does this report address  
10  those effects on pages 8 and 9?

11          A.    Yes.  Page 8 is a summary of the  
12  composition of fatalities at projects.  As well as  
13  page 9.  Page -- page 10 and 11 -- page 11 is the  
14  beginning of the summary of how those nationwide  
15  estimates compare to the pop -- population sizes.

16          Q.    Great.  Thank you, Mr. Good.  You may put  
17  that aside.

18               MR. SECREST:  Your Honor, may I direct  
19  Mr. Good's attention to what we have premarked and  
20  what I will ask formally be marked as Exhibit 85.  
21  It's titled "Issues in Ecology."

22               ALJ WILLIAMS:  You may.

23               (EXHIBIT MARKED FOR IDENTIFICATION.)

24               MR. SECREST:  Thank you, your Honor.

25               ALJ WILLIAMS:  We will mark it

1 accordingly.

2 MR. SECREST: Thank you.

3 Q. (By Mr. Secrest) Mr. Good, are you  
4 familiar with this document?

5 A. I am.

6 Q. What is it?

7 A. This is a summary of the -- you know, the  
8 latest in what's known regarding wind energy impacts  
9 to birds and bats. It was published in fall of 2019  
10 by some of the leading researchers in the field of  
11 wind and wildlife interactions from University  
12 professors to consultants to USGS.

13 Q. If I may direct you to page 6.  
14 Specifically looking at the first sentence in the  
15 second column. It states: "National average adjusted  
16 fatality rates (as defined in Box 2) reported in  
17 recent peer-reviewed national reviews vary from  
18 approximately three to six birds and four to seven  
19 bats per megawatt of installed wind energy capacity  
20 per year." Do you see that?

21 A. I do.

22 Q. Are those numbers and figures consistent  
23 with your research as well as your studies you  
24 performed?

25 A. Yes. Those numbers are accurate and

1 consistent with all the post-construction monitoring  
2 studies I have been a part of. Yes, for birds. The  
3 bat numbers, those are -- bat numbers are more  
4 variable but for the bird numbers those numbers are  
5 quite consistently in that range.

6 Q. If I may direct you to page 8 of  
7 Applicant's Exhibit 85. Under the heading "Birds," I  
8 am looking at the third sentence. It states:  
9 "Diurnal raptors constitute about 9 percent of total  
10 observed fatalities, and these percentages are higher  
11 in the western U.S. where these species are more  
12 abundant." Is that consistent with your  
13 understanding and research?

14 A. Yes, that's correct. So there is a  
15 number of studies that I have been a part of where no  
16 raptor fatalities are found or just a handful. So,  
17 yes, that is -- that is consistent with my  
18 understanding as well.

19 Q. Mr. Good, if we could, just quickly back  
20 to the bias trial issues. We had discussed carcass  
21 persistence rates being site specific. Are bias  
22 trial estimates, in general, project or site  
23 specific?

24 A. They should be for a good study. So a  
25 standard recommendation for most wildlife agencies

1 and the USGS, so searcher efficiency can vary  
2 depending on the substrate or the type of search you  
3 are completing, as well as scavenging rates, so it's  
4 really important when you got a fatality rate that  
5 they use site-specific estimates of those biases.  
6 Otherwise you could run the risk of greatly  
7 underestimating or overestimating the fatality rate.

8 Q. Thank you, Mr. Good.

9 What specific measures has this project  
10 used to reduce potential mortality to both birds and  
11 bats?

12 A. Yeah. So there have been a number of  
13 characteristics of this project that I think minimize  
14 impacts to both species or both types of animals.

15 For birds, you know, a couple of the  
16 larger ones are: It's not located within a known  
17 migration corridor; the project is not located in any  
18 known important bird areas; it's located in tilled  
19 agriculture. And, you know, that's a consistent  
20 recommendation from the Fish and Wildlife Service and  
21 the ODNR. They're like, when possible, if it's at  
22 all possible, site wind turbines in tilled  
23 agriculture. These are disturbed landscapes,  
24 disturbed habitats.

25 The largest source of bird population

1 declines in the U.S. is loss of habitat, so siting a  
2 project in tilled agriculture is one of the most  
3 important aspects of reducing potential impacts to  
4 birds.

5 The project has also avoided -- as we've  
6 discussed earlier, there is some forest in the  
7 project. All turbines have been sited outside of  
8 forest for this project. Further reducing potential  
9 risks to birds.

10 The project has also minimized impacts to  
11 wetlands, another important bird habitat.

12 For bats, you know, siting turbines in  
13 tilled agriculture is not necessarily a minimization  
14 measure for bats. Bat mortality rates can be higher  
15 in projects with or without forests.

16 However, there are some tried-and-true  
17 measures that have been proposed for this project to  
18 reduce mortality that are recommended by both the  
19 ODNR and the Fish and Wildlife Service and that  
20 includes operating the project at 6.9 meters per  
21 second in an effort to avoid the take of listed bats  
22 which will also greatly reduce potential mortality  
23 rates for tree bats during the spring and fall  
24 migration periods.

25 The project has also gone to great

1 lengths to site turbines outside of known foraging  
2 ranges of Indiana and northern long-eared bats.

3 And the project has proposed not clearing  
4 any trees during the winter -- or during the summer  
5 period when bats could be present.

6 So those are the primary means by which  
7 the project has reduced its impact to both birds and  
8 bats.

9 Q. Thank you, Mr. Good.

10 How has the total survey effort for this  
11 project, how does that compare with other projects  
12 for which you worked on?

13 A. The total amount of survey effort at this  
14 project greatly exceeds just about any project I've  
15 been involved with. And so I would say for a typical  
16 project you might have one to two years of  
17 pre-construction surveys probably in the neighborhood  
18 of four -- 200 to 400 plus hours of survey effort  
19 depending on -- of course, it really depends on the  
20 characteristics of the site, you could have a lot  
21 more but a typical Midwest ag project is probably in  
22 that range.

23 I totaled up the total survey effort for  
24 this project and I was kind of surprised to see there  
25 has been over 2,300 hours of different bird surveys

1 at this project so it's more than a full year of  
2 someone standing on-site, all day, every day, looking  
3 for birds. That's a lot. There's surveys over  
4 multiple years.

5 The total survey effort, again, was  
6 exceeded over what the ODNR recommended for the  
7 project in both the number of points and the types of  
8 surveys for this project. So there is a -- there's  
9 plenty of information here to assess risk.

10 MR. SECREST: Thank you, Mr. Good.

11 Your Honor, may I have just a minute to  
12 confer with my counsel?

13 ALJ WILLIAMS: You may.

14 MR. SECREST: Thank you, your Honor.

15 Thank you, your Honor, and thank you,  
16 Mr. Good. I have no further questions.

17 ALJ WILLIAMS: Thank you.

18 Mr. Van Kley, any recross?

19 MR. VAN KLEY: Yes, your Honor. Could  
20 you give me about 5 minutes or so to organize my  
21 notes to make it an efficient cross-examination?

22 ALJ WILLIAMS: I will. Why don't we go  
23 ahead and take 10 minutes. Give you ample time. We  
24 want to come back on at 1:55.

25 Karen, we are off the record. Thank you.

1 (Recess taken.)

2 ALJ WILLIAMS: Attorney Van Kley, if you  
3 could proceed with your recross. Back on the record.

4 - - -

5 RECROSS-EXAMINATION

6 By Mr. Van Kley:

7 Q. Mr. Good, why don't we talk about the new  
8 exhibits you have sponsored through your redirect  
9 testimony. Starting with Exhibit 85 entitled  
10 "Impacts to Wildlife of Wind Energy Siting and  
11 Operation in the United States." Let's look first at  
12 the identity of the authors of this paper. Were any  
13 of the authors employed, at the time of the  
14 preparation of this paper, employees of -- employed  
15 by -- let me start that over. I can be much better.

16 Were any of the authors of this paper  
17 employed at the time of its preparation by U.S. Fish  
18 and Wildlife Service?

19 ALJ WILLIAMS: Mr. Good, you are on mute.

20 THE WITNESS: Can you hear me?

21 ALJ WILLIAMS: I can.

22 THE WITNESS: Okay. Great. So yes. I  
23 am looking at the list of authors. I don't recognize  
24 any of the names as Fish and Wildlife Service --

25 ALJ WILLIAMS: It looks like you might

1 have two different forms of microphone coming  
2 through.

3 THE WITNESS: There we go. Sorry about  
4 that.

5 ALJ WILLIAMS: Okay.

6 THE WITNESS: I am not sure if they work  
7 for service or not, but I don't believe the others  
8 do.

9 ALJ WILLIAMS: I lost part of your  
10 answer. Can you repeat the answer?

11 THE WITNESS: Yeah. So I am looking at  
12 the author list, I don't recognize any Service  
13 personnel on there but there are a few people on  
14 there that I don't know who they work for.

15 ALJ WILLIAMS: Thank you.

16 THE WITNESS: I can't say for certain  
17 none of them work for Fish and Wildlife.

18 Q. (By Mr. Van Kley) What's the origin of  
19 the mortality data that was used in the preparation  
20 of Applicant's Exhibit 85?

21 A. Okay. Remind me, Exhibit 85, is this the  
22 "Issues in Ecology"?

23 Q. Yes.

24 MR. SECREST: Mr. Good is trying to  
25 reestablish audio.

1 THE WITNESS: Can you guys hear me now?

2 ALJ WILLIAMS: We can. Any response to  
3 that last question?

4 A. Okay. So the sources of the  
5 post-construction monitoring data in this report was  
6 your question. I believe that the source of that  
7 information are post-construction monitoring studies  
8 that are required by state and federal agencies  
9 largely that are completed at wind energy projects.

10 Q. So these studies producing the data used  
11 in this paper were conducted by wind energy  
12 companies?

13 A. No. Hardly any of these studies are  
14 completed by wind energy companies.

15 Q. All right. Maybe you misunderstood my  
16 question. I better reask it. The mortality data  
17 used in Applicant's Exhibit 85, was it produced by  
18 the wind companies?

19 A. No. Those are post-construction  
20 monitoring -- I think you're referencing like what is  
21 the source of information that was used in this  
22 report to talk about levels of mortality. I think  
23 that's what you are trying to ask, correct?

24 Q. I believe so.

25 A. Okay. I am just trying to make sure I

1 have the question correct. And then you asked these  
2 are all studies completed by wind energy companies  
3 and that's false. So these are -- almost all of  
4 these are studies that are completed by third  
5 parties, they are often paid for by the wind  
6 industry, required by state and federal wildlife  
7 agencies, following protocols that are typically  
8 reviewed and approved by state and federal wildlife  
9 agencies.

10 Q. Okay. I think you've perceived the  
11 reason for our confusion. The mortality data  
12 collected that ultimately made its -- ultimately was  
13 considered in the preparation of Applicant's  
14 Exhibit 85 was all collected by wind companies,  
15 correct?

16 A. No. So wind companies don't collect  
17 mortality data. They often hire consultants,  
18 sometimes universities, sometimes USGS and outside  
19 research organizations to collect the data and  
20 complete the studies.

21 Q. Okay. So the mortality monitoring that  
22 constitutes the basis for Applicant Exhibit 85 was  
23 conducted by people who contracted with the wind  
24 companies to collect the mortality data, correct?

25 A. That's right, including universities and

1 other third parties and consultants.

2 Q. How much of the mortality data utilized  
3 in Applicant's Exhibit 85 was collected by WEST?

4 A. I -- you know, I don't have a good -- a  
5 good estimate for you on that. If I looked through  
6 the citations here, you know, based on the citations  
7 that I'm seeing, I see two reports with WEST lead  
8 authors.

9 Q. Were any of the authors of Applicant's  
10 Exhibit 85 employees of WEST at the time this paper  
11 was prepared?

12 A. Yes. Dale Strickland is a senior  
13 ecologist with WEST. He is a coauthor on this  
14 report.

15 Q. Any others?

16 A. Yeah. I don't -- yeah. No. I see --  
17 yeah, I see -- I see Erin Baerwald, she's a  
18 professor. Amanda Hale is a university research  
19 professor. Cris Hein is the leader of Bat  
20 Conservation International at the time of the -- or  
21 one of the heads of the wind side of that  
22 organization. I see USGS, and I see one WEST author.

23 Q. Do you have any idea how many wind  
24 companies have been -- have contracted with WEST to  
25 conduct turbine mon -- turbine mortality monitoring?

1           A.    How many wind companies?

2           Q.    Yes.  Or how many different wind farms  
3 would be a better question.

4           MR. SECREST:  Objection to relevance.

5           ALJ WILLIAMS:  We'll let him answer and  
6 explain if he knows.

7           A.    So we -- I think we completed  
8 post-construction monitoring at 2- to 300 different  
9 wind energy projects.

10          Q.    Okay.  How --

11          A.    That's not an exact number obviously but  
12 it's a rough estimate.

13          Q.    Okay.  Have there been any projects in  
14 which to your knowledge WEST has worked for people  
15 opposed to wind projects?

16          MR. SECREST:  Objection, outside the  
17 scope of redirect.

18          MR. VAN KLEY:  No, it's really not,  
19 because one of the authors of the paper that we're  
20 talking about is employed by WEST, so the potential  
21 bias of the -- that author of the paper is in  
22 question here.

23          ALJ WILLIAMS:  We'll allow the question.  
24 Please respond, Mr. Good.

25          A.    Let me -- well, we have completed

1 contract work for the Fish and Wildlife Service,  
2 state and federal agencies, and NGOs which are  
3 environmental organizations. I don't -- you know, I  
4 guess I don't know the breadth of all the contracts  
5 we've done at WEST. So I can say I personally have  
6 not done any studies for a project opponent.  
7 Typically we're, you know -- yeah, no, I have not.

8 Q. Okay. And you are not aware of any other  
9 WEST employees who have worked for a wind power  
10 plant?

11 A. Well, I can say there are projects the  
12 Fish and Wildlife Service are opposed to, and we have  
13 contracts with the Fish and Wildlife Service, so if  
14 you consider the -- I wouldn't consider the Service  
15 an opponent in this instance that you are thinking of  
16 them, but they certainly will express views that  
17 generally don't recommend developing projects. So if  
18 you think of them in that regard, we have done work  
19 for the Fish and Wildlife Service.

20 Q. Do you know how many projects have been  
21 conducted by WEST on behalf of the U.S. Fish and  
22 Wildlife Service?

23 A. Well, we -- I don't know the total  
24 number. I would say dozens. I know of five  
25 different contracts associated with estimating golden

1 eagle population size in the western U.S. I know  
2 we've completed bat surveys for the Fish and Wildlife  
3 Service. We have developed migration models for bats  
4 for the Fish and Wildlife Service. We have -- I know  
5 there are statisticians that work with the Fish and  
6 Wildlife Service office in Alaska, analyzing data  
7 that's been collected.

8 So but, yeah, the exact number I don't  
9 have off the top of my head though.

10 Q. Would you go to page 3 of Exhibit 85. I  
11 would like to direct your attention to the last  
12 paragraph in the first column of that page. And the  
13 first sentence of that paragraph reads as follows:  
14 "Although some bat fatalities had been observed in  
15 early studies, research related to bat-wind  
16 interactions increased dramatically after 2003 when  
17 1,400 to 4,000 bat fatalities were estimated to have  
18 occurred in a six-week period at the Mountaineer Wind  
19 Energy Center in West Virginia." Do you see that  
20 sentence?

21 A. I do see that sentence.

22 Q. Are you aware of the incident that  
23 occurred at the Mountaineer Wind Energy Center that  
24 is described in this sentence?

25 A. Yeah, I believe they are referring to one

1 of the first studies that documented  
2 higher-than-expected bat mortality rates at wind  
3 energy projects. That is a true and accurate  
4 statement. After that discovery, there has been a  
5 lot of research regarding bat and wind interactions.

6 Q. Now, with respect to the bat mortality  
7 data that was utilized in Exhibit 85, how much of  
8 that mortality data was collected prior to 2003?

9 A. You know, I think most of the citations  
10 in here are post-2003. So I would expect most of the  
11 studies in here are post-2003.

12 Q. Were any of the statistics on bat  
13 mortalities the product of averaging mortality  
14 statistics for bats prior to 2003?

15 A. You know, I can't answer that with -- you  
16 know, they did not list all of the studies that were  
17 used in here, but if I look through the citation, I  
18 guess I am going to do a quick review of the  
19 citations and see what the dates are in here. Do I  
20 see any before 2003? I'm not really seeing any  
21 2003 -- pre-2003 citations in the literature cited.

22 Q. Let's go to page 7 of Exhibit 85. I  
23 would like to refer you to the second full paragraph  
24 in the first column on that page.

25 A. What? I'm sorry. I wasn't catching up

1 with you there. What page -- are you still on the  
2 same paper?

3 Q. Same paper, Exhibit 85, page 7.

4 A. Page 7. Okay. Gotcha.

5 Q. And looking at the first full paragraph  
6 in the left column, starting with the word "Using."

7 A. Okay.

8 Q. And that sentence states as follows:  
9 "Using adjusted fatality rate data from publicly  
10 available studies, estimates of average cumulative  
11 annual bird fatalities in the continental U.S.  
12 published in 2013 and 2014 ranged from approximately  
13 230,000 to 600,000 birds per year, estimates of  
14 cumulative bat fatalities published during that same  
15 period ranged from 200,000 to 800,000 bats per year."  
16 Do you see that sentence?

17 A. I do.

18 Q. Okay. So with respect to the data on  
19 birds referenced in this report, that data is limited  
20 to bird fatalities published in 2013 and 2014,  
21 correct?

22 A. No. I think that that statement refers  
23 to those -- either those -- that range of estimates  
24 from 230- to 630,000, but there is a number of other  
25 citations throughout this report that are post-2013.

1 But regarding that statement, yeah, that's what this  
2 statement says.

3 Q. Okay. And the data is limited to  
4 published reports, correct?

5 A. What data are you referring to?

6 Q. The data that I referenced in this  
7 sentence with regard to the estimate of approximately  
8 230,000 to 600,000 birds per year.

9 A. Oh, okay. Yes, so those are references  
10 for a couple of different published reports that rely  
11 on several post-construction monitoring studies. So  
12 they are like their cumulative reviews of several  
13 different monitoring reports.

14 Q. Uh-huh. Of all of the wind farms in the  
15 United States during 2013 and 2014, how many of those  
16 wind farms provided bird mortality data that was  
17 included in these published reports used for the  
18 estimate of bird mortalities in the subject?

19 A. I don't know the answer to that off the  
20 top of my head.

21 Q. Can you tell me whether it's less than  
22 half of the existing wind farms at that time?

23 MR. SECREST: Objection, speculation.

24 ALJ WILLIAMS: To the extent he has any  
25 information, he can then tell us what it is and

1 explain.

2 A. You know, I don't know the exact number.  
3 I can say some of the latest summaries represent  
4 information from like 20 to 30 percent that were  
5 cited in my testimony. So if you assume a similar  
6 number of publicly -- percentage of  
7 publicly-available studies that are available, that's  
8 a wild guess. Again, I would have to go back to the  
9 studies if you want a more concrete answer than that.

10 Q. Yeah. Do you know how many new wind  
11 projects have been constructed and operated in the  
12 United States since 2014?

13 A. I believe that the installed capacity  
14 since 2015, I looked this up, I want to say it  
15 increased by like 30 to 40 percent, in that ballpark,  
16 approximately again.

17 Q. And then with regard to the statement in  
18 the sentence we've been discussing about bat  
19 fatalities, can you tell me the number of wind farms  
20 that produce the bat mortality information used for  
21 the estimated 200,000 to 800,000 bat mortalities per  
22 year?

23 A. Yeah. I don't know that number off the  
24 top of my head.

25 Q. Based on information you've seen on

1 studies of bat mortalities that have estimated the  
2 number of bat mortalities on a national basis, can  
3 you tell me how many of the wind farms in the United  
4 States have been utilized for that information?

5 A. I believe that number is in the ballpark  
6 of 20 to 30 percent. I will look up the exact number  
7 here for you, if you would like.

8 Q. Yes, please.

9 MR. SECREST: May I ask the witness to  
10 identify what he is looking at.

11 ALJ WILLIAMS: Please.

12 A. I want -- I am looking at the --

13 MR. SECREST: I am going to ask you to  
14 not refer to that. That has not been introduced into  
15 evidence.

16 ALJ WILLIAMS: Mr. Good, with that  
17 instruction, if you could return to an estimate, if  
18 you have that, per Mr. Van Kley's question.

19 A. You know, my estimate is in the  
20 neighborhood of like 20 to 30 percent of facilities  
21 are represented in post-construction monitoring  
22 reports based on my recollection.

23 Q. Can you tell me the process by which the  
24 studies on bird and bat mortalities, that you are  
25 aware of, have obtained mortality data from

1 post-construction mortality surveys at wind projects?

2 A. Yes, I can -- I can talk in general  
3 terms.

4 So, you know, the typical approach is  
5 first identify the question trying to be answered.  
6 Are you trying to estimate bird mortality? Are you  
7 trying to estimate bat mortality? Are you trying to  
8 estimate the number of rare events that is currently  
9 at a site?

10 So once those initial objectives are  
11 outlined, then you design the methods that are  
12 focused on best answering those questions. That can  
13 range from searching every turbine at a project to as  
14 few as 10 percent. I would say most of the studies  
15 I'm involved in are typically searching 50 to  
16 75 percent of turbines that is part of the sample.  
17 Many are 100 percent.

18 So you do regular standardized searches  
19 with either trained human technicians or, in some  
20 cases, trained dog teams. You calculate the number  
21 of carcasses you find, and you adjust those numbers  
22 for bats that were -- based on your searcher  
23 efficiency and carcass persistence trials as well as  
24 bats and birds that are expected to occur within the  
25 search.

1           Q.    And what is the typical area covered by  
2           the search plot for these mortality studies?

3           A.    It depends on the -- on the question.  
4           It's hard to say what a typical number is. I guess I  
5           would say most have a plot radius of 60 to  
6           100 meters. Some have plot radiuses lower than that.  
7           Typically those are older studies. Some have plot  
8           radiuses that are much bigger than that if the  
9           objective is to estimate something like an eagle  
10          mortality rate.

11          Q.    And how large are those plot radiuses  
12          typically?

13          A.    Typically 90 to 100 but sometimes they  
14          can be larger depending on the landscape and  
15          protocol.

16          Q.    What is the range of distances from the  
17          turbine that carcasses from dead birds have been  
18          known to travel before landing on the ground?

19          A.    What is the largest distance ever  
20          recorded? What's the -- that your -- is that what  
21          you are asking?

22          Q.    Yeah. Give me a range that would include  
23          the shortest distance and longest distance recorded.

24          A.    I would say -- you know, the shortest is,  
25          you know, around 0 to 1 and, you know, most -- the

1 highest densities of carcasses are close to the  
2 turbines.

3 What's -- I mean that's a good question,  
4 what is the longest distance a carcass has been found  
5 during a carcass study? Probably 150 to 200 meters,  
6 in that ballpark, would be the longest. But those  
7 are kind of outliers, I would say, on the tail end of  
8 things that are quite unusual. Most of the estimates  
9 are, you know, most of the carcasses are falling much  
10 closer than that.

11 Q. So how -- how do the authors of studies  
12 on bat and bird mortalities at wind projects obtain  
13 the information that has been collected during the  
14 mortality surveys? In other words, how do they get  
15 the information? Where do -- who do they get it  
16 from? How is it made available to them?

17 A. I guess I don't know if I quite  
18 understand your question. Are you asking like  
19 when -- when I'm asked to do a carcass study, how do  
20 I obtain the data I collect?

21 Q. No. Let me try again. The mortality  
22 cup -- the mortality data collected on behalf of wind  
23 companies at wind projects typically is not published  
24 publicly on the internet; is that correct?

25 A. I think 20 to 30 percent of the studies

1 out there are public. And so -- and that's again --  
2 so it depends on what you mean is typical. I see  
3 that -- that's 20 to 30 percent of known fatalities.  
4 How many of those facilities actually did a study?  
5 It's less than 100 percent. So what is the actual  
6 number of facilities that have publicly-reported  
7 fatality data? It's higher than that. It's  
8 somewhere probably -- it's somewhere north of 20 to  
9 30 percent.

10 Q. And is this information published  
11 publicly on a voluntary basis by these wind  
12 companies, or is it required by law in some  
13 instances?

14 A. Well, both. So there are a number of  
15 companies that publish their work voluntarily. There  
16 are organizations like the American Wind Wildlife  
17 Institute who serve as a vehicle for those studies to  
18 be housed and for researchers to access that data and  
19 to answer questions that researchers might be  
20 interested in. So, you know, I think I answered your  
21 question. Or did I not hit the mark there?

22 Q. No. I think you answered the question.

23 A. And then I would say a number of those  
24 studies are posted publicly based on the resource  
25 agency they're submitted to.

1           Q.    So if you combine the mortality data that  
2   is posted by the wind companies with the mortality  
3   data that is made public by regulatory agencies,  
4   approximately how many wind projects have produced  
5   the data that has been made public through a  
6   combination of those two means of publication?

7           MR. SECREST:  Objection, speculation.  We  
8   are getting pretty far from the study for which  
9   Mr. Good is being questioned.

10          ALJ WILLIAMS:  I am going to let him go  
11   ahead and answer to the extent he knows.

12          A.    I believe I answered this already; but,  
13   you know, the latest summaries are -- you know, have  
14   publicly-available estimates, I think are in the  
15   neighborhood of 20 to 30 percent, but I don't have an  
16   exact number on -- in front of me.

17          Q.    Okay.  Let's go to page 9 of Applicant's  
18   Exhibit 85.

19          A.    Okay.

20          Q.    I would like to bring you to the second  
21   column on that page to the paragraph that starts with  
22   the words "Long-lived species."

23          A.    Okay.  Go ahead.

24          Q.    All right.  First sentence of that  
25   paragraph states as follows:  "Long-lived species,

1 including most raptors, that have higher adult  
2 survival and fewer offspring each year, may be more  
3 susceptible than short-lived species to  
4 population-level effects from collisions with wind  
5 turbines." Do you agree with that statement?

6 A. Yeah, I guess I do agree with that  
7 statement in context to the previous paragraph which  
8 states that, you know, for most songbirds in the U.S.  
9 for which data are available, cumulative collision  
10 mortality at wind energy facilities has been  
11 estimated to represent less than .01 percent of  
12 population size, and those are species that also have  
13 higher reproductive potential.

14 So relative to the previous paragraph in  
15 context, I mean, yes, you know, wind energy would  
16 have potential to be more susceptible than those  
17 short-lived species regarding population-level  
18 effects if the mortality rates are high enough.

19 Q. And is that also true of bald eagles?

20 A. Bald eagles are a long-lived species and  
21 have higher adult survival so, yes, that would be  
22 true of bald eagles with one exception. Bald eagle  
23 populations are increasing dramatically, so an  
24 increasing population such as bald eagles are much  
25 less susceptible to any population effect.

1           Q.    The next sentence in that paragraph  
2           states as follows: "Few peer-reviewed studies in the  
3           U.S. have investigated population-level effects of  
4           wind energy on any raptor species." Would you agree  
5           with that statement?

6           A.    Yes, I do. I also agree with the next  
7           statement.

8           Q.    All right. I just asked you about the  
9           first statement. Let's go --

10           MR. SECREST: If the witness could finish  
11           his answer.

12           ALJ WILLIAMS: I will allow him to finish  
13           his answer. That will probably save us some time on  
14           redirect anyway.

15           Go ahead and finish your answer.

16           MR. SECREST: Thank you, your Honor.

17           A.    Yeah. I think it's important these  
18           statements be made in context and so the next  
19           statement, the sentence says "Studies of the  
20           unusually high fatalities of golden eagle at the  
21           Altamont wind facility in California indicated that  
22           increased mortality from collisions did not cause a  
23           decline of the local population although recent  
24           research indicates that these fatalities are offset  
25           by immigration of young eagles into the area."

1           Q.    And how many studies were involved in the  
2 studies that are mentioned in that sentence?

3           MR. SECREST:  Objection, vague.

4           ALJ WILLIAMS:  To the extent you can  
5 answer.

6           A.    It cites No. 16.  It cites one study by  
7 Todd Katzner of the USGS.

8           Q.    So that sentence does not contradict the  
9 prior -- the statement in the prior sentence that few  
10 peer-reviewed studies in the U.S. have investigated  
11 population-level effects of wind energy on any raptor  
12 species, correct?

13          A.    Yes, that's correct, with one caveat.  
14 There have been a number of studies that have  
15 estimated raptor fatality rates and have compared  
16 those fatality rates to other sources of mortality,  
17 and those sorts of information is used to -- by  
18 wildlife agencies across the U.S.

19          Q.    Would you go to page 16 of Exhibit 85.

20          A.    Yes.  Go ahead.

21          Q.    All right.  I would like to direct your  
22 attention to the last paragraph above the  
23 illustration in the right-hand column, starting with  
24 the words "Bat scientists."

25          A.    The paragraph below the picture on

1 page 16?

2 Q. The paragraph above the picture.

3 A. Although -- got you. Got it.

4 Q. That sentence states: "Bat scientists  
5 have hypothesized that broadcasting ultrasound from  
6 wind turbines may 'jam' a bat's ability to perceive  
7 its own echos and cause bats to avoid wind turbines."  
8 Do you agree with that statement?

9 A. I do agree. Many scientists have  
10 hypothesized that jamming those frequencies could  
11 work.

12 Q. Are you aware of any other theories on  
13 why bats collide with wind turbines?

14 MR. SECREST: Objection, outside the  
15 scope of redirect.

16 MR. VAN KLEY: Yeah, you're right. I'll  
17 withdraw that one.

18 MR. SECREST: Thank you.

19 Q. (By Mr. Van Kley) Let's go to Applicant  
20 Exhibit 84.

21 A. And can you remind me what's the name of  
22 that report?

23 Q. It's the "Issues in Ecology" paper,  
24 entitled "A Comprehensive Analysis of Small-Passerine  
25 Fatalities from Collision with Turbines at Wind

1 Energy Facilities."

2 A. Okay. Thank you.

3 Q. Let's start first by discussing the  
4 authors of this study. Are there -- are any  
5 authors -- or were any authors employees of WEST at  
6 the time this paper was authored?

7 A. Yes. The first three authors are  
8 scientists at WEST. Other authors on this paper  
9 include Doug Johnson, a noted statistician and  
10 researcher with the USGS, and Joelle Gehring, a  
11 researcher with FCC.

12 Q. So none of the authors of this paper were  
13 employed by U.S. Fish and Wildlife Service at the  
14 time this paper was authored?

15 A. That's correct.

16 Q. Do you know how much, if any, of the  
17 mortality data used to prepare this paper had been  
18 obtained from WEST?

19 A. I don't know the percentage.

20 Q. Now, the date of this paper -- that is,  
21 the date the paper was received by the publisher was  
22 June 16, 2013; is that correct?

23 A. Yeah, that's correct.

24 Q. So there's no post-2013 mortality data  
25 that was used in the preparation of this paper?

1           A.    Yeah, that's correct.

2           Q.    Go to page 5 of Exhibit 84.

3           A.    Go ahead.

4           Q.    Go to the second column of that page  
5 under the heading of "Results."

6           A.    Okay. Go ahead.

7           Q.    Under "Results" it states that "Most of  
8 the 116 available monitoring studies that were  
9 appropriate for our analyses were conducted in the  
10 northern third of the contiguous United States." Do  
11 you see that sentence?

12          A.    I do.

13          Q.    Is that the total number of studies that  
14 were utilized for the preparation of Exhibit 84?

15          A.    I believe they reviewed more studies than  
16 this, but they only included studies that I believe  
17 occurred during the migration seasons and met the  
18 minimum criteria for inclusion.

19          Q.    Uh-huh. And those numbered 116 studies  
20 total?

21          A.    That's what it says, yes.

22          Q.    Go to page 12. And I would like to  
23 direct you to the first column on that page under the  
24 heading "Other Analyses of Collisions with Turbines  
25 and Unknown Factors." Let me know when you've found

1       that.

2               A.     Yeah, I'm here.

3               Q.     Okay.  Let's go to the first paragraph  
4       under that heading.  You see in the first sentence of  
5       that paragraph that the authors state that they  
6       calculate about 214,000 to 368,000 turbine-related  
7       deaths that occur each year for all birds?

8               A.     Yes, I see that.

9               Q.     And then in the next sentence do you see  
10      the reference to values presented by Loss which  
11      averaged 234,000?

12              A.     Yes, I do see that.

13              Q.     Is that where you obtained your figure of  
14      about 230,000 bird mortalities per year that you  
15      mentioned in your redirect testimony?

16              A.     Having trouble remembering, we talked a  
17      lot of numbers but that very well could be it.  I  
18      would expect so; but, you know, I need to go back and  
19      see the exact reference if you would like.

20              Q.     So you see the same sentence that has the  
21      reference to Loss, that there were numbers presented  
22      by Smallwood and Manville, 573,093 and 440,000  
23      respectively, in bird mortalities per year?

24              A.     Yes, I do see that.

25              Q.     And let's look at the last sentence on --

1 in that paragraph that starts on the bottom of the  
2 first column on page 12 which starts with the words  
3 "Our study differs." And let me know when you have  
4 found that sentence.

5 A. Yes, I see that.

6 Q. Okay. And it says there "Our study  
7 differs from that of Smallwood because we used the  
8 fatality rate provided in individual studies as  
9 opposed to independently recalculating these rates  
10 from the raw data using a single common estimator."  
11 Did I read that correctly?

12 A. Yes.

13 Q. Let's go to the next column on page 12 of  
14 Exhibit 84. And we'll look at the first four -- the  
15 first full paragraph in that column. Let me know  
16 when you have found that.

17 A. Can you help me again? I am having  
18 trouble finding that.

19 Q. Yeah. Page 12, column 2, first -- first  
20 full paragraph in that column starting with the words  
21 "There are factors."

22 A. Correct. All right.

23 Q. Let me read the first two -- or first  
24 three sentences of that paragraph and tell me if I  
25 have read them correctly. "There are factors that

1 may influence any per year estimate of bird  
2 fatalities. First, taller turbines may be related to  
3 an increase in bird mortality, as suggested by Loss,  
4 et al. We found no linear correlation between  
5 turbine tower height and the fatality rates we  
6 estimated, but other factors such as geographic  
7 location or turbine age may confound the effect of  
8 tower height." Did I read that correct?

9 A. Yeah.

10 Q. Would you agree that generally wind  
11 turbines that are taller pose more risk of bird  
12 fatalities?

13 MR. SECREST: Objection, vague. Birds in  
14 total, regardless?

15 MR. VAN KLEY: Yes.

16 A. The answer is it depends.

17 Q. What does it depend on?

18 A. It depends on the species you are talking  
19 about.

20 Q. Are there certain species that are more  
21 at risk from collisions with wind turbines that are  
22 taller?

23 A. I would say that, you know, taller  
24 turbines tend to occur, you know, closer to the air  
25 space where a lot of nocturnal migrants fly, although

1 a lot of nocturnal migrants fly in the existing air  
2 space of existing wind turbines, smaller turbines. I  
3 believe that's what Loss -- I believe that's what  
4 their -- their study suggested as well.

5 Q. Since 2013 when this paper was presented,  
6 have the turbine models utilized in wind projects in  
7 the United States generally increased in height?

8 A. They have increased in height, yes. So,  
9 you know, machines now are able to generate more  
10 power at those greater heights which also means  
11 there's fewer turbines that are developed in a given  
12 project to meet the capacity requirements, so it is a  
13 tradeoff. There are some taller turbines but there's  
14 fewer of them.

15 Q. Going back to the first full paragraph in  
16 the second column on page 12 of Exhibit 84, I would  
17 like to direct your attention to the -- the sentence  
18 after the sentences that I read to you. It starts  
19 with the word "Second." Tell me when you have found  
20 that.

21 A. You are on the last paragraph on the left  
22 column on page 12?

23 Q. I'm on the second paragraph. I'm sorry.  
24 I am in the second column and the first full  
25 paragraph of that column.

1           A.    You're in the right paragraph --

2           MR. SECREST:   May I show the witness,  
3   your Honor?

4           ALJ WILLIAMS:   You may.

5           MR. SECREST:   Thank you.

6           THE WITNESS:   Okay.   Thank you.   See if I  
7   got it somewhere.

8           Q.    (By Mr. Van Kley) Okay.   So go back to  
9   the paragraph that I've already read a couple  
10   sentences to you which starts with the words "There  
11   are factors."

12          A.    Yep.

13          Q.    Okay.   Now go down to the sixth line of  
14   that paragraph starting with the word "Second."

15          A.    Yes.

16          Q.    And that sentence reads as follows:  
17   "Second, the size of the search plot may influence  
18   how many actual fatalities are found by searchers."  
19   Do you agree with that statement?

20          A.    Yes.

21          Q.    Okay.   Now, staying in the same  
22   paragraph, let's go down to the sentence that starts  
23   with the words "Not all plot sizes" which will be  
24   about seven lines below the sentence I just read to  
25   you.

1           A.    Okay.

2           Q.    And that sentence reads:  Not all plot  
3 sizes in studies for our analysis conformed to these  
4 guidelines, and some studies may underestimate the  
5 number of bird fatalities found to -- found due to  
6 the bird carcasses landing outside the search plot.  
7 Do you see that sentence?

8           A.    I do see that sentence, yes.

9           Q.    Okay.  And do you agree with that  
10 statement?

11          A.    So, yes.  I mean, in this study they did  
12 not correct for birds that fell outside of the plots.  
13 However, Loss et al. did do so and their estimate was  
14 similar to ours.  But, yes, you are correct, that is  
15 what the sentence says.

16          Q.    You can put Exhibit 84 to the side for  
17 now.

18          A.    The only thing I would add to that  
19 statement would be we certainly have looked at this  
20 and I guess based on the typical plot sizes and using  
21 some of the ballistics models that are out there, you  
22 know, those estimates are, you know, given the plot  
23 sizes that have been studied, you know, the  
24 percentage of birds nests are not -- you know, it's  
25 not a doubling of the estimate.  These cases are

1 capturing most of the birds that are killed and  
2 some -- there is some adjustments made to it. These  
3 aren't continually large adjustments.

4 Q. Do you agree that wind projects in the  
5 midwest have had some of the highest fatality  
6 estimates for bats?

7 A. Yes, they have. The range is broad from  
8 0 to, I believe, 60 bats per megawatt, but most being  
9 less than that, but that is the upper end of the  
10 reported range.

11 Q. And just for clarification, the figures  
12 that you just mentioned, up to 60 bats per megawatt,  
13 would be the estimated number of bat deaths per  
14 megawatt per year, correct?

15 A. Yes. That's reported megawatts for that  
16 study. The reported numbers per megawatt per I  
17 believe that number you're referencing -- I guess I  
18 need to go back and I would need to go back and see  
19 the study estimate to see if they reported per year  
20 or per study period. I can't remember off the top of  
21 my head.

22 Q. What do you need to do to confirm?

23 A. I would need to review the report where  
24 that estimate was provided. But in general if it's  
25 reported, it's going to encompass the majority, if

1 not all of the time, when bats were present.

2 Q. During your redirect examination you  
3 mentioned the survey of mortalities at Wolfe Island.  
4 Do you recall that testimony?

5 A. I do.

6 Q. Now, the search radius for that study was  
7 50 meters from the turbine tower, correct?

8 A. Yes.

9 Q. You also mentioned a study in which -- a  
10 study on a wind project in which tundra swans were  
11 present. Do you recall that?

12 A. Yes. They were described within those  
13 Wolfe Island reports.

14 Q. Of the waterfowl studies that you  
15 mentioned in your redirect testimony that appears to  
16 conclude that the risk to waterfowl from wind  
17 turbines is low, in how many of those studies was it  
18 shown that tundra swans were present in the project  
19 area that was utilized in those studies?

20 A. The monitoring studies at Wolfe Island.  
21 I don't believe there is tundra swans present at the  
22 Top of Iowa study I mentioned. But they were present  
23 at the Wolfe Island study.

24 Q. And in how many of the studies at Wolfe  
25 Island were the tundra swans present?

1           A.    I believe they were there every year at  
2   Wolfe Island, so I would assume they are present -- I  
3   need to go back and check, but during the majority of  
4   those studies, again, you mentioned the search radius  
5   was 50 meters.  If that was the distance, we would  
6   expect if there were large numbers of tundra swans  
7   mortalities occurring, they would be detected within  
8   50 meters.

9           Q.    How many tundra swans were present during  
10  those studies?

11          A.    The report referenced thousands.  I would  
12  need to check the reports for that number.

13          Q.    In your redirect you provided some  
14  testimony concerning the ODNR protocols for surveying  
15  birds and bats, correct?

16          A.    I did, yes.

17          Q.    Is there anything in that protocol that  
18  prohibits the wind developer from obtaining more  
19  information than is required by that protocol?

20          A.    There is not.  In fact, you know, in this  
21  case the Applicant, on their own, completed an  
22  additional three years of large bird surveys that are  
23  not required in the ODNR protocol.

24          Q.    Uh-huh.  And the reason that was done is  
25  primarily -- was primarily to look for bald eagles,

1 correct?

2 A. Bald eagles and other large birds so,  
3 yes, tundra swans.

4 Q. What were the years in which the large  
5 bird surveys were conducted for this project?

6 A. Okay. I believe I need to reference  
7 the --

8 MR. SECREST: If I may direct you to  
9 Exhibit S of the Application, not K.

10 THE WITNESS: Thank you.

11 A. So there was one study in 2016 to 2017.  
12 Second survey in 2016 to 2017. 20 -- there's another  
13 survey in 2018 to 2019. And then I believe there was  
14 one more, the Tetra report for 2012 referenced  
15 another study completed -- migration survey in 2011.  
16 And I will be more specific. In 2011 to 2012 was the  
17 other.

18 Q. Say that again, please.

19 A. 2011 to 2012.

20 Q. So in your testimony you stated that the  
21 Applicant here completed more bird surveys than  
22 required by ODNR. Did you include in that statement  
23 the surveys done from 2011 to 2012?

24 A. Yes. In general under the ODNR  
25 protocols, correct, that study would not have been

1 included. Also included in that statement were the  
2 breeding bird surveys, so the ODNR does not require  
3 breeding bird surveys unless turbines are located in  
4 bird habitats and there will be no turbines in bird  
5 habitats. So those are -- I guess that's -- you  
6 know, those are all the studies that were done in  
7 addition to what was asked for by the ODNR.

8 In addition, like, there were multiple  
9 years, so there is more effort in the project than  
10 would have been required under the survey effort  
11 letter, so more points. Even within surveys that  
12 were required, you know, even more points surveyed  
13 than would have been required in the ODNR survey.

14 Q. Uh-huh. With regard to the 2011-2012  
15 eagle surveys, can you tell me your opinion with  
16 regard to whether those surveys are representative of  
17 the bald eagle populations found in the project area  
18 today?

19 A. Chris Farmer, who is up next, will be  
20 testifying to eagles. That was not the purpose of my  
21 testimony.

22 Q. Do you know the answer to the question?

23 MR. SECREST: Objection, outside the  
24 scope of redirect.

25 ALJ WILLIAMS: I will give a small bit of

1 latitude if he knows the answer.

2 THE WITNESS: I'm sorry. I think you  
3 said go ahead?

4 ALJ WILLIAMS: I will give a small bit of  
5 latitude to answer, if you know.

6 A. Okay. Are they representative of -- I  
7 think they are in a lot of regards for -- with the  
8 caveat that eagle populations have increased which is  
9 why the Applicant decided to repeat a lot of those  
10 surveys throughout the new boundary.

11 Q. You made a statement in your redirect  
12 that some of the surveys were done outside of the  
13 foraging area for the Indiana bat; am I accurately  
14 restating your testimony?

15 A. No. What I said was the turbines were  
16 sited outside of established presence buffers for the  
17 Indiana bat based on the survey data prior.

18 Q. Were there any acoustic surveys for bats  
19 that covered those areas?

20 MR. SECREST: Objection. This is outside  
21 the scope of direct as well.

22 MR. VAN KLEY: No, it's not. I  
23 specifically linked it to his testimony about the  
24 turbines being outside the foraging areas. I'm  
25 testing the accuracy of that statement.

1           ALJ WILLIAMS: I will allow him to  
2     answer.

3           A. There were acoustic surveys. Honestly I  
4     don't -- I don't remember if the met towers and the  
5     locations of those surveys were in or out of those  
6     presence buffers. I would need to go back and check  
7     the map layout compared to the acoustic survey report  
8     to give you an answer on that.

9           MR. VAN KLEY: Okay. All right. I have  
10    no further questions.

11          ALJ WILLIAMS: Any redirect?

12          MR. SECREST: Your Honor, I would enjoy  
13    more questions, but I believe I've exhausted mine.

14          ALJ WILLIAMS: All right. I don't expect  
15    anyone else, but I will let people frantically wave  
16    if they think they have anything. I see no motion.

17          With that we will take up the exhibits,  
18    Mr. Secrest.

19          MR. SECREST: Thank you, your Honor. May  
20    the Applicant move to admit Exhibits 32, 47, 84, and  
21    85.

22          ALJ WILLIAMS: Any objection?

23          MR. VAN KLEY: Yeah. Could I have that  
24    list again, please?

25          MR. SECREST: Certainly. It's 32 which

1 was Mr. Good's prefiled testimony. It's 47 which is  
2 the ODNR pre- and post-construction monitoring  
3 protocol. It is 84 which is titled "Comprehensive  
4 Analysis of Small-Passerine Fatalities from Collision  
5 with Turbines at Wind Energy Facilities." And 85  
6 which is the "Issues in Ecology, Impacts to Wildlife  
7 of Wind Energy Siting and Operation in the United  
8 States."

9 MR. VAN KLEY: Your Honor, I do not  
10 object to the admission of Exhibit 32 or Exhibit 47.  
11 I do object to the admission of Exhibits 84 and 85.  
12 First of all, the witness has provided us with a  
13 discussion about the information in those exhibits  
14 that on which he is relying for his testimony. So  
15 it's unnecessary to admit those papers in full on the  
16 docket.

17 Secondly, those papers include a lot of  
18 information and statements that was not subject to  
19 redirect examination and, thus, could not be subject  
20 to recross-examination. And, therefore, we shouldn't  
21 allow those papers to be admitted in whole on the  
22 docket to -- for possible use for purposes other than  
23 the ones that the witness employed in his testimony.

24 ALJ WILLIAMS: Attorney Secrest,  
25 response?

1           MR. SECREST: Thank you, your Honor.  
2 Exhibits 84 and 85 were referenced, in fact,  
3 footnoted in Mr. Good's testimony. They were  
4 referenced in his testimony. Their inclusion in  
5 these proceedings should not come as a surprise.

6           And with regard to topics for -- that  
7 were not explored on redirect, Mr. Van Kley certainly  
8 explored a number of topics in each one of these  
9 exhibits that we did not touch on in redirect, so he  
10 had ample opportunity on recross, and the Bench  
11 provided him latitude to explore topics on recross  
12 that were not specifically addressed in redirect.  
13 And they are relevant to these proceedings, your  
14 Honor.

15           ALJ WILLIAMS: I agree. I think they are  
16 relevant. I think that they presented a lot of  
17 opportunity for questioning regarding the exhibits.

18           MR. SECREST: Thank you, your Honor.

19           (EXHIBITS ADMITTED INTO EVIDENCE.)

20           ALJ WILLIAMS: Does anybody need a break  
21 before we proceed to the next witness? Let's go  
22 ahead and get started with the next witness and that  
23 will give us an opportunity for a break around the  
24 4:30 hour. It doesn't look as though we are going to  
25 get to Witness Bellamy this afternoon, Attorney

1 Margard, so if you want to let Mr. Bellamy know he  
2 will be postponed until tomorrow, that would be  
3 great.

4 MR. MARGARD: I will do so. That would  
5 be great, your Honor.

6 ALJ WILLIAMS: Mr. Secrest, I am going to  
7 have you call your next witness, and Judge Agranoff  
8 will probably preside over the rest of the afternoon.

9 MR. SECREST: Thank you, your Honor. May  
10 the Applicant call Dr. Christopher Farmer.

11 ALJ AGRANOFF: If you can please have  
12 Dr. Farmer come up on the screen.

13 MS. CHILCOTE: Mr. Farmer, you have been  
14 promoted to a panelist. You should be able to turn  
15 on your microphone and speak now.

16 THE WITNESS: Yes. I'm here.

17 ALJ AGRANOFF: Hello, Dr. Farmer. Please  
18 raise your right hand.

19 (Witness sworn.)

20 ALJ AGRANOFF: Thank you.

21 Mr. Secrest.

22 MR. SECREST: Thank you, your Honor.

23 - - -

24

25

1 CHRISTOPHER FARMER, Ph.D.

2 being first duly sworn, as prescribed by law, was  
3 examined and testified as follows:

4 DIRECT EXAMINATION

5 By Mr. Secrest:

6 Q. Good afternoon, Dr. Farmer.

7 A. Good afternoon.

8 Q. Thank you for patiently waiting. Do you  
9 have in front of you what has been marked as  
10 Exhibit 33?

11 A. Yes, I do.

12 Q. Is that a copy of your prefiled direct  
13 testimony in this action?

14 A. It is.

15 Q. Okay. Do you have any revisions or  
16 corrections to that testimony?

17 A. No, I don't.

18 MR. SECREST: Okay. Thank you.

19 Your Honor, I will tender Dr. Farmer for  
20 cross-examination.

21 ALJ AGRANOFF: Thank you. The exhibit  
22 shall be so marked.

23 (EXHIBIT MARKED FOR IDENTIFICATION.)

24 ALJ AGRANOFF: Mr. Van Kley, are you  
25 ready, sir?

1 MR. VAN KLEY: Not quite, your Honor. I  
2 am still pulling up the materials here. Give me a  
3 moment.

4 ALJ AGRANOFF: I would be a little bit  
5 surprised if you had said yes.

6 MR. VAN KLEY: All right.

7 - - -

8 CROSS-EXAMINATION

9 By Mr. Van Kley:

10 Q. Mr. Farmer, I think I am more or less  
11 ready. First of all, where do you live?

12 A. I live in Pennsylvania.

13 Q. Have you ever lived in Ohio?

14 A. No, I have not.

15 Q. Other than working on the Emerson wind --  
16 or Emerson Creek wind project, have you done any  
17 other professional work related to birds in Ohio?

18 A. I worked on one other early-phase  
19 development wind project in Ohio in Crawford County  
20 back in the 2012 to '13 time frame.

21 Q. Uh-huh. Where is Crawford County  
22 relevant to the State of Ohio? Is it north? South?  
23 East? West?

24 A. I believe it's to the south of this  
25 project area.

1 Q. Do you know how far south?

2 A. I think it may be in an adjacent county,  
3 if I recall correctly.

4 Q. Have you personally visited the project  
5 area for the Emerson Creek wind project?

6 A. Yes, I have.

7 Q. On how many occasions?

8 A. I visited it just once this year.

9 Q. Have you visited that project area in any  
10 other areas besides this year?

11 A. Not deliberately.

12 Q. Just passing through perhaps?

13 A. I may have passed through including when  
14 I was transiting to the other wind project I worked  
15 on.

16 Q. When did you visit the project area in  
17 Emerson Creek wind project?

18 A. I went out there with Rhett Good on  
19 March 5 and 6 of this year to make a general  
20 reconnaissance of the area.

21 ALJ AGRANOFF: Mr. Van Kley?

22 MR. VAN KLEY: Yeah.

23 ALJ AGRANOFF: If you could please make  
24 sure your video camera is on.

25 MR. VAN KLEY: Oh. Here I am.

1 ALJ AGRANOFF: There you are.

2 Q. (By Mr. Van Kley) Let's go to your  
3 written direct testimony labeled as Applicant  
4 Exhibit 33. Let's go to page 14 of your testimony.

5 A. Okay. I'm on page 14.

6 Q. Okay. And we are going to talk briefly  
7 about the study that is labeled as C on that page,  
8 "April 3, 2020, WEST, Large Bird and Eagle Use  
9 Surveys."

10 A. I see it.

11 Q. What is the nature of the surveys, that  
12 is, what was the procedure of the surveys used in the  
13 preparation of this report?

14 A. These are point count surveys that are  
15 conducted at a random sample of the project area.  
16 They consist of an observer staying at a fixed  
17 location and surveying for birds in an 800 meter  
18 radius around them for one hour at each point.

19 Q. So if a bald eagle traveled further than  
20 800 meters, then its presence would no longer be  
21 recorded in this report?

22 A. The way that these are conducted, the  
23 answer to that is going to be a yes and a no. The  
24 data recording for purposes of the U.S. Fish and  
25 Wildlife Service records the eagle use within just

1       that 800-meter radius around the point. However, to  
2       inform turbine siting and to inform other risk  
3       analyses in a qualitative fashion, what we typically  
4       do is we map that movement for as far as we can  
5       reliably follow it and map it. So if it were to move  
6       out of the 800-meter plot but we could still see it,  
7       we could continue mapping the flight path.

8               Q.     Yeah. Now, Firelands reported to the  
9       U.S. Fish and Wildlife Service what it referred to as  
10      eagle use minutes; is that correct?

11             A.     Yes. There are eagle use minutes  
12      sometimes called eagle exposure minutes or eagle risk  
13      minutes also.

14             Q.     Okay. Now, are the -- are the time  
15      periods in which the bald eagle traveled beyond  
16      800 meters included in the eagle use minutes reported  
17      to the U.S. Fish and Wildlife Service?

18             A.     No. Those are not included because they  
19      are outside of the sample frame of the survey. And  
20      that's important because when you take a  
21      representative sample of an area, if you use data  
22      outside of your sample frame, you do not have any  
23      estimate of the effort it required to get that.

24             Q.     Let's go to page 19 of your testimony.

25             A.     Okay. I have page 19.

1           Q.    With regard to the eagle use minutes  
2   reported to U.S. Fish and Wildlife Service, how much  
3   of that information was obtained using the procedure  
4   that we just described?

5           A.    With regard to -- I'm sorry.  I'm not  
6   sure I followed.

7           Q.    Well, I will reword it.  You described a  
8   procedure in which the observer will be situated in a  
9   location and record all eagle use activity within  
10  800 meters; is that correct?

11          A.    Yes.

12          Q.    Is that the procedure that was used  
13  for -- to obtain all of the eagle use minutes for the  
14  project area that was reported to the U.S. Fish and  
15  Wildlife Service?

16          A.    Yes, I believe it was in these recent  
17  reports based on the surveys that WEST did.  And what  
18  I didn't mention before, that those are -- it's a  
19  cylinder, the plot.  It has a top as well as sides.  
20  And the top of that cylinder is 200 meters in height.  
21  So minutes -- radius would not be recorded.

22          Q.    Okay.  You -- your voice disappeared  
23  there for a moment.  Can you repeat the last part of  
24  your answer?

25          A.    Yes.  I will put the microphone closer in

1 case that was the issue. Is this better?

2 Q. Yes.

3 A. Okay. In the data that goes to the U.S.  
4 Fish and Wildlife Service, for their analysis there's  
5 also a top to the plot. It's a 200-meter high plot.  
6 So it's an 800-meter radius by 200-meter height.

7 Q. Okay. And I think you also said  
8 something about if there was something and then you  
9 faded out, it would no longer be?

10 A. Yes. If there was an eagle observed  
11 within 800-meter -- 800 horizontal meters of the plot  
12 but it was above 200 meters vertically, it would not  
13 be included in those minutes.

14 Q. Let's go to Question and Answer 16 that  
15 starts on page 19 of your testimony.

16 A. Yes, I see it.

17 Q. The answer reads in part -- let me start  
18 with the question just to put it in context. The  
19 question is, "To your knowledge, has the U.S. Fish  
20 and Wildlife Service collision risk model been  
21 applied to data from the Project?"

22 And the first part of your answer  
23 states: "Yes. The Staff Report of Investigation for  
24 the Project states on page 43 that the U.S. Fish and  
25 Wildlife Service 'determined the preliminary risk to

1 eagles is about 2.5 eagles per year.' This appears  
2 to be derived from the U.S. Fish and Wildlife Service  
3 collision risk model prediction." Did I read that  
4 correctly?

5 A. Yes.

6 Q. What makes you think that the -- this  
7 estimate of preliminary risk to eagles was derived  
8 from the collision risk model prediction?

9 A. Two aspects, that it was provided by the  
10 U.S. Fish and Wildlife Service and that it references  
11 a predicted fatality rate of 2.5 eagles per year.  
12 That's typically the type of output that you see from  
13 that collision risk model.

14 Q. What are the inputs for that model?

15 A. The inputs for the model consist of sort  
16 of three primary areas. One is an estimate of eagle  
17 exposure and that's what's derived from the point  
18 count survey sample that is done in the project area.

19 The next is what's called an expansion  
20 factor and that is derived from the physical  
21 components of the wind farm and the size of the  
22 rotor-swept area and what it does is it extrapolates  
23 from the sample taken on the point counts to all of  
24 the turbines in the wind farm and all of the daylight  
25 hours during which an eagle might fly for a year.

1           The third component is what's called a  
2 collision probability or collision frequency and that  
3 is derived from under -- our understanding of how  
4 much, unfortunately, a golden eagle collides with a  
5 wind turbine given a minute of exposure. We're  
6 currently stuck using golden-eagle-based information  
7 from older wind farms in order to populate that model  
8 but there are efforts underway to update those and  
9 it's hoped that the Fish and Wildlife Service will  
10 relatively soon have a bald-eagle-specific model that  
11 doesn't rely on golden eagle data.

12           The reason that's important is that  
13 although we call them both eagles, bald eagles and  
14 golden eagles are not closely related to one another.  
15 They have very different biologies and very different  
16 foraging ecologies that makes their collision-risk  
17 profiles appear to be different at wind farms.

18           Q.    So the number of eagle use minutes that  
19 the wind company obtained for the Emerson Creek Wind  
20 Farm is utilized in a collision risk model?

21           A.    Yes. The estimated exposure is those  
22 number of minutes with a denominator of how much  
23 survey effort went into measuring those -- those  
24 exposure minutes.

25           Q.    In calculating those eagle use minutes

1 for this project, did Firelands set up its count  
2 areas within a visible distance from the eagle nests?

3 A. I believe some of the earlier surveys did  
4 that which is those would not be good data to use for  
5 the collision risk model. What the collision risk  
6 model is trying to get at is what the typical  
7 exposure within the entire project is rather than  
8 what the extreme -- either extreme low or extreme  
9 high exposure would be. So the correct way to do it  
10 is to randomly distribute your sample locations  
11 throughout the project area.

12 What happens in practice is there's --  
13 there's always land that you can't access, so you end  
14 up with a sample that's a stratified random instead  
15 that you don't have a fully randomized spatial  
16 sample.

17 Q. Uh-huh. And which were the eagle surveys  
18 conducted for this project that you believe utilized  
19 the appropriate procedure?

20 A. Those would be the eagle use and large  
21 bird surveys that were conducted in 2016 and '17 and  
22 2018 through '19.

23 ALJ AGRANOFF: Have those been  
24 incorporated in exhibits that have already been  
25 marked in this case?

1 THE WITNESS: Yes. One of them was in an  
2 S exhibit that Mr. Good was referencing earlier. I  
3 don't recall which S that was. And the 2018 to '19  
4 has been attached as CF-4 to my testimony.

5 ALJ AGRANOFF: Okay. Thank you.

6 Q. (By Mr. Van Kley) Okay. I think we can  
7 all find CF-4. Can you give us a clue as to how to  
8 find the other report that's in Exhibit S?

9 A. Yes. I have it electronically here. I  
10 can look up what the name is.

11 Q. Okay. And maybe the date as well of the  
12 report.

13 A. Yes. It is -- there are two of them, I'm  
14 sorry, Exhibit S-1 and Exhibit S-2. S-1 is May 8,  
15 2018. S-2 is September 10, 2018.

16 Q. Okay. Thank you. Would you find what's  
17 been marked as LR Exhibit 16 in a folder that I  
18 believe you have been provided.

19 A. Yes. I have an electronic copy of that.

20 Q. Okay.

21 MR. VAN KLEY: At this time, your Honor,  
22 we would like to mark this as LR Exhibit 16.

23 ALJ AGRANOFF: It shall be so marked.

24 (EXHIBIT MARKED FOR IDENTIFICATION.)

25 MR. VAN KLEY: Okay. And just to

1 identify the exhibit. This is a series of e-mails.  
2 The first e-mail on the first page is an e-mail from  
3 Margaret Rheude to Jennie Geiger dated March 12,  
4 2020.

5 Q. (By Mr. Van Kley) Mr. Farmer, is that the  
6 document you have in front of you?

7 A. Yes, it is.

8 Q. Okay. Thank you.

9 ALJ AGRANOFF: And just so that I know,  
10 Mr. Van Kley, this LR Exhibit 16 -- I'm trying to  
11 find it in the files that I have here. Where would I  
12 be looking?

13 MR. VAN KLEY: You would be looking in  
14 the exhibits that I circulated by e-mail.

15 ALJ AGRANOFF: Okay. Hold on for a  
16 second.

17 What was the date of the e-mail,  
18 Mr. Van Kley?

19 MR. VAN KLEY: Let me look. 10-1?

20 ALJ AGRANOFF: What was that date again?  
21 10-1? October 1?

22 MR. VAN KLEY: That sounds correct. Let  
23 me find the e-mail.

24 ALJ AGRANOFF: It's an exhibit list.

25 MR. VAN KLEY: It was the -- it was in

1 the compilation of exhibits that I distributed  
2 through a share file which I believe you had  
3 downloaded by somebody else for distribution to you.  
4 Mr. Margard had downloaded them and I believe may  
5 have distributed them to you on a stick.

6 ALJ AGRANOFF: I only see LR Exhibit 15,  
7 25. At least what I got loaded I have LR 15, 25, 26.

8 MR. SECREST: Your Honor, I have it up  
9 and the ability to e-mail rather quickly, if I may do  
10 so.

11 ALJ AGRANOFF: I appreciate that, and  
12 also I think Judge Williams was looking for it.  
13 Yeah, if you can e-mail that to me, that would be  
14 great.

15 MR. SECREST: Certainly. This comes from  
16 Mr. Van Kley's e-mail.

17 ALJ AGRANOFF: Thank you. Okay. I do  
18 have it now. Thank you.

19 MR. VAN KLEY: All right. Thank you.

20 Q. (By Mr. Van Kley) All right. Mr. Farmer,  
21 have you seen this document before today?

22 A. Yes, I have.

23 Q. Uh-huh. When did you first see this  
24 document?

25 A. This was forwarded to me I think sometime

1 in late spring or early summer.

2 Q. Do you recall who forwarded it to you?

3 A. Yes. Jennie Geiger.

4 Q. I would like to refer you to the second  
5 e-mail in the chain which starts about the middle of  
6 the first page of LR Exhibit 16 and which is an  
7 e-mail from Margaret Rheude to Robert Holderbaum  
8 dated February 27, 2020.

9 A. I have it.

10 Q. Yeah. Was this e-mail included in the  
11 e-mails that Jennie Geiger forwarded to you?

12 A. Yes. I think it was.

13 Q. All right. If you look at the last  
14 sentence of the second paragraph of that e-mail, that  
15 sentence starts with the words "I conducted."

16 A. Yes, I see it.

17 Q. Okay. Great. The sentence says "I  
18 conducted an initial model run on the summary data  
19 they provided me, using the following inputs: 71  
20 turbines, Vesta 150-4.2 MW styles. 1212 hours of  
21 eagle use observations, with 125 eagle use minutes  
22 observed." Do you see that?

23 A. Yes, I do.

24 Q. Okay. And the next sentence which is on  
25 the second page of LR Exhibit 16 states "Based on

1       these inputs, the preliminary risk to eagles is about  
2       2.5 eagles per year." Do you see that?

3             A.    Yes, I do.

4             Q.    Okay. And based on the vernacular that  
5       she uses there, do you understand that the 2.5 eagles  
6       per year referenced in that sentence refers to the  
7       expected mortality of eagles per year?

8             A.    Yes. That would confirm what we stated  
9       earlier, that that is an output from the collision  
10      risk model that predicts annual fatalities based on  
11      eagle exposure.

12            Q.    Uh-huh. And referring you back to the  
13      page of LR Exhibit 16 where Ms. Rheude lists 71  
14      turbines for 1,212 hours of eagle use observations  
15      and 125 eagle use minutes, are those empirical inputs  
16      of the Fish and Wildlife Service collision model that  
17      you identified earlier in your testimony?

18            A.    Yes. They need the number of turbines.  
19      They need the rotor radius of the turbines which you  
20      can usually find if you know the make and model. And  
21      they need the survey effort and the number of eagle  
22      exposure minutes.

23            Q.    Why then is rotor size important in this  
24      calculation?

25            A.    The collision risk model is based on the

1 area of air that rotors pass through, and so, to  
2 determine that, they build a cylinder around the  
3 turbine that uses that radius to determine the radius  
4 of the cylinder.

5 Q. Uh-huh. And in the calculation of this  
6 collision risk model, does that model compare the  
7 number of eagle use minutes with the number of hours  
8 of eagle use observations?

9 A. Yes. In this case essentially the eagle  
10 use observation hours are the denominator, and the  
11 eagle exposure minutes are the enumerator.

12 Q. Looking again at the second paragraph of  
13 Ms. Rheude's e-mail of February 27, 2020, she states  
14 in the third sentence that "Emerson Creek seems to  
15 have a good amount of recent eagle use data, which  
16 conforms to the Fish and Wildlife Services'  
17 recommendations in the Eagle Conservation Plan  
18 Guidance." Do you see that sentence?

19 A. Yes, I do.

20 Q. Do you have any knowledge concerning  
21 which eagle studies performed by Firelands were used  
22 in her calculation?

23 A. I do not directly know, but I can surmise  
24 by looking at the data that it is from the 2016  
25 through 2019 studies that we discussed earlier.

1           Q.    Uh-huh. Did those studies record 1,212  
2 hours of eagle use observations collectively?

3           A.    I believe they probably did. That's  
4 the -- although it's stated awkwardly in her e-mail.  
5 That's not hours of eagles using the project. That's  
6 hours of people looking for eagles.

7           Q.    Based on your knowledge of the collision  
8 risk model used by the U.S. Fish and Wildlife  
9 Service, is there a -- a rule of thumb utilized for  
10 the purpose of calculating those models that requires  
11 the eagle use data to be no older than a specific  
12 age?

13          A.    So there is -- there's no strict  
14 regulatory cutoff on that and often how old the data  
15 can be comes down to coordination between the  
16 individual project and the Fish and Wildlife Service,  
17 but typically for this kind of survey we start to  
18 think of them as stale if they are more than about  
19 five years old, and they are probably less applicable  
20 than they would be were they newer.

21                The -- in 2016 the Fish and Wildlife  
22 Service promulgated some regulations that require  
23 certain data in order to apply for an eagle take  
24 permit. And one of those requirements was two years  
25 of eagle use data of this nature. However, it

1 doesn't specify how recent they have to be.

2 Q. Uh-huh. If the amount of eagle use in a  
3 project area is increasing from year to year, does  
4 that affect the usefulness of the eagle use data in  
5 earlier years?

6 A. That is one of the considerations that  
7 the Fish and Wildlife Service took into account in  
8 creating the requirement for two years of surveys.  
9 We are all aware there is variation from year to year  
10 and also that bald eagle populations are increasing  
11 nationally and within Ohio.

12 And so what you want to do typically is  
13 get two consecutive years or two years with an  
14 intervening year so that you can get an estimate of  
15 how big that variation is between years in a  
16 quantitative sense for populating the model.

17 However, when you have an opportunity to  
18 get more older data such as this project has, that  
19 also allows you to see how that's changing over time  
20 and get sort of a qualitative feel for what the  
21 risk -- not only what the risk profile is but also  
22 what the risk trajectory looks like.

23 So it's kind of a -- it's a bifurcated  
24 answer. You want two recent years to populate the  
25 quantitative model, but if you have more data that

1 are older, that's actually very valuable in a  
2 qualitative sense in assessing risk overall.

3 Q. It is that -- is the data useful for  
4 qualitative purposes because it shows trends and  
5 population?

6 A. It's indicative of trends, but it's also  
7 indicative of how stable the use patterns you observe  
8 more recently are and also what some of the habitat  
9 drivers of use patterns might be.

10 Q. Directing your attention to the second  
11 page of LR Exhibit 16, I would like you to take a  
12 look at the third paragraph on that page.

13 A. Is that the paragraph that begins  
14 "Looking"?

15 Q. Yes, sir.

16 A. Got it.

17 Q. I would like to refer you to the second  
18 sentence starting with the word "Additionally."

19 A. Yes.

20 Q. That sentence states as follows:

21 "Additionally, we (the Fish and Wildlife Service)  
22 expect the eagle population in this area to increase,  
23 including the number and density of eagle nests."

24 Did I read that correctly?

25 A. Yes.

1 Q. Do you agree with the statement?

2 A. Yes, I do. And also that is true of most  
3 areas in the continental United States.

4 Q. Would you find what has been marked as LR  
5 Exhibit 15.

6 A. I have. It's opening very slowly. Yes,  
7 it's open now.

8 Q. Okay. Great. And is this a copy of  
9 e-mails between you and other persons?

10 A. Yes, it is.

11 Q. The first page of LR Exhibit 15, the top  
12 contains an e-mail from you to Rhett Good dated  
13 March 9, 2020; is that correct?

14 A. Yes.

15 ALJ AGRANOFF: Hold on, Mr. Van Kley.  
16 Maybe this is just my problem with the file I have  
17 but what I have got marked as LR Exhibit 15, when I  
18 click on that it's the Eagle Conservation Plan  
19 Guidance Module 1.

20 MR. VAN KLEY: No. You are looking at  
21 the Republic Wind exhibits apparently.

22 ALJ AGRANOFF: I may have dragged the  
23 wrong file. You're right. Hold on.

24 Okay. Sorry about that.

25 MR. VAN KLEY: Okay.

1 ALJ AGRANOFF: Whenever you are ready,  
2 Mr. Van Kley.

3 MR. VAN KLEY: Yes.

4 (EXHIBIT MARKED FOR IDENTIFICATION.)

5 Q. (By Mr. Van Kley) So in the e-mail dated  
6 March 9, 2020, from you to Rhett Good, you state that  
7 you visited seven historic nest locations and found  
8 that five were occupied and active; is that correct?

9 A. Yes, that's correct.

10 Q. And in that sentence you were referring  
11 to bald eagle nests, correct?

12 A. Yes. It's an e-mail string about the  
13 bald eagle nests.

14 Q. And this e-mail string ensued after you  
15 did your site visit to the project area in March of  
16 2020, correct?

17 A. That's correct.

18 Q. And the information contained in the  
19 e-mails in LR Exhibit 15 are the results of the  
20 observations you made during that visit.

21 A. Yes.

22 Q. That visit occurred on March 5, 2020?

23 A. March 5 and March 6. But the nest  
24 locations I believe we all -- visited all of them on  
25 the 5th.

1           Q.    At the end of this Exhibit LR 15, there's  
2 a map of the project area, correct?

3           A.    Yes.

4           Q.    And there's some handwriting on this map.  
5 Does that belong to you?

6           A.    Yes, it does.

7           Q.    And in the handwriting on the map you  
8 placed the locations of the bald eagle nests that you  
9 observed on March 5, 2020?

10          A.    That's correct.

11          Q.    So looking at this map, did you put  
12 circles around squares that represented active bald  
13 eagle nests on that date?

14          A.    So I put circles around the squares that  
15 we visited and observed to be occupied. So there are  
16 some nests that have no circle and no notation next  
17 to them and those were not visited.

18          Q.    Now, did you make an effort on this visit  
19 on March 5 and 6 to find every active bald eagle nest  
20 in the project area or within 2 miles around the  
21 project area?

22          A.    No, we did not. The primary goal here  
23 was to familiarize me with the entire project area to  
24 inform my evaluation of what eagle-related risks  
25 would be like. And as part of that, we visited as

1 many of the known bald eagle nests locations as we  
2 could that were either in or very close to the  
3 project.

4 Q. Okay. And as shown by this map on  
5 March 5 and 6, you found six bald eagle nests that  
6 were occupied?

7 A. I believe we found five. One, two,  
8 three, four, five. Yeah, five existing and one new  
9 occupied nest for a total of six.

10 Q. And that new occupied nest has the word  
11 "new" next to it, right?

12 A. Yes, it does. It is not very legible,  
13 but it does say "new."

14 Q. Uh-huh. Is that an eagle nest that was  
15 found near the reservoir known as the Bellevue 5  
16 Reservoir?

17 A. Yes, it is. It is just south of that.

18 Q. Uh-huh. Prior to March 5, 2020, were you  
19 aware of the existence of this nest?

20 A. No, we were not aware of that nest when  
21 we visited the project area. It was not previously  
22 recorded on the bald eagle nest surveys.

23 Q. How many of the six bald eagle nests were  
24 active in the 2016 to 2017 survey that you mentioned  
25 earlier in your testimony?

1           A.    Those were eagle use surveys.  I don't  
2 believe eagle nest surveys were included in those  
3 reports.

4           Q.    Okay.  Fair enough.

5           A.    I think there are some other eagle use --  
6 or eagle nest surveys we could look at from that time  
7 frame.

8           Q.    During what other years were eagle nest  
9 surveys conducted besides 2020?

10          A.    Can we refer to Exhibit CF-2 to answer  
11 that?

12          Q.    Sure.  If that helps you.

13          A.    Yes.  CF-2 I compiled in order to help  
14 myself understand what the timeline looked like.

15          Q.    Okay.  Give us just a moment to find it.

16          A.    I am looking for it too.

17          Q.    Let me know when you have found it.

18          A.    I have it in front of me.

19          Q.    Okay.

20          A.    So your question was how many years were  
21 surveys conducted for eagles nests?

22          Q.    Yeah.  First, let's talk about CF-2 to  
23 make sure that the record reflects what it is.

24          A.    Okay.

25          Q.    And help me interpret it.  Would you

1 describe CF-2.

2 A. Yes. CF-2 consists of a table and two  
3 maps that -- well, I put together the table, and I  
4 had a GIS technician put together the two maps at my  
5 direction to help me understand what the timeline of  
6 eagle nests detection and occupancy looked like for  
7 the project as a whole.

8 Q. Does this --

9 A. I'm sorry. I had another thought to help  
10 clarify that. The rationale for that is that because  
11 there are a number of different reports spanning a  
12 number of years, there was no single source to look  
13 at in order to have this all in front of you at once,  
14 and I found it difficult to track without this.

15 Q. Does Exhibit CF-2 reference all of the  
16 bald eagle nest surveys that were conducted for the  
17 Emerson Creek wind project?

18 A. Yes, it does.

19 Q. And the years in which those surveys were  
20 conducted can be found in the first line of CF-2?

21 A. Yes.

22 Q. There's a column, the first column from  
23 the left is labeled as "Nest ID." Is that an  
24 identification system for the bald eagle nests found  
25 during these surveys?

1           A.    Yes.  That's identification information  
2           that I applied so that we could track a single nest  
3           through time.  Unfortunately what happened through  
4           the reports was that each different consultant who  
5           did a survey used a different nomenclature for the  
6           nests, and I found without having an ID, just an  
7           objective ID applied to the nests, you really could  
8           not track it through time effectively.

9           Q.    And looking at the first map following  
10           the table we've been discussing, that is a map of the  
11           Emerson Creek wind project and surrounding areas; is  
12           that correct?

13           A.    Yes.  That is the Emerson Creek wind  
14           project as it's currently configured and all of the  
15           bald eagle nests that were known within a 10-mile  
16           radius based on the surveys.

17           Q.    And those bald eagle nests are numbered  
18           on the map?

19           A.    Yes.  The numbers on the map correspond  
20           to the ID number on the table.

21           Q.    So based on the information in CF-2, how  
22           many bald eagle nests were active in 2018?

23           A.    I'm going to have to go through it and  
24           add those up if you'll bear with me.

25           Q.    Yeah, sure.

1           A.    And you'll see if you look at this table,  
2           a number of those are outside of the area that was  
3           searched or were not reported depending on which nest  
4           it is, so.

5           Q.    Oh, okay. Yeah, that's a good point. So  
6           let me just modify the question based on that  
7           observation. How many bald eagle nests were known in  
8           2018 that were located inside of the project area or  
9           within 2 miles of the project area boundary?

10          A.    Okay. That's an easier question.

11          Q.    Yes.

12          A.    Inside or within 2 miles?

13          Q.    Yes.

14          A.    Okay. Would you like the ones that are  
15          inactive or just the ones that were occupied and  
16          active at the time?

17          Q.    Just the ones that were occupied and  
18          active.

19          A.    Okay. There were five reported as  
20          occupied and active within 2 miles in 2018.

21          Q.    And prior to 2018, the most-recent eagle  
22          nest survey was in 2014, correct?

23          A.    Yes.

24          Q.    And how many active and occupied eagle  
25          nests were found during that survey located in the

1 project area within 2 miles of the project area?

2 A. This is where the search area becomes a  
3 little bit problematic because it was not a  
4 comprehensive search area for the entire project as  
5 is currently constituted in 2014. It looks like none  
6 of those were occupied and active at the time.  
7 However, one was detected as unoccupied in 2014.

8 Q. What area was encompassed in the 2014  
9 survey?

10 A. If we look at the second map, it will  
11 show that survey area. 2014 is the forest green  
12 outline. Let's see, which I believe was the southern  
13 portion. No, that -- I may have misspoken. That may  
14 have actually joined the northern portion as well. I  
15 think we may need to look at the 2014 report to be  
16 definitive about the search area for that one.

17 Q. How many bald eagle nests are currently  
18 known to be in the project area or within 2 miles of  
19 the project area boundary?

20 A. There are eight.

21 Q. So that's one more bald eagle nest than  
22 was found in the 2020 survey that is listed under the  
23 2020 status in your Exhibit CF-2?

24 A. I think I included one that was not  
25 occupied and active. Okay. I get six when I count

1 occupied and active only.

2 ALJ AGRANOFF: And which document,  
3 Dr. Farmer, are you looking at?

4 THE WITNESS: That is on the table in  
5 CF-2. So that's comparing the second-to-last column  
6 to the last column.

7 Q. (By Mr. Van Kley) Okay. I think we may  
8 have miscounted. Did you include the -- did you  
9 include nest 25?

10 A. Yes.

11 Q. Okay. All right. So let's just go  
12 through these. Looking at the column for 2020  
13 status, there's one nest ID 11 that's occupied and  
14 within 2-mile of the project area?

15 A. Yes.

16 Q. The same is true for nest 15?

17 A. Yes.

18 Q. The same is true for nest 19?

19 A. Yes.

20 Q. And 20?

21 A. Yes.

22 Q. 23?

23 A. Yes, 23.

24 Q. 24?

25 A. 24 is yes.

1 Q. And 25?

2 A. And 25. So that's seven, yeah.

3 Q. Okay.

4 A. And if you would like, I can figure out  
5 which one I did not visit in March. That's probably  
6 what you want to do, right?

7 Q. No, I don't need to do that.

8 A. Okay.

9 Q. You don't need to do that either. So is  
10 the information in the column for the 2020 status of  
11 bald eagle nests in CF-2 the current knowledge that  
12 Emerson Creek wind has concerning the active and  
13 occupied bald eagle nests inside the project area  
14 within 2 miles of the project area boundary?

15 A. Yes, it is.

16 ALJ AGRANOFF: Mr. Van Kley, would this  
17 be a good time to take a break?

18 MR. VAN KLEY: Sure.

19 ALJ AGRANOFF: Why don't we take a  
20 15-minute break and come back at 4:30. And we will  
21 go into the long stretch.

22 (Recess taken.)

23 ALJ AGRANOFF: Let's go back on the  
24 record. And Mr. Van Kley.

25 MR. VAN KLEY: Yes.

1           Q.     (By Mr. Van Kley) Mr. Farmer, could you  
2     turn to page 20 of your written direct testimony  
3     identified as Applicant Exhibit 33.

4           A.     Yes, I have it in front of me.

5           Q.     And let's go to Question and Answer 18  
6     there.

7           A.     Yes.

8           Q.     In the first paragraph -- in the first  
9     sentence of your answer to Question 18, you refer to  
10    one bald eagle fatality reported in the news in Ohio.  
11    And that this is the only publicly-available account  
12    you have found of a bald eagle fatality in the state.  
13    Do you see that?

14          A.     Yes.

15          Q.     Could you tell me what bald eagle  
16    fatality you found?

17          A.     That was a fatality near Bowling Green,  
18    Ohio.

19          Q.     And what did you do to search for eagle  
20    fatalities at wind energy projects throughout the  
21    State of Ohio?

22          A.     I did an online search. I also had --  
23    WEST has a subdepartment that does literature  
24    searches for us. I had them run a literature search  
25    for me to see if there were any public records of

1 bald eagle fatalities in the state and also searched  
2 our own fatality database to see if there were any  
3 that we had recorded.

4 Q. Do you know whether the mortality data  
5 for birds at Ohio wind projects are publicly  
6 available on the internet?

7 MR. SECREST: Objection to the extent  
8 birds outside of eagles is not within the scope of  
9 the testimony nor relevant.

10 MR. VAN KLEY: Well, I think the answer  
11 is the same, but I'll rephrase.

12 ALJ AGRANOFF: Thank you.

13 Q. (By Mr. Van Kley) Do you know whether  
14 eagle mortality data at Ohio wind farms is publicly  
15 available on the internet?

16 A. If a facility has an eagle take permit  
17 and they record a fatality, that data will become  
18 public because there are reporting requirements to  
19 the Fish and Wildlife Service that then makes it  
20 public.

21 If the facility does not have an eagle  
22 take permit and an eagle fatality occurs, that goes  
23 into the Fish and Wildlife Service enforcement track  
24 and that may not become public right away because  
25 it's evidence at that point in a legal proceeding.

1 So I think the answer is mixed in that case.

2 Q. Are you aware of any Ohio wind projects  
3 that possess take permits for eagles?

4 A. I do not know of any in the State of Ohio  
5 yet.

6 Q. In the third sentence of Answer 18 in  
7 your testimony you state as follows: "For context,  
8 Ohio has 39 operating wind projects, with a total of  
9 419 turbines producing 864 megawatts of power."  
10 Where did you obtain those statistics?

11 A. Those would come from the American Wind  
12 Energy Association database which contains all of the  
13 wind farm installations in the U.S.

14 Q. And does that database include wind  
15 turbines that are not regulated by the Ohio Power  
16 Siting Board in Ohio?

17 A. I don't know the answer to that.

18 Q. Do you know how many wind projects are  
19 subject to Ohio Power Siting Board regulation?

20 A. No, I don't.

21 Q. Do you know that only wind power projects  
22 over a certain nameplate capacity in megawatts are  
23 subject to Ohio Power Siting Board regulation?

24 A. Yes; that's typical of most state Siting  
25 Boards.

1           Q.    So what are the sizes or what is the  
2           range of -- the number of turbines that is within the  
3           39 operating wind projects that you reference in your  
4           answer?

5           A.    I did not research the range in size in  
6           terms of number of turbines.

7           Q.    So one or more of these turbine projects  
8           may have no more than one wind turbine in them?

9           A.    That is true.  However, it would  
10          contribute to the 864 megawatts of installed  
11          capacity.

12          Q.    Uh-huh.  The next --  
13                (Dog barks.)

14          A.    Remediating that.

15          Q.    In the next sentence of your Answer 18,  
16          "The total number of projects in the state include 11  
17          projects that are close to the shore of Lake Erie,  
18          where bald eagle population densities are highest."  
19          Where did you obtain this information?

20          A.    The information regarding how many wind  
21          farms there are is also from that AWEA data base.

22          Q.    How did you determine that 11 projects  
23          are close to the shore of Lake Erie?

24          A.    I counted them, and I looked for those  
25          that were closer than the current project is sited.

1                   ALJ AGRANOFF: Dr. Farmer, you used an  
2 acronym just a second ago. Just clarify what the  
3 acronym was.

4                   THE WITNESS: Sorry. That was AWEA.  
5 That stands for American Wind Energy Association.

6                   ALJ AGRANOFF: Thank you.

7                   Q. (By Mr. Van Kley) With respect to these  
8 11 projects that you state are close to the shore of  
9 Lake Erie, how many of those projects are large  
10 enough to be designated by the Ohio Power Siting  
11 Board?

12                  A. I don't have an answer to that.

13                  Q. Do you know what the sizes or the  
14 number -- do you know what the number of turbines are  
15 in any of these 11 projects?

16                  A. No. The information is in the database,  
17 but I did not extract that information.

18                  Q. Do you know how many megawatts of power  
19 are produced by these 11 projects?

20                  A. I do not know.

21                  Q. Do you know what counties of Ohio these  
22 11 projects are located in?

23                  A. I also do not record the counties. The  
24 context that is relevant here is that they're in a  
25 zone that's added in the most recent ODNR report as

1       having the highest densities and that is really the  
2       only aspect that I was looking at.

3               Q.     And what zone is that where the bald  
4       eagles are of the highest densities according to the  
5       information you have?

6               A.     That is in the counties that immediately  
7       abut the Lake.

8               Q.     Do you know which counties those are?

9               A.     I would have to have that report in front  
10      of me in order to name them for you, but it would  
11      include Sandusky County.

12              Q.     Do you know what the sizes of those wind  
13      turbines in the 11 projects close to the shore of  
14      Lake Erie are in height?

15              A.     No, I don't.

16              Q.     Do you know what their sizes are in  
17      diameter?

18              A.     No.

19              Q.     Does -- does the AWEA database have any  
20      restriction on the wind turbine projects reported in  
21      its database related to the size of the turbines in  
22      those projects?

23              A.     Not to my knowledge.

24              Q.     Do you know what the size of the smallest  
25      wind turbine in those 11 projects is?

1           A.    No, I don't.

2           Q.    With respect to wind projects that are  
3 not subject to Ohio Power Siting Board jurisdiction,  
4 are you aware of any eagle mortality monitoring  
5 requirements applicable to those projects?

6           A.    No, I'm not.

7           MR. VAN KLEY:  I have no further  
8 questions.

9           ALJ AGRANOFF:  Any questions of other  
10 parties with respect to clarification, or in the case  
11 of Erie County, have any cross?

12          MS. ESPOSITO:  None, your Honor.

13          ALJ AGRANOFF:  Mr. Secrest?

14          MR. SECREST:  Your Honor, may I just have  
15 2 minutes to confer with my co-counsel?

16          ALJ AGRANOFF:  Certainly.

17          Karen, we're off the record.

18          (Discussion off the record.)

19          MR. SECREST:  Thank you, your Honor.  I'm  
20 not good at estimating what 2 minutes is apparently.

21          ALJ AGRANOFF:  It's an art which we are  
22 all learning in terms of time estimation.

23          MR. SECREST:  That's right.  If the  
24 witness is ready and everyone else is, may I proceed,  
25 your Honor?

1 ALJ AGRANOFF: Absolutely.

2 MR. SECREST: Thank you.

3 - - -

4 REDIRECT EXAMINATION

5 By Mr. Secrest:

6 Q. Dr. Farmer, in your cross-examination you  
7 were asked questions about collision frequency and  
8 the Service's collision prediction modeling. And  
9 when answering those questions you referred to the  
10 Service using data related to golden eagles, and you  
11 said "unfortunately." Why did you say  
12 "unfortunately"?

13 A. Well, as I said in part of my testimony  
14 too, it's a different species. It's not closely  
15 related to bald eagles, and it's -- it's unclear how  
16 representative those data may be of bald eagles, but  
17 it appears that the collision rate is much higher for  
18 golden eagles than it is for bald eagles.

19 Q. Thank you, Doctor.

20 Do you still have in front of you what  
21 was marked LR 16?

22 A. Yes.

23 Q. Okay. Looking at the second page of LR  
24 16, that says "Based on these inputs, the preliminary  
25 risk to eagles is about 2.5 eagles per year." Do you

1 see that?

2 A. Yes.

3 Q. Is that 2.5 eagles per year the 80  
4 percent upper confidence rate?

5 A. Yes, that would be.

6 Q. And can you explain what that means?

7 A. Yeah. So the collision risk model  
8 outputs a probability distribution of predicted  
9 fatality rates. The average of that would be the  
10 50th percentile. The Fish and Wildlife Service  
11 chooses the 80th percentile for management purposes.  
12 The rationale being that if the permit take at the  
13 80th percentile, then they have an 80 percent  
14 probability that the project will not exceed that  
15 number. So it's a conservative number. However, the  
16 Fish and Wildlife number does it on purpose in order  
17 to have conservative management.

18 Q. To put it another way, does the Fish and  
19 Wildlife Service overestimate the number for the  
20 collision -- or the fatality risk to eagles in this  
21 model?

22 MR. VAN KLEY: Objection, leading.

23 A. Yes.

24 ALJ AGRANOFF: One moment. Would you  
25 care to rephrase?

1 MR. SECREST: Sure. I'll rephrase, your  
2 Honor. Sorry. I was on mute.

3 Q. (By Mr. Secrest) Based upon your  
4 experience, does the Service overestimate the number  
5 that is outputted from its collision prediction  
6 modeling?

7 A. Yes. The numbers are always highly  
8 conservative, so they're overestimates, but they are  
9 deliberately so.

10 Q. And based on your experience, are you  
11 familiar with projects where the Service's risk  
12 number is greater than 2.5 eagles per year, yet there  
13 have been no eagle fatalities?

14 A. Yes. There are projects like that out  
15 there.

16 MR. SECREST: Okay. Thank you,  
17 Dr. Farmer. I have nothing further.

18 ALJ AGRANOFF: Mr. Van Kley, based on the  
19 limited scope of redirect?

20 - - -

21 RECROSS-EXAMINATION

22 By Mr. Van Kley:

23 Q. Are you aware of any -- any projects at  
24 which the number of bald eagle mortalities has  
25 exceeded the pre-construction estimate of the U.S.

1 Fish and Wildlife Service?

2 A. I'm aware of projects at which the model  
3 was run, and the fatality rate exceeded it. However,  
4 those were estimates from days before the Fish and  
5 Wildlife Service always ran the model itself. So, in  
6 other words, they were projects that had not applied  
7 for take permits.

8 Q. So who ran the models in those instances?

9 A. Typically it would be a skilled  
10 consultant that would run that. Most -- most people  
11 don't have the statistical ability to run the model.

12 MR. VAN KLEY: Okay. Thank you. No  
13 further questions.

14 ALJ AGRANOFF: Thank you, Dr. Farmer.  
15 Mr. Secrest.

16 MR. SECREST: Your Honor, may I move for  
17 the admission of Applicant's Exhibit 33.

18 ALJ AGRANOFF: Any objection? There  
19 being none, Applicant Exhibit 33 shall be admitted as  
20 part of the record at this time.

21 (EXHIBIT ADMITTED INTO EVIDENCE.)

22 ALJ AGRANOFF: Mr. Van Kley.

23 MR. VAN KLEY: Yes, I would like to move  
24 admission of LR Exhibit 15 and 16.

25 ALJ AGRANOFF: Any objection?

1 MR. SECREST: No, your Honor. Thank you.

2 ALJ AGRANOFF: There being none, the  
3 aforementioned exhibits shall be admitted as part of  
4 the record at this time.

5 (EXHIBITS ADMITTED INTO EVIDENCE.)

6 ALJ AGRANOFF: And let's go off the  
7 record for a moment.

8 (Discussion off the record.)

9 ALJ AGRANOFF: Let's go on the record.  
10 Thank you.

11 MS. PIRIK: Okay. Your Honor, with  
12 regard to the motions for protective order, we would  
13 like to revise the -- just in general let you know  
14 that the motions for protective order that are  
15 outstanding at this point is the one that was filed  
16 on January 31, 2019, with the Application. It  
17 references financial information in the Application  
18 as well as Exhibit F which is the socioeconomic  
19 report as well as the manuals submitted with regard  
20 to the models in Exhibit N.

21 The next one is July 10, 2019. Those  
22 were manuals that were filed with the third  
23 supplemental submission. In addition on  
24 September 12, 2019, there were manuals information  
25 submitted with the fourth supplemental application.

1           Then on November 26, 2019, there were  
2 manual information submitted with the third response  
3 to a data request from the OPSB staff.

4           And, finally, with regard to motions for  
5 protective order on February 11, 2020, in response to  
6 the sixth data request to Staff's inquiries there  
7 were manual information as well as certain financial  
8 information that were submitted.

9           So those would be the five motions for  
10 protective order that are outstanding and then the  
11 document that we filed on September 24, releasing  
12 some of the safety manual information would be  
13 revised to reflect that those are the five filings  
14 that we made.

15           ALJ AGRANOFF: Thank you. And then with  
16 respect to each of the motions that you just  
17 referenced that pertain to the turbine safety  
18 models -- manuals, I assume you're working off of the  
19 premise that those motions would be modified to the  
20 extent that Exhibit 82 releases some of that  
21 information that was previously requested protected  
22 treatment?

23           MS. PIRIK: Correct, your Honor.

24           ALJ AGRANOFF: Okay. All right. And  
25 with respect to those motions, do any of the parties

1 have objections?

2 Okay. If not, then the aforementioned  
3 motions shall be granted taking into account the  
4 filing of Exhibit 82 on the public record which would  
5 therefore negate some of the request for protective  
6 treatment relative to the safety manuals.

7 MS. PIRIK: Thank you, your Honor.

8 ALJ AGRANOFF: You're welcome.

9 All right. If there's nothing else, then  
10 we will reconvene tomorrow at 9 o'clock consistent  
11 with the schedule we just discussed a little while  
12 ago.

13 ALJ WILLIAMS: Before we all hang up --  
14 we can do this off the record.

15 (Discussion off the record.)

16 (Thereupon at 5:02 p.m., the hearing was  
17 adjourned.)

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## 1 CERTIFICATE

2 I do hereby certify that the foregoing is a  
3 true and correct transcript of the proceedings taken  
4 by me in this matter on Tuesday, October 6, 2020, and  
5 carefully compared with my original stenographic  
6 notes.

7  
8 

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Karen Sue Gibson, Registered  
Merit Reporter.

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Carolyn M. Burke, Registered  
11 Professional Reporter.

12 (KSG-6969)

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**Case No(s). 18-1607-EL-BGN**

Summary: Transcript in the matter of the Firelands Wind, LLC hearing held on 10/06/20 - Volume II electronically filed by Mr. Ken Spencer on behalf of Armstrong & Okey, Inc. and Gibson, Karen Sue Mrs.