

South Dakota Public Utilities Commission

EL19-027 - In the Matter of the Application by Crowned Ridge Wind II, LLC for a Permit of a Wind Energy Facility in Deuel, Grant and Codington Counties – Evidentiary Hearing

February 4th, 2020

Matthew Training Center – Foss Building, 523 E. Capitol Ave., Pierre, S.D.

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Full Name	City/State
Garry Ehlebracht	Goodwin SD
Amy Race	Goodwin SD
AJ Swanson	Canton SD
Rich Rall	Goodwin SD
Miles Schumacher	Grand Falls SD
Stewart Adams	Pierre SD
Al Robish	Strandburg SD
Amber Christenson	Strandburg SD
Jillian Still	Juno Beach, FL
Brian Murphy	" "
Christopher Olsson	Ancaster, ON, Canada
Mark Thompson	Juno Bch, FL
Gerry Oberg	Juno Beach FL
Daryl Hart	Juno Beach, FL
TYLER WILHELM	JUNO BEACH, FL
Robert McCunney	Boston, MA
Jay Haley	Grand Forks, ND
Teresa Homan	Watertown SD
John Homan	Watertown SD

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Full Name

City/State

Michael Morris

Black R. Lgo, Ill. 60068

Ruby Holborn

S Falls SD

Darci' Adam

Clark SD

DAVE ADAM

CLARK SD

Geo Holborn

S. Falls SD

Richard Lampeter

Maynard MA

David Gil

Juno Beach, FL

OF THE STATE OF SOUTH DAKOTA

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IN THE MATTER OF THE APPLICATION
BY CROWNED RIDGE WIND II, LLC
FOR A PERMIT OF A WIND ENERGY
FACILITY IN DEUEL, GRANT, AND
CODINGTON COUNTIES

=====

February 4, 2020

Volume I, Pages 1-250

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GARY HANSON, CHAIRMAN

KRISTIE FIEGEN, COMMISSIONER

Karen Cremer

Greg Rislov

Kaitlyn Baucom

Miles Schumacher and Brian Murphy,
appearing on behalf of Crowned Ridge Wind II;

A.J. Swanson,
appearing on behalf of the Intervenor;

Amber Christenson,
appearing pro se;

Allen Robish,
appearing pro se;

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

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

1 The following transcript of proceedings was
2 held in the above-entitled matter at the Matthew Training
3 Center, Joe Foss Building, 523 East Capitol Avenue,
4 Pierre, South Dakota, on the 4th day of February, 2020,
5 commencing at 9:00 a.m.

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 A27 Supplemental Response to Intervenor IR 2-15
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INTERVENORS' EXHIBITS

I-1 Affidavit of Garry Ehlebracht
 I-2 Wind Farm Lease and Easement Agreement
 I-3 Application for Party Status (Corrected)
 I-4 Affidavit of Laretta Kranz
 I-5 Affidavit of Steven Greber
 I-6 Affidavit of Amy Rall

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AC-1 A Cooperative Measurement Survey and Analysis
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 AC-2 McPherson 6 18 May
 AC-3 Riina_Bray_IWT_Niagara
 AC-4 Applicant's Responses to Christenson's DR

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AC-5 Applicant's Responses to Staff's Third Set
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AC-11 Attachment 1 to Intervenor 2-2
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S1 Prefiled Testimony and Exhibits Darren Kearney
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S3 Prefiled Testimony and Exhibits of Hilary Morey
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S5 Prefiled Testimony and Exhibits of David
Lawrence
S6 Prefiled Supplemental Testimony of David
Lawrence
S7 Proposed Permit Conditions

1 CHAIRMAN HANSON: Welcome, everyone to the
2 hearing on Docket EL19-027. Call the meeting of the
3 South Dakota Public Utilities Commission to order.

4 We will begin the evidentiary hearing in the
5 Docket of EL19-027, In the Matter of the Application by
6 Crowned Ridge Wind, II, LLC for a Permit of a Wind Energy
7 Facility in Deuel, Grant, and Codington Counties. The
8 time is approximately 9:00 a.m. The date is Tuesday,
9 February 4, 2020, and the location of the hearing is the
10 Matthew Training Center, Foss Building, 523 East Capitol
11 Avenue, Pierre, South Dakota.

12 I'm Gary Hanson, Commission Chairman.
13 Commissioners Chris Nelson and Kristie Fiegen are also
14 present. I'm presiding over this hearing. This hearing
15 was noticed pursuant to the Commission's Order For and
16 Notice of Evidentiary Hearing issued on October 1, 2019.

17 The issues at this hearing as set forth in
18 South Dakota Codified Law 49-41B-22 are, whether the
19 proposed facility will comply with all applicable laws
20 and rules, whether the facility will pose a threat of
21 serious injury to the environment or the social or
22 economic condition of inhabitants or expected inhabitants
23 in the siting area, whether the facility will
24 substantially impair the health, safety, or welfare of
25 the inhabitants, and whether the facility will unduly

1 interfere with the orderly development of the region,
2 with due consideration having been given to the views of
3 governing bodies of affected local units of government.

4 Based upon these factors, the Commission will
5 decide whether the permit should be granted, denied, or
6 granted upon such terms, conditions, or modifications of
7 the construction, operation, or maintenance of the
8 project as the Commission finds appropriate.

9 The Applicant, Crowned Ridge, has the burden of
10 proof. All parties have the right to be present and to
11 be represented by an attorney. All persons testifying
12 will be sworn in and subject to cross-examination by the
13 parties.

14 The Commission's final decision may be appealed
15 by the parties to the State Circuit Court and to the
16 State Supreme Court.

17 Karen Cremer, our Commission counsel, will act
18 as Hearing Examiner, will conduct the hearing subject to
19 the Commission's oversight. She may provide recommended
20 rulings on procedural and evidentiary matters. The
21 Commission may overrule her preliminary rulings
22 throughout the hearing. If not overruled, the
23 preliminary rulings will become final rulings.

24 I will now turn the proceedings over to
25 Ms. Cremer. First, I will admonish myself for reading

1 too quickly at the beginning. We do have a court
2 reporter so if you're reading material, please don't
3 pretend you're an auctioneer.

4 MS. CREMER: Thank you, Chairman Hanson.

5 Good morning, everyone. I'm going to begin by
6 addressing some preliminary matters. The mics. are push
7 to talk. They are live when your light is lit up green,
8 I would call it. So that means not only that we can hear
9 you but everybody on the web can hear you. So when
10 you're not speaking, please turn your mics. off.

11 Please mute your cell phone when you are in this
12 room. And I'm going to reiterate what Chairman Hanson
13 said but it bears repeating, especially to the lawyers,
14 and you know who you are, speak clearly and at a
15 reasonable pace. If you are reading from a document, you
16 must read slowly. This is important not only for Cheri
17 but also for the public who's listening in on our
18 website.

19 Just for your information, during the
20 legislative session the cafe in the basement of the
21 Capitol is open for breakfast and lunch. The restrooms
22 are down the hall and are available for our use.
23 However, you are not permitted to go past the bathrooms.
24 Those are offices, and we're not allowed to wander around
25 in this building.

1 The building will close at 5:00. We will go
2 later than that. So if you go outside after 5 o'clock,
3 the doors will be closed and you won't be able to get
4 back in so you will have to have someone there to let you
5 back in.

6 The room is locked at night so you can leave
7 your things in here, and it will open approximately half
8 an hour -- did you find a time? About a half-hour before
9 we begin each day.

10 It's my understanding that certain witnesses are
11 scheduled for a particular time. Is that still the case,
12 Staff? Do you know?

13 MS. REISS: I believe we had one witness who --
14 or Mr. Swanson had one witness who may need to testify on
15 Thursday, but I believe we may need to address that.

16 MR. SWANSON: I think we've come to an agreement
17 where cross-examination on that witness will be waived.
18 He's at sea on a ship chartered to the navy, and the
19 phone service apparently is not real good from that
20 location where he is.

21 So I don't think we'll be needing to call him,
22 subject to the Commission's ruling on being able to waive
23 cross on that witness.

24 MS. CREMER: With that, this is how we'll
25 proceed: We'll have the case in chief from Crowned

1 Ridge. That will be followed by the Intervenor
2 represented by counsel. That will be followed by the
3 pro se Intervenor. And then Staff's case. Crowned
4 Ridge as the Applicant has final rebuttal.

5 Witnesses that have filed direct, supplemental,
6 rebuttal, whatever you called your testimony, must offer
7 all of their testimony when they are initially called.
8 Cross-examination will include all of the witness's
9 testimony.

10 Have your witness begin with a brief summary of
11 their testimony, and then we will proceed to
12 cross-examination.

13 We will begin this evidentiary hearing by taking
14 the appearances of the parties.

15 Crowned Ridge.

16 MR. SCHUMACHER: Thank you. Miles Schumacher
17 and Brian Murphy on behalf of Crowned Ridge.

18 MS. CREMER: Mr. Swanson.

19 MR. SWANSON: Let the record show the appearance
20 of A.J. Swanson of Canton, South Dakota. I'm admitted to
21 practice in this state, and I appear on behalf of the
22 Intervenor Garry Ehlebracht and several others.

23 MS. CREMER: Ms. Christenson.

24 MS. CHRISTENSON: Amber Christenson, Intervenor,
25 representing myself.

1 MR. ROBISH: Allen Robish, Strandburg,
2 South Dakota, representing myself.

3 MS. CREMER: Ms. Mogen.

4 So it's my understanding Ms. Mogen will not be
5 here for the hearing; is that correct?

6 MR. ROBISH: Right.

7 MS. CREMER: Thank you.

8 Staff.

9 MS. REISS: Thank you. Amanda Reiss and Kristen
10 Edwards for Staff.

11 MS. CREMER: I understand the parties have
12 agreed to the admission of exhibits for foundation
13 purposes, meaning throughout the hearing people can move
14 to strike, if need be, or whatever motion may be
15 appropriate.

16 And is that correct?

17 MS. REISS: Thank you. Yes. That is correct.
18 The parties have stipulated to the admission of all
19 prefiled exhibits except for those that are duplicative,
20 and I can go through those if you would like at this
21 time.

22 MS. CREMER: Do we need that? I forwarded --
23 let me do this: Crowned Ridge, do you agree with her
24 assessment of the exhibits?

25 MR. SCHUMACHER: We do. Except there is a

1 pending Motion to Strike parts of the prefiled Intervenor
2 testimony. That needs to be resolved. We've stipulated
3 to everything except the portions that we are seeking to
4 strike.

5 MS. CREMER: Correct. And I will get to that in
6 a moment, but thank you.

7 Mr. Swanson.

8 MR. SWANSON: That is my understanding as well.

9 MS. CREMER: All right. Ms. Christenson.

10 MS. CHRISTENSON: My understanding as well. And
11 then I did have a late-filed exhibit. And I believe
12 everyone has stipulated to that, but I'd like that
13 clarified for sure.

14 MS. CREMER: Mr. Robish.

15 MR. ROBISH: Allen Robish. I agree with that.

16 MS. CREMER: Okay. And you're good with
17 Ms. Christenson's late-filed exhibit?

18 MR. ROBISH: Yes.

19 MS. CREMER: Staff.

20 MS. REISS: Yes. I would agree with
21 Ms. Christenson. We have agreed to S19, I believe -- or
22 AC. I'm sorry. AC-19. And then also Staff filed an S7
23 this morning and that has not been agreed to at this
24 time.

25 MS. CREMER: All right. Thank you. I will ask

1 Crowned Ridge as to Ms. Christenson's late filed.

2 MR. SCHUMACHER: Thank you. Crowned Ridge has
3 no objection to the late-filed exhibit.

4 MS. CREMER: Okay. Mr. Swanson,
5 Ms. Christenson's late filed.

6 MR. SWANSON: No objection.

7 MS. CREMER: All right. Thank you.

8 So, with that --

9 So as all the parties have stipulated to the
10 admission of these exhibits, they are admitted into the
11 record at this point. That brings us to the Motion to
12 Strike.

13 And so we have two options here. We can hear
14 it now, or we can wait until we see what witnesses
15 Mr. Swanson calls.

16 MR. SCHUMACHER: We're fine either way. Waiting
17 is fine. If you prefer to hear it now, we'll address it,
18 but we have no preference.

19 MS. CREMER: I prefer to cross bridges when we
20 get there. So we will wait on that.

21 MR. SWANSON: May I make a statement about that,
22 please?

23 MS. CREMER: Certainly.

24 MR. SWANSON: When this began, I was expecting
25 to call all of the Intervenorors that I represent. As

1 stated, Mr. Greber is on a ship and not able to attend
2 personally.

3 I believe that Mr. Schumacher has agreed, and I
4 believe Staff has also, that they are willing to waive
5 cross-examination of Mr. Greber on his exhibit. And I've
6 also had indication as of last Friday that my other
7 Intervenor who is unable to attend is Laretta Kranz, and
8 she had sponsored Exhibit 5 -- no. Exhibit 4.

9 I-4 is her number, I believe. And I was told on
10 Friday that Ms. Kranz had recently had her TENS unit
11 replaced for a larger one which communicates with nerves
12 in the back to control back pain, and it's not working
13 well. And I told her that I would discuss this with the
14 Commission and parties today.

15 My understanding, Staff has agreed also to waive
16 cross on Ms. Kranz. Her testimony was not the subject of
17 a Motion to Strike, and I don't think I've heard from
18 Mr. Schumacher in that regard.

19 MS. CREMER: So I guess --

20 MR. SWANSON: Well, I'm going to propose that
21 her testimony, along with Mr. Greber, who is under a
22 Motion to Strike a small portion, that both of those
23 documents be admitted and that cross-examination be
24 waived.

25 This is subject obviously to the Commission's

1 discretion on whether they're willing to allow those
2 exhibits to be received even though those two witnesses
3 are unable to personally attend.

4 MS. CREMER: And it would also require the
5 Commission to agree to waive their cross-examination of
6 these witnesses so that's what -- I will look to them.

7 So before I start that, I will go back to
8 Crowned Ridge. Did you have a response to Mr. Swanson?

9 MR. SCHUMACHER: Yes. I will confirm that
10 Crowned Ridge has agreed to waive cross-examination of
11 those two witnesses and allow in addition to the
12 testimony -- again, subject to the Motion to Strike with
13 regard to Mr. Greber's testimony.

14 MR. SWANSON: You also have one on witness
15 Ehlebracht.

16 MR. SCHUMACHER: Right. I thought we were just
17 discussing Kranz and Greber at this point.

18 MR. SWANSON: You're right.

19 MS. CREMER: Yes. And is it accurate, Staff,
20 that you are fine with these affidavits, I believe they
21 were, coming in -- was there prefiled testimony coming in
22 without cross-examination? Is that correct?

23 MS. EDWARDS: We had no cross for these
24 witnesses, and we had agreed to waive it with the
25 understanding that they would have to be called if the

1 Commission had questions.

2 MS. CREMER: All right. Thank you.

3 And Ms. Christenson.

4 MS. CHRISTENSON: I'm agreeable, no, to waive
5 all cross.

6 MS. CREMER: Okay. And Mr. Robish.

7 MR. ROBISH: I agree with that.

8 MS. CREMER: All right. Thank you.

9 So, with that, it appears the Commission also
10 agrees to waive cross-examination of those two witnesses,
11 subject to the Motion to Strike.

12 All right. Thank you. So I think we're now at
13 opening statements. If you wish to make an opening
14 statement, it's limited to five minutes. You can make
15 your opening statement now or at the start of your case.

16 Crowned Ridge.

17 MR. SCHUMACHER: Thank you. Crowned Ridge has
18 no formal opening statement to make. We would at this
19 time like to request that we have a standing objection to
20 portions of the opening statement of Mr. Swanson.

21 He's indicated by e-mail that he intends to
22 address matters and statutes that we believe are beyond
23 the scope of this hearing and are beyond the jurisdiction
24 and enforcement power of this Commission. And we can,
25 you know, make that objection more specific at the time,

1 but we would like the opportunity to note that objection
2 now so that we can proceed without having to interrupt
3 him while he's making his opening statement.

4 MS. CREMER: Thank you.

5 I think just -- we'll be clear. When he does
6 start his -- if he does an opening statement, I believe I
7 will have you object at least once, if that's still your
8 choice, and then the standing objection would be granted,
9 I would suspect.

10 Mr. Swanson, would you like to make an opening
11 statement now or at the start of your case?

12 MR. SWANSON: I think I'll make it now. And I
13 have a red flag in my briefcase if Miles would like to
14 borrow it so that he can just wave it.

15 To be perfectly clear, we do base our opposition
16 to this matter on the statute that the Chairman cited,
17 substantially impair the health, safety, and welfare and
18 so forth of these inhabitants. But our opposition is
19 also based on the property rights of the Intervenor.

20 Each of my clients is within or very near the
21 project boundary. Each is projected to receive noise of
22 more than 40 dBA, according to Exhibit A29, Table C-1.
23 And each Intervenor's home will receive shadow flicker
24 from anywhere from 13.33 hours down to 3.4 hours,
25 according to another Table C-2 in that Exhibit A21-2.

1 Noise and shadow flicker are among the so-called
2 effects mentioned in the Kranz easement, which we will
3 introduce to the record. This is the effects easement
4 Section 5.2, and it's part of a lease that has somehow
5 appeared in the record that Mr. Kearney references in
6 DK2, page 42.

7 In attempting to deal with participants,
8 Crowned Ridge obtains an easement for these effects. In
9 dealing with nonparticipants, however, many of whom are
10 located more closely to the wind turbines than the
11 participants, there is no such easement. Nothing but the
12 zoning ordinance of the three counties to provide cover
13 to Crowned Ridge.

14 In Deuel, for example, that ordinance was
15 amended in 2008 for a shadow flicker allowance of
16 30 hours per year and a sound level of 45 dBA at homes of
17 nonparticipants. The question is does the zoning power
18 as delegated to the counties in this state actually give
19 Deuel County the right to tell Crowned Ridge as to these
20 effects, yes, you can invade their property and the homes
21 of your neighbors to this much or to this extent?

22 In the Commission's Final Order in EL18-026,
23 Prevailing Wind Park, at paragraph 65 we find, "The
24 record demonstrates that 40 dBA at nonparticipating
25 residences is an appropriate reasonable sound limit to

1 protect the welfare of nonparticipants." And then at 67,
2 paragraph 67 on that same final order, "The record
3 demonstrates that a 30-hour-a-year limit is merely an
4 industry standard," and the Commission went on to find
5 that in that case it should be 15 hours for
6 nonparticipants. And I have two general points I'd like
7 to make about that.

8 First, the PUC has made the noise finding in
9 EL18-026 on the strength of an expert's opinion,
10 Mr. Hessler. You've been delegated, the Commission, the
11 authority to make a determination as to the substantial
12 impairment of health, safety, or welfare of inhabitants.
13 The legislature gave you no other apparent guidelines to
14 follow.

15 Is this a proper delegation of authority, and
16 are there sufficient standards in place? These, of
17 course, are the kinds of questions that lawyers and
18 judges tend to ask.

19 The PUC by regulation does not seem to have
20 filled the gap, and you are doing this on an ad hoc,
21 case-by-case basis. And I ask this question: If 40 dBA
22 at nonparticipating residences is appropriate and
23 reasonable to protect the health and welfare of those at
24 Prevailing Wind Park, how can 45 dBA as a theoretical
25 limit be appropriate and reasonable in the Commission's

1 words, in this case?

2 You will have a skilled expert at hand to inform
3 you, Mr. Hessler, one who has long experience with other
4 wind farms on noise, and he has written extensively on
5 this topic. I would submit the human auditory systems of
6 those who surround Crowned Ridge II in Deuel County, my
7 clients, in part, are not materially or substantially
8 different than those of the humans who live in and around
9 Prevailing Wind Park. These systems appearing, whether
10 in Bon Homme or Deuel County, have the same exact
11 designer.

12 If a lower sound pressure limit is appropriate
13 in one case, how can a substantially higher limit be
14 deemed appropriate in another, this case? The difference
15 is not a trifle? Witness Hessler can and will state, I
16 trust, that relationship as a percentage. I believe it
17 is a phenomenal difference.

18 MS. CREMER: Mr. Swanson, that was your five
19 minutes.

20 MR. SWANSON: Well, okay. I'm only trying to
21 edify the Commission on the participants as to our
22 position, and if that's it, that's it.

23 MS. CREMER: How much more do you have?

24 MR. SWANSON: Well, I'm on page 2, and I've got
25 to get to page 3. And I'll make it as brief as I can. I

1 promise you.

2 MS. CREMER: Yes, you will.

3 MR. SWANSON: All right.

4 Secondly, I noted that in EL18-026 the 30 hours
5 isn't noted to be an industry standard. And it's
6 ubiquitous everywhere in this country, but it stands on
7 an extremely flimsy foundation. That's the NARUC Best
8 Practices Report of January 2012, this 182-page
9 compendium by Tom Stanton.

10 And I have asked the Commission or I would like
11 to ask the Commission to take official notice both of the
12 NARUC Best Practices Report and of Witness Hessler's
13 October 2011 report to NARUC, which I will further
14 identify at the appropriate time.

15 You're going to have two witnesses in this case
16 that contributed to these seminal documents. My point
17 is, in reality South Dakota has imported some part of
18 German law into Deuel County and by implication now or --
19 or inference into the rulings of this Commission, and
20 that is 30 hours of shadow flicker is just fine.

21 I hope to be able to explore some implications
22 of this importation with witnesses that are being
23 presented here today, other limits that did not make it
24 to our zoning ordinance or this Commission's prior
25 rulings.

1 German policy on shadow flicker is one thing.
2 South Dakota Law, I think, is quite another. South
3 Dakota Codified Laws 43-13-2(8) describes a land burden
4 or servitude upon land that may be made appurtenant to
5 other land in the form of an easement. All of my clients
6 are landowners, and they claim the privilege and the
7 protection of that statute.

8 The statute reads, "The right of receiving air
9 and light or heat from or over or discharging the same
10 upon or over land." Very few words. That statute has
11 never been construed in a case. Before coming here I
12 pulled my Compiled Laws of Dakota Territory of 1878 off
13 the shelf just to see if it was there. Yes, it was, the
14 same exact language, codified in our territorial days
15 well over 100 years ago, and yet it's relevant in this
16 proceeding.

17 You cannot simply take light from the sun, run
18 it through a blender and discharge it at will under the
19 homes and the lands of Intervenor simply because Deuel
20 County claims to have that in their zoning power. I
21 doubt it.

22 Now I want to remind the Commission that when
23 Crowned Ridge finds it necessary to take an easement for
24 these effects --

25 MS. CREMER: And I'm just going to at this

1 point -- this is really closing argument. This is not an
2 opening statement. So I need you to either wrap it up or
3 be done.

4 MR. SWANSON: Well, how about I hold the rest of
5 this then until we can make a closing statement.

6 MS. CREMER: Yes. We will brief that. Thank
7 you.

8 Ms. Christenson.

9 MS. CHRISTENSON: I'm going to waive the opening
10 statement.

11 MS. CREMER: All right. Thank you.

12 Mr. Robish.

13 MR. ROBISH: None for me also.

14 MS. CREMER: Thank you.

15 Staff.

16 MS. REISS: Staff has no opening statement.
17 Thank you.

18 MS. CREMER: All right. All right. Thank you.
19 Commissioners, anything else before we start?
20 Crowned Ridge, you may call your first witness.

21 MR. MURPHY: Thank you. I call Tyler Wilhelm.

22 (The oath is administered by the court reporter.)

23 DIRECT EXAMINATION

24 BY MR. MURPHY:

25 Q. Please state your name, business title and company

1 for the record.

2 A. My name is Tyler Wilhelm. I'm the senior project
3 manager of business development for NextEra Energy
4 Resources, LLC, or NEER.

5 Q. What is your role with Crowned Ridge Wind, II?

6 A. I am responsible for the development, permitting,
7 community outreach, regulatory compliance, and meeting
8 the commercial operations date of the project.

9 Q. Please provide a short overview of your education
10 and experience.

11 A. I've been employed by NEER since 2015 in various
12 roles, including land agent and project developer on a
13 number of wind projects, including the Crowned Ridge
14 Wind I project located in South Dakota.

15 Prior to joining NEER, I attended the University of
16 South Dakota where I received my B.A. in business.

17 Q. Did you prefile Direct Testimony and exhibits on
18 July 9, 2019, Exhibit A5 and A5-1, Prefiled Supplemental
19 Testimony and exhibits on September 20, 2019, Exhibits
20 A19 and A19-1 through A19-4, and Prefiled Rebuttal
21 Testimony on January 8, 2020, Exhibit A26?

22 A. Yes.

23 Q. Do you have any changes or corrections to the
24 prefiled testimony and exhibits?

25 A. Yes, I do. I have one correction to Exhibit 5A,

1 page 1, line 11. I would like to correct the word
2 "third" and replace it with the word "fourth" to clarify
3 the project's commercial operations date to correctly
4 reflect that it is projected to occur in the fourth
5 quarter of 2020, not as formerly listed as the third
6 quarter of 2020.

7 Q. So can you read the sentence as corrected?

8 A. The corrected sentence would be, "The project's COD
9 is planned to occur in or before the fourth quarter of
10 2020."

11 Q. Thank you. Please provide a short overview of your
12 prefilled testimony.

13 A. The Crowned Ridge Wind, II -- I'm sorry. Crowned
14 Ridge Wind II is a project that will bring considerable
15 benefits to the State of South Dakota and the local
16 community. Not only is the Crowned Ridge Wind II a zero
17 emissions clean energy source, the project provides a
18 number of significant benefits in the form of property
19 taxes, landowner payments, temporary construction jobs,
20 and permanent operations and maintenance jobs.

21 The Crowned Ridge Wind II project has been actively
22 developed for over a decade in which our project teams
23 had the privilege of meeting and working with numerous
24 landowners, tribal and local governments, and federal and
25 state agencies.

1 I'm referring to DK2, page 21. Do you per chance
2 have that?

3 A. One second here. I'm sorry. You said DK2?

4 Q. DK2, page 21 of 157.

5 A. All right. I'm here.

6 Q. You've got the page that says -- I think it's 1-8
7 where you were discussing good neighbor agreement. Do
8 you have that in front of you?

9 A. Yes, sir.

10 Q. What is the good neighbor agreement?

11 A. The way that the question was asked from us is, you
12 know, does the Applicant offer a good neighbor contract.
13 And I think that's a term that's used by some developers
14 in the industry.

15 Our interpretation of a good neighbor contract would
16 be an agreement reached with a landowner who initially
17 chose not to participate in the wind project and a means
18 of providing compensation to those nonparticipating
19 landowners.

20 Q. All right. Would the good neighbor agreement
21 provide for some sort of easement? Is there a form that
22 we can look at?

23 A. We have not offered good neighbor agreements on this
24 project. We have participating agreements, which are a
25 little bit different. And the good neighbor contract is

1 kind of a broad term used across the industry.

2 Q. Well, is the participation agreement like the wind
3 easement agreement that you have produced?

4 A. We have several means by which somebody could
5 participate in the project. There's a number of standard
6 easements that landowners can enter into. The wind farm
7 easement agreement is one of those.

8 Q. Well, I think in 1-8 you indicate that -- something
9 about the need to mitigate impacts or identify impacts on
10 nonparticipants. Is that a fair statement of what your
11 testimony was?

12 A. Yep.

13 Q. Or --

14 A. Yep. That is correct.

15 Q. All right. Is this something that Crowned Ridge or
16 NewEra [sic] has done in the past in dealing with impacts
17 on nonparticipants?

18 A. We have entered into, again, like a participation
19 agreement with landowners who are nonparticipants to
20 begin with. It's a means for them to participate in the
21 property.

22 An example of that would be somebody who has a
23 smaller tract of land and would not have the opportunity
24 to host infrastructure but would still like to
25 participate in the project in some form.

1 Q. All right. And what kind of impacts are you
2 attempting to address?

3 A. You know, there is -- you know, there is some noise
4 and shadow flicker, you know, impacts that can come from
5 the project. Again, the participation agreement is our
6 means of entering into an agreement with nonparticipants
7 to get an easement in place so they can be a part of the
8 project.

9 Q. So by participating or by offering that agreement,
10 are you simply offering money, or are you looking to
11 lessen the impact as perceived or received at their
12 property?

13 A. There is compensation associated with our
14 participation agreements. And, you know, with that comes
15 an easement of some sort. You know, at the end of the
16 day we have to site these projects in compliance with all
17 local and state siting requirements so there's -- you
18 know, whether a nonparticipant wants to sign what we call
19 a participation agreement or not, we're held to the same
20 siting standards with that landowner.

21 Q. Have you seen the document that has been marked
22 Exhibit I3, which is the so-called -- I've referred to it
23 before as the Kranz easement. Are you familiar with that
24 document? The one that's got the name Adam McDonald
25 written at the top of it.

1 A. Yes. I'm familiar with that.

2 Q. All right. Were you employed with the company at
3 the time that that document was prepared, if you know?

4 A. Yes, I was.

5 Q. All right. Are you familiar with the part of that
6 document that's captioned Section 11.10, Remediation of
7 Glare and Shadow Flicker? It's on page 11.

8 A. I'm sorry. You said 11 point --

9 Q. 11.10.

10 A. Okay. Okay.

11 Q. This paragraph or this section is no longer used by
12 Crowned Ridge in its current easement agreements; is that
13 correct?

14 A. I cannot exactly confirm that. I know that
15 Adam McDonald was employed as a land agent on this
16 project. I don't know what year this was exactly handed
17 over to the landowner.

18 Q. Well, the document that we're looking at that 11.10
19 is part of is an easement agreement, and so would have
20 been offered to someone you hope to become a
21 participating landowner; is that correct?

22 A. Yes, sir. That's a fair statement.

23 Q. All right. At least under that easement with the
24 Section 11.10 in it, this provision would have obligated
25 Crowned Ridge to come back and deal with mediation or

1 remediation of glare or shadow flicker in the home; is
2 that correct?

3 A. I would say partially correct. If, you know -- I
4 associate remediation or further investigation to be
5 associated with noise and shadow flicker, numbers that
6 would be higher than what's permitted at the county
7 level. And we are in full compliance with this project.

8 Q. But you're no longer using these provisions that
9 would have obliged you to come back and do something,
10 take some measure such as tree planting or installation
11 of awnings to mitigate the glare or shadow?

12 A. I cannot confirm if this language has been taken out
13 of our standard agreement that's used in current time.

14 I can tell you that, you know, we are required to be
15 within certain levels of noise and shadow flicker at the
16 county level. And if, you know, there is suspicion that
17 we are exceeding those, you know, that we would be
18 willing to investigate it to ensure that we are in
19 compliance. And, you know, if there is undue hardship,
20 you know, found, that we would, you know, work with that
21 landowner to mitigate the situation.

22 Q. In your capacity have you ever considered whether
23 the persons such as Intervenor might have a property
24 right not to be affected by your effects?

25 MR. MURPHY: Objection. Calls for a legal

1 conclusion.

2 MS. CREMER: I would sustain.

3 Q. You have put into the record a full, unredacted
4 version of your current Wind Lease Agreement that starts
5 at page 70 of 157. That's all part of DK2, part of
6 Exhibit S1, which I understand Mr. Kearney is going to
7 sponsor.

8 Do you want to turn to that document?

9 A. Can you give me the page number again, please.

10 Q. Yeah. It's page 70 of 157.

11 A. Okay. I'm on page 70.

12 Q. Is there anything in that page that would indicate a
13 Section 11.10? Are you on the first page of the lease?

14 A. I am, sir.

15 Q. Turn then to -- I'm sorry. To page -- it would be
16 at page 11 of that lease.

17 A. Okay.

18 Q. Is there a Section 11.10?

19 A. I do not see a Section 11.10 on this page, sir.

20 Q. It goes directly from Section 11.9 to Section 12; is
21 that correct?

22 A. Sorry. You said it goes from 11.9 to --

23 Q. Section 12 on taxes?

24 A. That is correct.

25 Q. There's no Section 11.10.

1 A. I do not see a Section 11.10 in here.

2 Q. The whole purpose of you offering this Wind Lease
3 Agreement is so that you can come into privity of
4 contract with those that do have property interest; am I
5 correct?

6 MR. MURPHY: Objection. Calls for a legal
7 conclusion.

8 MS. CREMER: Mr. Swanson, do you have a
9 response?

10 MR. SWANSON: Well, I'm asking the reason for
11 having developed this lease with participants, and/or
12 possibly nonparticipants that we're trying to work up to.
13 Who do they deal with? Do they offer it to anyone,
14 someone who lives in an apartment, or is it to
15 landowners?

16 MR. MURPHY: I have no objection to the way he
17 rephrased it, but that's very different from the question
18 that was asked.

19 MS. CREMER: And I would agree with that. So I
20 will sustain his objection as to calling for a legal
21 conclusion.

22 But I believe you can ask the question that you
23 then went to. But you may need to break it into separate
24 parts. It was compound.

25 Q. Well, the lease that you have in hand, which you

1 believe is the current version, is a document that you
2 offered to landowners that are in the boundary area of
3 the project. Am I correct?

4 A. Yes. That's correct.

5 Q. To the extent that you would offer a good neighbor
6 agreement or a participation agreement to someone who
7 doesn't have wind turbines, do I understand your prior
8 testimony to say that your provision for dealing with the
9 effects of noise, shadow flicker is still structured as
10 an easement on their land?

11 A. Can you please repeat the question. Sorry.

12 Q. To the extent that you would offer an agreement to
13 nonparticipants, people who did not participate in the
14 project initially, but you are attempting to deal with
15 some effect, noise, shadow flicker, for example, and you
16 come along and offer another agreement that I think you
17 called a participation agreement, that agreement does
18 have easements in it. Am I correct?

19 A. Yes. Yes, it would.

20 Q. And what would that easement provide, to the best of
21 your knowledge?

22 A. I mean, it's an exchange for participation in the
23 agreement -- or in the project. I mean, there is -- I
24 mean, there's an effects easement in there. There's a
25 number of things. It's our means of getting folks,

1 again, as I stated earlier, who may not have enough land
2 to participate in the project. It's their means to get
3 compensated and participate.

4 Q. All right. So the effects easement that would be in
5 this participating agreement or participation agreement
6 offered to someone who does not have wind turbines, would
7 that effects easement look much like the effects easement
8 that's Section 5.2 of that same current lease?

9 A. Yes. I would say 5.2 and, you know, 5.1. Yes.

10 Q. Oh, you would require a wind nonobstruction easement
11 from a person who does not have wind turbines but you're
12 offering a participation agreement to?

13 A. I'm not 100 percent sure if the wind nonobstruction
14 easement is in there so I would maybe correct my former
15 statement. But I do know that 5.2 is language that would
16 be reflected in a participation agreement. Yes, sir.

17 Q. All right. And you do not -- you did not produce an
18 example of that participation agreement in your
19 testimony.

20 A. I don't -- I don't recall if I did. Sorry.

21 Q. Did you produce it to Mr. Kearney as part of the
22 discovery requests or data requests, if you know?

23 A. I'm happy to follow up on that. I do not recall at
24 this time.

25 Q. All right. I'd be happy if you could late file that

1 as an exhibit to this record.

2 MS. CREMER: Crowned Ridge, do you have a
3 response?

4 MR. MURPHY: Yes. I think the data request
5 speaks for itself. The agreements that we provided are
6 the agreements that we have. We don't have any other
7 agreements. So there's nothing to file.

8 MS. CREMER: So there's nothing to file so there
9 will not be a late filed. Thank you.

10 MR. SWANSON: Okay. I understood there was such
11 an agreement that is extended to make initially
12 nonparticipants into a participating owner of some sort.
13 Am I correct on that?

14 MR. MURPHY: No. You're not correct. What I
15 just said is the agreements we've used in this project
16 have been filed. The questioning has been hypothetical,
17 and he is answering in a hypothetical fashion.

18 MR. SWANSON: Well --

19 Q. So you haven't used any such participating
20 agreements as we've been talking about?

21 A. I think some of the confusion here is that, you
22 know, to what was just stated as far as what has been
23 provided in the form of agreements, a participation
24 agreement with a -- with somebody who was once a
25 nonparticipating landowner could be in the form of a wind

1 easement agreement, all right, or an option agreement for
2 a wind easement.

3 You know, there's language in there for us to enter
4 into an agreement with these landowners, allow for them
5 to participate, allow for them to get compensation from
6 the project. It doesn't necessarily mean that there is a
7 wind easement on the property to host wind infrastructure
8 or underground collection or anything of that sort.

9 It's a means for us to include everybody in the
10 project that wants to participate, regardless of how much
11 land they have. And that's something that we offer to
12 everybody if they're willing to participate.

13 Q. But you have not offered anything like that to -- on
14 your South Dakota projects, if I understand correctly.

15 MR. MURPHY: Objection. Clearly the witness
16 thinks he's answered it multiple times. So asked and
17 answered.

18 MS. CREMER: Mr. Swanson, do you have a
19 response?

20 MR. SWANSON: I thought the witness was
21 describing a participation agreement that would be
22 offered to those who do not host wind turbines. That's
23 my understanding of his testimony.

24 But yet when I ask whether those have been used
25 or offered on these South Dakota projects that's the

1 point of my inquiry. I'm trying to decide or determine
2 whether there is such an agreement, and if there is an
3 easement that would be in it, what would it cover?

4 MS. CREMER: Mr. Wilhelm, do you understand
5 where the confusion lies? There was an amount -- a
6 hypothetical when it started.

7 THE WITNESS: Uh-huh.

8 MS. CREMER: But can you just clarify for us --
9 and, if you know, point to what exhibits -- where those
10 easements are, if you have a number.

11 THE WITNESS: I think it would be helpful if I
12 can give an example of how people participate in the
13 project without hosting wind infrastructure.

14 MS. CREMER: Certainly.

15 THE WITNESS: That would get there, which is my
16 understanding different of a good neighbor agreement.

17 You know, when we develop these projects, you
18 know, we have to be able to access properties to conduct
19 a number of surveys on the property. And a lot of times
20 when we enter into these option agreements we are not
21 able to host infrastructure on properties, whether that
22 be a wind turbine, underground collection.

23 Just because they're not hosting anything
24 doesn't mean that they're no longer a participant in the
25 project. You know, we could renew that lease with them

1 so they can be a part of the project for, you know, the
2 life of the project, regardless if they're hosting any
3 infrastructure or not.

4 That is what we would offer to people as
5 participation in the project, even though you're not
6 hosting any infrastructure is an annual compensation
7 that's associated with that. It's in the form of the
8 same leases that we have provided in our responses.

9 You know, it ultimately depends on what we're
10 able to do on the property to determine your level of
11 participation. You know, I apologize if I was confusing
12 earlier that there was a separate agreement. You know,
13 it's just considered a participation agreement. There's
14 language in there from the Wind Easement Agreement.

15 Q. So you would fashion perhaps a reduced Wind Lease
16 Easement Agreement and offer that as the participation
17 agreement?

18 A. No, sir. What we have filed as our agreements used
19 within the project is what we filed. If there's not a
20 redacted form of this, then that's not something that we
21 utilize on the project.

22 Q. All right. But in dealing with these what were
23 nonparticipating landowners and if they were to enter
24 into this participation agreement, even though they're
25 not hosting wind turbines, it would be then a document

1 that looks much like the document you produced to
2 Mr. Kearney. Am I correct on that?

3 A. Which document is that?

4 Q. It's the lease that is -- actually I think
5 Mr. Schumacher produced it. It's the document that is
6 starting at page 70 of DK2, which purports to be a
7 current unredacted version of the easement agreement that
8 you currently use.

9 A. That's correct.

10 Q. All right. So that's the document you use?

11 A. Yes.

12 Q. All right.

13 MR. SWANSON: That's all I have.

14 MS. CREMER: Thank you.

15 Ms. Christenson.

16 CROSS-EXAMINATION

17 BY MS. CHRISTENSON:

18 Q. Tyler, in your testimony you agree to comply with
19 CUPs and the SEP, and you have no plans to vary -- well,
20 it wasn't in your testimony. It was in answer to a data
21 request.

22 You have no plans to vary from the CUPs and the SEP
23 that you've received?

24 A. So I'm going to ask you to repeat the question. I
25 think I heard two different things in there. Was it

1 something along the lines of are we ensuring that we're
2 going to be compliant? And then there was a second part
3 to that that I wasn't following.

4 Q. In the data request you answered that you agree to
5 comply with the CUPs and the SEP and you have no plans to
6 vary from those CUPs or the Special Exception Permit, as
7 it's called in Deuel County.

8 A. Again, I think I heard two different things there.

9 Q. Okay.

10 A. So yes. We absolutely ensure that we are going to
11 be compliant with the Conditional Use Permit approvals
12 and the Special Exception Permit approvals received for
13 this project. Absolutely.

14 Q. Okay. The date of the approval for the Grant County
15 Conditional Use Permit was December 17, 2018. Do you
16 agree with that date?

17 A. Yes, I do.

18 Q. Okay. Now if you would refer to the Applicant
19 Exhibit 19-3, page 1, in the lower left-hand corner.

20 A. Can you refer to -- what document is that? Is that
21 from the county application?

22 Q. It's just the county ordinance for Grant County that
23 you submitted. Do you want to just borrow my copy?

24 A. Yeah. That would be great. Appreciate that.

25 Q. Yeah.

1 A. Okay. Help me out here. Which are we looking?

2 Q. Okay. In the lower left-hand corner of page 1 of
3 that document would you please read to the Commission the
4 date the Grant County ordinance was adopted.

5 A. It shows December 28, 2018.

6 Q. Okay. Thank you. December 28, 2018. That would be
7 11 days after you received your Conditional Use Permit;
8 correct?

9 A. That would be correct, that it was officially
10 adopted after we received our permit approval, but our --

11 Q. Okay.

12 A. -- permit application was also 100 percent
13 consistent with everything that was --

14 Q. Okay. I just -- I'm just clarifying dates --

15 A. Okay.

16 Q. -- at this point.

17 Now please read to the Commission the date of the --
18 the effective date of the ordinance. In that same lower
19 corner.

20 A. January 28, 2019.

21 Q. Okay. So like a month and 10 or 11 days after you
22 received your Conditional Use Permit.

23 So at the time you received approval for your
24 Conditional Use Permit for Crowned Ridge II the prior
25 ordinance was in effect governing that Conditional Use

1 Permit, not the version that's submitted in A19-3;
2 correct?

3 A. That would be correct. But I would like to state
4 that when we filed our Conditional Use Permit application
5 it was in compliance with what they were working towards
6 adopting.

7 We were a part of that iterative process with the
8 counties to get a new wind ordinance in place, and our
9 application that we filed is 100 percent consistent with
10 what was adopted after our filing and our approval date.

11 Q. There is a new ordinance but your Conditional Use
12 Permit we agree was not in effect -- or your Conditional
13 Use Permit was granted under the old ordinance, whether
14 or not we were working toward a new ordinance?

15 MR. MURPHY: Objection. It's argumentative in
16 the sense of inferring legal theories and facts into a
17 question instead of just asking a question.

18 MS. CREMER: Ms. Christenson, do you have a
19 response?

20 MS. CHRISTENSON: I'm just trying to clarify for
21 everyone else that -- because he offered information
22 saying they were working toward a new ordinance, I just
23 want to clarify that ordinance was not in effect. That's
24 the whole point I'm trying to get to.

25 MR. MURPHY: Now I have a different objection.

1 She is an attorney pro se, and she is not testifying
2 before the Commission. So she can ask questions, but
3 she cannot testify or infer inferences or legal
4 conclusions.

5 MS. CREMER: And I would agree with Mr. Murphy
6 on that. There's a lot of -- you're implying a lot of
7 facts that aren't in evidence. So I'm going to sustain,
8 and you need to ask a new question.

9 MS. CHRISTENSON: Okay. I really don't need to
10 ask a new question. I've already established the dates.
11 So that's fine. I was just trying to clarify, but we're
12 good.

13 Q. Okay. So the Exhibit A19-3 are the mocked up pages
14 of the ordinance that was put forward for adoption on the
15 28th of December. So where there's highlights and
16 strike-outs, would those be the old ordinance changes
17 that are being -- if it's structure out, it's not going
18 into the new ordinance?

19 Would that be your understanding?

20 A. One second here. I'll try to confirm that. Because
21 this is a working document here versus --

22 So my interpretation of this is everything that
23 would be highlighted would be information that was going
24 to be adopted, newly inserted, and considered in the new
25 ordinance. Everything that has a line through it or is

1 stricken through would be information that would be
2 removed.

3 Q. Correct.

4 Okay. So I would like to show you this document.
5 And I'm not sure how to go about doing that.

6 MS. CHRISTENSON: I can present the document to
7 the witness? And I have copies for everyone.

8 MS. CREMER: I'm not sure what we're using it
9 for. Is it impeachment, or what are we doing here?

10 MS. CHRISTENSON: Clarifying the ordinance that
11 was used.

12 MS. CREMER: And this is an ordinance in what
13 county?

14 MS. CHRISTENSON: Grant.

15 MS. CREMER: Yes. You may show him the
16 document.

17 MR. MURPHY: I would like a copy, please.

18 MS. CREMER: And if you have it, you should
19 provide --

20 MS. CHRISTENSON: I did. I don't know who
21 Amanda said -- or was it Kristen told me to make 11
22 copies. I'm not sure who the 11 copies would be for.

23 MS. CREMER: It would be one for everybody here
24 and one for the court reporter.

25 (The document is distributed.)

1 Q. (BY MS. CHRISTENSON) If you're ready, Mr. Wilhelm,
2 I just provided you with a document, the title Grant
3 County Compiled Zoning Ordinances dated 1-25-2018. And
4 that is the ordinance that was in effect until the new
5 ordinance took effect at the end of 2018.

6 MR. MURPHY: Objection. There's testimony and
7 legal conclusions in these questions, and I'm not hearing
8 a question. I'm just hearing testimony about Grant
9 County's process, and I don't see anybody from Grant
10 County here to authenticate it.

11 MS. CREMER: And my problem is we have no
12 jurisdiction over this.

13 MS. CHRISTENSON: Correct. I'm just laying the
14 foundation that the ordinance submitted by the Applicant
15 differs from the ordinance that was in effect. And you
16 can see by strike-out and highlight what the ordinance
17 was versus what it's going to be in their Exhibit A19-3.

18 So this is -- the parts that are struck out are
19 actually this ordinance. It's just easier to follow.

20 MS. CREMER: So is your objection to the exhibit
21 itself coming in or her line of questioning?

22 MR. MURPHY: It's more the line of questioning.

23 MS. CREMER: Okay.

24 MR. MURPHY: And the more I think of it, it's a
25 legal argument. If they want to make a legal argument

1 that there's an invalid county permit, they can do that
2 on brief.

3 I'm having difficulty with legal inferences in
4 questions to a witness who is not -- that's not the
5 purpose of his testimony, and we're not in Grant County.
6 We're before the Commission.

7 CHAIRMAN HANSON: I think she needs to be
8 allowed to ask the question before we know what her
9 question is.

10 MS. CHRISTENSON: I am not arguing the validity
11 of the CUP, for your clarification, Mr. Murphy, if that
12 helps you. I'm not arguing that. I'm trying to make the
13 language clearer because the exhibit provided by you
14 showing the ordinance is difficult.

15 The ordinance in effect, which you have in
16 strike-out form, is this exact thing.

17 MS. CREMER: I'm going to cut to the chase here.
18 Mr. Wilhelm, do you recognize that document, and is it
19 different?

20 THE WITNESS: I do recognize both documents.
21 And what we provided is Exhibit A19-3 is the markup
22 version of what the final ordinance came to be. And the
23 providing of this was our means of showing what changed
24 in the ordinance so people could track it, and we were a
25 big part of that process and something that we're proud

1 of.

2 So it's just the redline or marked-up version of
3 what was just provided to me.

4 MS. CREMER: Okay. So now I'm going to have you
5 identify the one you keep referring to as this one, this
6 marked up one.

7 THE WITNESS: Sorry. I apologize.

8 MS. CREMER: What's the number on it?

9 THE WITNESS: AC-18 is the one I just received
10 from Ms. Christenson. And then A19-3 is the marked-up
11 version.

12 MS. CREMER: All right. Does that answer your
13 question, Ms. Christenson?

14 MS. CHRISTENSON: I think we're fine. We're in
15 agreement. So I'd like to offer this to be marked as an
16 exhibit and be entered into the record.

17 MS. CREMER: Staff.

18 MS. REISS: No objection.

19 MS. CREMER: Crowned Ridge.

20 MR. MURPHY: No objection.

21 MS. CREMER: Mr. Swanson.

22 MR. SWANSON: None.

23 MS. CREMER: Mr. Robish.

24 MR. ROBISH: No objection.

25 MS. CREMER: So it is admitted. Thank you.

1 MS. CHRISTENSON: Okay. Exhibit AC-18.

2 Q. (BY MS. CHRISTENSON) In my second data request to
3 the Applicant, Exhibit AC-4, question 2 I requested a
4 sound study which would incorporate the lack of low noise
5 trailing edge blades in the Crowned Ridge I project into
6 the sound modeling for this Crowned Ridge II project.

7 Would that be your understanding of my question in
8 that data request?

9 A. If you could repeat the question and answer while I
10 try to locate that, I think that would be helpful.

11 Q. I requested a sound study which would incorporate
12 the lack of low noise trailing edge blades in the Crowned
13 Ridge I project into the sound modeling for this Crowned
14 Ridge II project.

15 Would that be your understanding of that question?

16 MR. MURPHY: I'm just -- I'm having trouble
17 following where that question is located. I don't doubt
18 that it was asked. I'm just not -- if you can clarify --

19 MS. CHRISTENSON: Sorry. Exhibit AC-4,
20 question 2.

21 A. Is there something you could help provide me with so
22 I could verify?

23 Q. Maybe. If you want to look at my laptop, I have it
24 pulled up.

25 A. I think Brian and Miles are trying to help me out

1 here.

2 Q. I can read it verbatim if you would prefer that?

3 MS. REISS: Did you bring paper copies of your
4 exhibits?

5 MS. CHRISTENSON: No. Not the ones that were in
6 the record already, no.

7 MS. REISS: Okay. We're going to need those for
8 the record.

9 MS. CREMER: Do you have it? Otherwise, you
10 could read the question and read the answer.

11 Q. (BY MS. CHRISTENSON) The question: "Provide an
12 updated sound study incorporating the lack of low noise
13 trailing edge attachments in the Crowned Ridge I
14 project."

15 The response: "Crowned Ridge Wind II objects to
16 Data Request 3-2 because it seeks a study that is not
17 relevant and is not reasonably calculated to lead to the
18 discovery of admissible evidence in this proceeding
19 before the PUC, given that the LNTE attachments for
20 Crowned Ridge Wind I will be installed on or before
21 September 15, 2020, well prior to the Crowned Ridge
22 Wind II becoming operational in the fourth quarter of
23 October 2020."

24 So I was going to ask you if I read that correctly,
25 but I think I did.

1 Okay. My question concerning that answer provided
2 by your company are, one, if Crowned Ridge Wind II is
3 permitted and construction for your reduced version of
4 the project, 200 megawatts, is completed prior to
5 October, are you guaranteeing here today that commercial
6 operations will not begin before October?

7 A. We're slated to reach commercial operations in
8 fourth quarter of this year. I think us coming online in
9 October would be aggressive, but I wouldn't want to count
10 anything out. I mean, obviously we'd want to be able to
11 go online as soon as we can.

12 Does that answer your question?

13 Q. So never -- you're guaranteeing that it would never
14 be in the third quarter?

15 It would not be before October 1? That's my
16 question, I guess.

17 A. I don't want to guarantee you that. I'm saying our
18 project schedule is definitely within -- is reflective of
19 the fourth quarter of this year. I wouldn't want to
20 count anything out. If we have the means of bringing
21 this project online -- it's already been delayed in the
22 delivery to the customer. I mean, we'd like to be able
23 to do what we can. It's just not reflective of our
24 current schedule right now.

25 Q. Okay. So there is a possibility then in your

1 estimation that the project could come online before all
2 low noise trailing edge blades would be installed in
3 Crowned Ridge I?

4 A. To answer your question, I would say it's very, very
5 unlikely. And if it did, we would obviously address, as
6 needed, to ensure that, you know, there's not cumulative
7 impacts from, you know, our project operating in Crowned
8 Ridge II that would be, you know, adding to any issues
9 from, you know, lack of installment of the LNTE blades on
10 Crowned Ridge I. Is that --

11 Q. Okay. So really my request for a sound study
12 incorporating that, you would not consider that beyond
13 the scope of a possibility that you would have to
14 incorporate the sounds from Crowned Ridge I not having
15 low noise trailing edge to Crowned Ridge II?

16 I know that's not a very good question. But what
17 you're saying is a possibility. And I feel like maybe my
18 data request was reasonable. Do you feel my data request
19 was reasonable?

20 MS. CHRISTENSON: There. I got a question.

21 A. Yeah. Reasonable in the sense if we were coming
22 online with Crowned Ridge II to where it would apply to
23 add to potential cumulative impacts.

24 But our response is is that we're not scheduled to.
25 And so it doesn't -- it doesn't necessarily apply. You

1 know, we're coming online in the fourth quarter of this
2 year, after the installment of the LNTE blades on Crowned
3 Ridge I is completed.

4 Q. Okay. If Crowned Ridge I does not install low noise
5 trailing edge attachments on all of its 87 turbines by
6 September 15, as is the target in the waiver, are you
7 guaranteeing here today that Crowned Ridge II will not
8 begin commercial operations until all of the attachments
9 are installed, according to Docket 19-003?

10 A. Are we ensuring that we will not reach commercial
11 operations prior to the completed installment of LNTE
12 blades on Crowned Ridge I?

13 Q. Yes.

14 A. I think it's fair to say that it's very unlikely
15 that we're coming online, you know, prior to the fourth
16 quarter of this year. So it's very unlikely that that
17 situation would occur.

18 In the event that it did, we would act as necessary,
19 coordinate with the Commission, you know, to ensure that,
20 you know, everything is where it needs to be as far as
21 sound assessments and things of that nature.

22 Q. So perhaps if you were permitted for this project,
23 you would be agreeable to a condition regarding
24 commercial operations if Crowned Ridge I blades are not
25 installed, low noise trailing edge blade attachments?

1 A. I would say no.

2 Q. Okay. I'm not sure if you should answer this or
3 Mark Thompson because he actually responded to the
4 question in my data request. And maybe you need to
5 coordinate with him, but I'll ask you first since you're
6 the senior project manager on the project.

7 In my second data request to your company, still on
8 AC-4, my first question was "Provide the exact turbine
9 model of each turbine you intend to use in the project."
10 Mr. Thompson's response was, and I can read this for you,
11 "Crowned Ridge Wind II will use nameplate 2.1 megawatt
12 and 2.3 megawatt wind turbines in the General Electric
13 2 Megawatt 116 Model Series."

14 Since the turbines for this project were purchased
15 June 28, 2016, and September 26 of 2018, are those
16 specific turbines purchased on those dates still
17 available for use in this project?

18 A. Given that that response was sponsored by
19 Mark Thompson, I would defer that question to Mark when
20 he's up here.

21 Q. Okay. I'm not sure I can ask this correctly.

22 In a statement you made January 13, 2020, in a
23 Grant County Board of Adjustment meeting the board was
24 reviewing a Complaint regarding the building of your
25 sister project, Crowned Ridge I. You're also senior

1 project manager of that project. And the discussion was
2 centered around a 1.7 megawatt, 80 meter hub height
3 turbine. That wasn't very long ago. You probably
4 remember that pretty well.

5 That turbine was changed to an 80 meter hub height
6 turbine. And it's either a 2.3 or a 2.7. We're not
7 sure. It hasn't been determined yet which model it is.
8 I'm not talking nameplate. I'm talking model.

9 And you said -- and I can quote you here and I do
10 have a video if we need to do that but I'll read you your
11 quote and you can tell me if you agree with that.

12 You had filed the application and listed the 1.7s
13 and "that was our intention to use those machines at that
14 time. As time proceeds and project delays occur and
15 things of that nature, as a wind developing company, we
16 purchase our turbines in mass quantities and those were
17 used on a next-up basis across our entire fleet. The GE
18 1.7s were initially designated to our project and they
19 were utilized by another project in our portfolio because
20 it was on a quicker time line than us and they were next
21 in line to be used.

22 Does that accurately reflect what you recall saying?

23 A. It sounds somewhat familiar so what -- I'm not going
24 to agree word for word, but it sounds familiar, yes.

25 Q. Okay. So my question then is in that project the

1 turbines that were purchased for that project were used
2 by a different project in your portfolio.

3 My question would be, since you answered that
4 question, would these turbines that were purchased be
5 available still, or would they have been used up on a
6 next-up basis, like the 1.7 turbine, 80 meter hub height?

7 A. I'm not really understanding the question.

8 Q. Okay.

9 A. In regards to this docket and Crowned Ridge II,
10 we've completely listed the turbines that we intend to
11 use on this project, being the 2.1 megawatt and
12 2.3 megawatt machines. We have no intention of using any
13 other nameplate capacity turbines on this site.

14 Q. Okay. Thank you.

15 In your response to question 8 of Exhibit AC-9,
16 Intervenor's Data Request, you state, "Crowned Ridge will
17 comply with the CUP and SEP permits and has no plans to
18 vary from the CUPs and SEPs." I brought that up earlier.

19 Do you consider a deferment with possibly not
20 building at all one-third of the project a variance from
21 the permit?

22 A. No. I would not. When the decision was made to
23 defer 100 megawatts of the project, we were in open
24 communication with the county. We're not concerned with
25 it.

1 Their biggest concern is our ability to maintain
2 compliance on the site. They know that the project is
3 highly desired by many members in the community that
4 we've had leases with for several years. And they hoped
5 that we were able to be successful in procuring that
6 100 megawatts.

7 I would say that it is different in the -- you know,
8 varies in the scale of the size of the permit, but I
9 think that's irrelevant because we are permitted up to a
10 number of turbine locations within these and have the
11 flexibility which is necessary most times in wind
12 development to accommodate the changes. But we have the
13 flexibility to, you know, not use some of the locations
14 or, you know, things of that nature.

15 Q. Thank you.

16 Since you brought up notification of the counties, I
17 noticed in your exhibits that you notified the counties
18 on September 25 and October 1, yet NSP had downsized
19 their agreement with you on August 16.

20 Why was there a delay in notifying the counties?

21 A. So when the commercial decision was made to defer
22 100 megawatts, which was with coordination with NSP,
23 after that time it was a -- required a lot of work from
24 our project team to be able to understand what that did
25 to the project. You know, kind of the, you know, show me

1 the sausage, don't tell me how it's made type of thing.
2 It took a lot of time and resources for us to understand
3 how that was actually going to impact the project.

4 We did have high-level discussions just through
5 verbal communication that there would be changes coming.
6 But the last thing that we wanted to do was provide, you
7 know, preliminary changes to the project that could be
8 circulated around and misinformation be started.

9 And, most importantly, we wanted to make sure that
10 we had clear communication with the Commission, you know,
11 with our supplemental testimonies filed on September 20.

12 Q. Thank you.

13 You indicated in your data response to Exhibit AC-9,
14 question 11, that full title searches were anticipated to
15 be completed by the end of January, 2020. Are those
16 title searches complete?

17 A. I'm sorry. Can you please repeat the question?

18 Q. You indicated in your data response to Exhibit AC-9,
19 question 11, "Full title searches are anticipated to be
20 completed by the end of January, 2020."

21 Are those title searches complete?

22 A. I think they are. If they're not complete, they are
23 very close to being completed.

24 Q. Thank you.

25 Have there been any surprises, or are you aware of

1 any problems in the title searches at this point?

2 A. No, I am not.

3 Q. Intervenors also asked in this same exhibit, AC-9,
4 question 12 in a data request -- the question was, "Will
5 the Applicant mortgage or leverage assets of the
6 project?"

7 Crowned Ridge answer, which was provided by you, I
8 believe, if I may paraphrase, that after the transfer of
9 Crowned Ridge II to Northern States Power, Northern
10 States Power may issue bonds or raise other financing
11 which uses the project's assets as collateral.

12 My question is are the landowners also known as
13 participants aware their property may be used as
14 collateral?

15 A. That response was made in coordination with the
16 future owner of the project being Northern States Power.
17 And, you know, that was information that was supplemented
18 to us. That's not my understanding. But then again, I
19 don't want to interpret, you know, Northern States
20 Power's language with that response.

21 Q. So you didn't respond to that? That was a response
22 by --

23 A. Yeah. Let me correct. I sponsored that response,
24 yes.

25 Q. Okay.

1 A. With coordination and communication with Northern
2 States Power, as they are going to be the owner of the
3 project moving forward.

4 Q. Thank you.

5 Could NSP's use of participator's properties as
6 collateral affect the participators using their own
7 property for collateral such as operating loans,
8 mortgages, things like that?

9 A. I would like to actually defer the -- defer that
10 question to somebody else on our project team who's
11 probably more inclined to answering that.

12 Q. Who would that be?

13 A. I would say Daryl Hart.

14 Q. Thank you.

15 Exhibit AC-17, Applicant's response to Intervenor's
16 question 10. We asked for a list of all affiliations,
17 entities, associations, partnerships, agents, et cetera,
18 that have been associated with the Applicant and NextEra
19 since 2008 in South Dakota.

20 My question here is I do not see Blattner Energy on
21 the list of your associations. Would you tell me why
22 they're not listed? Should they be?

23 A. I would say they should not be listed.

24 Q. Can you explain that to me since they're building
25 the project for you?

1 A. I don't -- I'm sorry to interrupt when you're
2 talking.

3 I actually don't have that in front of me. I
4 understood -- I would like to be able to see the question
5 and the response that was given.

6 MR. MURPHY: If I could help, Tyler, it's the
7 third -- it's one of their Data Requests, and I think you
8 should have it. It's the first set; correct? And it's
9 question 11.

10 MS. CHRISTENSON: I will give it to you, Tyler.
11 I've got it right here.

12 MR. MURPHY: Or question 10, 1-10. It's on the
13 very last --

14 A. Unfortunately, my books took a spill before coming
15 here, and it's not well put together. So I would
16 appreciate if I could see that.

17 (Witness examines document.)

18 A. Do we have the date by which this response was
19 provided?

20 (Mr. Murphy provides document to the witness.)

21 A. So to follow up on my response earlier, did I feel
22 like Blattner Energy should be associated and listed with
23 this response, I would stand behind my former statement
24 and say no.

25 This question is asked directly towards Crowned

1 Ridge Wind II, LLC, which, you know, Blattner is the EPC
2 contractor who constructs the projects. You know, they
3 were very active on Crowned Ridge I.

4 But given the context of this question and the point
5 of Crowned Ridge II, I would say Blattner not being
6 included is correct.

7 Q. Who is constructing the Crowned Ridge II
8 transmission line?

9 A. That would be Blattner Energy.

10 Q. So they should be included here then?

11 MR. MURPHY: Objection.

12 Q. Am I wrong?

13 MR. MURPHY: He's answered that. I have an
14 objection.

15 The objection is that he has answered the
16 question twice, and he stands by the answer in the
17 interrogatory. It doesn't mean that the pro se
18 Intervenor likes the answer, but that is the answer.

19 MS. CREMER: Well, do you have a response,
20 Ms. Christenson? I'm sorry.

21 MS. CHRISTENSON: My response would be perhaps
22 he wasn't thinking about the transmission line being a
23 part of Crowned Ridge II.

24 MR. MURPHY: Then the objection would be scope
25 as well.

1 MS. CREMER: Mr. Wilhelm, can you clarify for
2 us?

3 A. Sure. So based off of the date that this was
4 responded to and the project that this -- that the data
5 request was filed for, which is Crowned Ridge Wind II,
6 the wind docket -- Blattner Energy has not been a part of
7 or associated with Crowned Ridge Wind II, the wind
8 project, to commence any of the construction.

9 Now we permitted our transmission line under a
10 separate docket in which Blattner Energy has, you know,
11 started construction on the Crowned Ridge II T-line,
12 which we have all applicable permits for. So I stand
13 behind my response.

14 MS. CREMER: Did that answer your question?

15 MS. CHRISTENSON: I'll ask another. Thank you.

16 Q. Would you read the question for me, please, the data
17 request.

18 A. "Provide a list of all the affiliations, entities,
19 affiliated entities, corporations, associations doing
20 business as limited liability company incorporation,
21 partnership and agents that have been associated with the
22 Applicant NextEra and Crowned Ridge Wind II since 2008 in
23 South Dakota."

24 Q. Will your answer change concerning Blattner Energy
25 now that you've read NextEra in the question?

1 A. Well, NextEra, I mean, when it's not the -- I mean,
2 I don't want to get into the weeds here, but NextEra,
3 NextEra Energy Resources, LLC? I mean, this is our
4 parent company that's -- you know, I --

5 Crowned Ridge Wind II, LLC is an indirect subsidiary
6 of NextEra Energy Resources, LLC. NextEra is spelled
7 wrong. It's -- I mean, this isn't coming together here
8 the way this question's asked.

9 MR. MURPHY: The objection here would be we had
10 an objection in the data request. NextEra is not the
11 Applicant. The Applicant is Crowned Ridge Wind II, LLC.

12 And the reason the objection was there, it
13 was over broad. NextEra Energy Resources is not the
14 Applicant.

15 MS. CHRISTENSON: Thank you.

16 Q. My next question, is Crowned Ridge Wind II a
17 subsidiary of NextEra Energy Resources?

18 A. Yes, it is.

19 Q. Thank you.

20 In Exhibit AC-9 Intervenors asked in question 2-3
21 the weight of each blade. The weight answered by
22 Mr. Thompson is an astonishing 25,203 pounds.

23 My question is this, and I'm asking you because I
24 believe you provided the decommissioning information in
25 this project. But if it's someone else, we can ask

1 someone else.

2 At the end of the life of this project there would
3 be 396 blades if a 300-megawatt project with 132 turbines
4 were built. And there will be other blades during the
5 life of the project that need replacing. These blades
6 will require disposal. The weight of those blades at the
7 end of life -- just at the end of life is 9,980,570
8 pounds of refuse. Or if you use the shipping weight,
9 that would be 11,840,004 pounds of refuse.

10 Not knowing if any of the blades are toxic at this
11 point, and we will assume that they're not for the sake
12 of this question, where will Crowned Ridge II intend to
13 dump 10 to 12 million pounds --

14 And that number doubles if you add in Crowned
15 Ridge I because they'll become end of life at the same
16 time. Where would you dump those million pounds of blade
17 refuse? What's your intention?

18 A. So I would first say that Crowned Ridge I, you know,
19 although -- separate subject here. You know, it's going
20 to be owned and operated by NextEra Energy Resources,
21 LLC, which is a different story than the Crowned Ridge
22 Wind II, LLC project, which will be owned and operated by
23 Northern States Power, which will be responsible for the
24 decommissioning of the project. So I cannot speak for
25 certainty on their full processes.

1 You know, through communication with them, I know
2 that they intend to coordinate with whatever local
3 services possible on the dismantlement and, you know,
4 delivery of the decommissioned blades. I can't get into
5 specifics on that as to how they would go about doing it.

6 Q. On this project as well. Because Crowned Ridge II
7 is going to retain ownership of this project after -- NSP
8 is going to transfer ownership back to Crowned Ridge II,
9 I believe I read. Yes. So --

10 A. No. No. Crowned Ridge Wind II, the project and
11 operating facility will be sold to Northern States Power
12 for them to own and operate until they say otherwise.

13 We have no stake in Crowned Ridge II once the
14 project is built and sold to Northern States Power. We
15 will continue to operate our sister project to the north,
16 Crowned Ridge Wind I but not Crowned Ridge Wind II.

17 Q. You're right. You're NextEra; you're not Crowned
18 Ridge. So I get that confused a little bit. Okay.

19 Are you now or have you ever been a Crowned Ridge
20 Wind II employee?

21 A. I'm employed by NextEra Energy Resources, LLC, which
22 Crowned Ridge II is a subsidiary of NextEra Energy
23 Resources, LLC.

24 MS. CHRISTENSON: Okay. That's all my
25 questions. Thank you.

1 MS. CREMER: So I'm trying to figure out a break
2 time.

3 Mr. Robish, do you have much?

4 MR. ROBISH: Short.

5 MS. CREMER: Everybody says that.

6 CROSS-EXAMINATION

7 BY MR. ROBISH:

8 Q. Okay. This Crowned Ridge II is covering three
9 counties; is that correct?

10 A. Yes, sir.

11 Q. It would be Codington, Deuel, and Grant?

12 A. That's correct.

13 Q. What building permits does each county have to have?

14 A. Can you rephrase the question, please.

15 Q. For each turbine that's built what building permit
16 would they have to have for each turbine?

17 A. We are required to obtain building permits on a
18 turbine -- by turbine, on a turbine-by-turbine basis.

19 Q. Are they all the same in Codington, Deuel, and
20 Grant? The same permitting process?

21 A. No. It's three different counties. We go through
22 three different local jurisdictions on the filing of the
23 applications. And they're also approved by different
24 individuals.

25 Q. Okay. Well, will the Applicant display all building

1 permits at each site location?

2 A. I would -- I think that's more of an E and C
3 construction. I'm sorry. Engineering and construction.
4 I'll defer that answer to Mark Thompson.

5 Q. Mark Thompson?

6 A. Uh-huh.

7 Q. Well, it will probably be the same. Or will --
8 Where will they be displayed, and when will they be
9 displayed? Would that be the same person?

10 A. Yeah. I would like to defer that to Mark Thompson
11 as well.

12 MR. ROBISH: Okay. Thank you. I'm done.

13 MS. CREMER: And you were accurate.

14 Staff.

15 MS. REISS: All right. I have a few. It will
16 likely be brief.

17 CROSS-EXAMINATION

18 BY MS. REISS:

19 Q. All right. Good morning, Mr. Wilhelm.

20 A. Good morning.

21 Q. I just have a few questions for you. If you can
22 recall -- and if not, I can provide you the document. On
23 pages 6 and 7 of your direct testimony, you discuss
24 coordination with the FFA; correct?

25 FAA. I'm sorry. That's a big difference. The FAA;

1 correct?

2 A. I'm sorry. You said page 6?

3 Q. 6 and 7.

4 A. From the Direct?

5 Q. Yes.

6 A. Okay. Yep.

7 Q. Okay. You indicate in your testimony that six
8 turbines are required to still receive determinations of
9 no hazard; is that correct?

10 A. Yes. At that time that was what was stated.

11 Q. Has that changed at this time?

12 A. Yes. There's actually only one turbine location
13 that's outstanding.

14 Q. Okay. Do you have a time line as to when Crowned
15 Ridge Wind expects to receive a determination of no
16 hazard?

17 A. For this particular turbine we are actually going to
18 hold on filing for our DNH on it.

19 Through our consulting with Capital Air Space and
20 through coordination with the FAA it has been expressed
21 that there is potential radar saturation in this part of
22 eastern South Dakota and that, you know, we would
23 coordinate with them further on the placement of a
24 turbine if so fit. So we are holding on that filing of
25 Turbine Alt. 8.

1 Q. Can you explain what radar saturation means?

2 A. I'll do my best.

3 You know, again, we work with a number of
4 consultants. You know, through coordination with Capitol
5 Airspace it was expressed to us that when there is a
6 certain number of proposed structures that have, you
7 know, a tall height to them within certain proximities to
8 certain radars, those radars have the potential risk for
9 saturation.

10 Now I think it's important to note that what's
11 considered to be potential risk for saturation is also a
12 lot of proposed development sites. So, you know, a
13 number of what is being perceived as a risk of saturation
14 could be, you know, another developer in an adjacent
15 state, you know, throwing out the potential for building
16 a 300-megawatt project. And those do have to be
17 included.

18 So our intention is to wait to see what happens with
19 the future development of other projects, see if they
20 materialize, and see how we can proceed. So I went a
21 little bit too far, but I was trying to clarify what I
22 did.

23 Q. Thank you. That was helpful.

24 On pages 6 and 7 you also discuss coordinating with
25 the FAA regarding approval of an ADLS; is that correct?

1 A. That's correct.

2 Q. Do you have a time line in mind as to when that
3 application will be submitted to the FAA?

4 A. Yes, I do. Right now we're targeting April of this
5 year.

6 Q. And based on your experience, do you have any idea
7 as to how long that process would take to get approval?

8 A. We've tracked it through our coordination with them
9 in the past, and historically we've seen anything from 65
10 to just over 100 days. We are expecting a July approval
11 time frame.

12 Q. Okay. And then just jumping back, would that one
13 remaining turbine that hasn't received the determination
14 of no hazard, would that have any effect on the approval
15 of the ADLS?

16 A. No.

17 Q. Do you by any chance know which turbine has not
18 received the determination of no hazard?

19 A. Yeah. That would be Turbine CR2 Alt. 8.

20 Q. Thank you. And then one final question regarding
21 the ADLS. Does Crowned Ridge Wind intend to have ADLS
22 operating in this project prior to commercial operation
23 date?

24 A. By commercial operations, yes.

25 Q. Thank you.

1 And just to jump back, you had a conversation with
2 Mr. Swanson where you discussed participation agreements.
3 Do you recall that?

4 A. I do.

5 Q. I promise I won't get too far into the weeds.

6 Based on your knowledge and understanding of those
7 agreements, would it be an accurate statement to say
8 someone signing a participation agreement would be --
9 well, would someone signing a participation agreement be
10 classified as a participating landowner or a
11 nonparticipating landowner?

12 A. They would be considered to be a participating
13 landowner.

14 Q. And would it then be an accurate statement to say
15 that there are siting benefits to the company in having
16 additional landowners classified as participating
17 landowners?

18 A. Yes. There could be, yes.

19 Q. All right. Jumping to your Supplemental Testimony,
20 you indicated that Crowned Ridge Wind II is still
21 required to renew three existing wind easement
22 agreements; is that correct?

23 A. Yes. That was stated in the Supplemental Testimony.

24 Q. Can you provide an update on the status of those
25 three renewals?

1 A. Yep. The three -- actually let me turn to make sure
2 that -- I'm sorry. What page on the Supplemental
3 Testimony?

4 Q. I believe it was the final page. Page 7.

5 A. Uh-huh.

6 Q. Line 5.

7 A. Yes. I just want to make sure what was written in
8 here. But, yes, we have renewed everything to support
9 the project as proposed.

10 Q. Okay. And then just one final question. There were
11 a number of changes made to the turbine status since the
12 initial Crowned Ridge Wind II application was filed. Can
13 you explain the changes that occurred and the reason for
14 those changes?

15 A. Yeah. And I think, so I don't confuse anybody any
16 further, if I would be allowed to stand up and use this
17 map to kind of walk everybody through the changes since
18 our filing?

19 MS. CREMER: Certainly.

20 Mr. Wilhelm, is there an exhibit number
21 attached? That's just a blown-up version of what exhibit
22 number?

23 MR. MURPHY: I believe it's A27-2, if I --

24 THE WITNESS: That's correct. That's correct.

25 A. Okay. It may be hard to see. We tried to blow this

1 up as best we could. Am I loud enough?

2 So this represents 300 megawatts worth of turbine
3 array and site plan. Since the filing of our project, as
4 many people are aware, we had a deferral of 100 megawatts
5 of the site. So we are proceeding with full confidence
6 on the 200 and waiting for our ability to procure the
7 100 megawatts that is currently deferred.

8 The black turbine locations here, those represent
9 the primary turbine locations in the 200 megawatt
10 project. We have these nine turbine locations over here
11 located in blue. Those represent our safe harbor
12 turbines.

13 We have the green turbines down here, which are
14 represented by the primary turbines in our 100 megawatt
15 array, as well as one located up here being CR2 Alt. 3.
16 And the one, two, three, four yellow dots we have on here
17 reflect the safe harbor turbines in the 100 megawatt
18 array.

19 So some of the notable changes, we have dropped
20 Turbine 103, as well as 113 and 131. 103 and 113 were
21 part of the Hessler proposal, and through our further due
22 diligence through that, we have also relegated four
23 turbines from primaries to alternates and vice versa as
24 part of the Hessler proposal to reduce potential noise
25 impacts on surrounding properties, and that resulted in

1 Turbines 13, 72, 77, and Alt. 5 would become the four
2 alternate locations in the project.

3 And the four turbines that took place of them and
4 were relegated to primaries were Turbines 94, 97, 134,
5 and Alt. 6.

6 And I think that's all I've got for this exhibit
7 here.

8 MS. REISS: All right. Staff has nothing
9 further at this time. Thank you.

10 MS. CREMER: Thank you. That brings us to
11 Commission questions. Do we want to go forward with that
12 or take a break? I'll say my Fitbit is asking me if I'm
13 alive.

14 So we will break -- we will back at 10 after
15 11:00.

16 (A short recess is taken.)

17 MS. CREMER: I'll call the hearing back into
18 session following that short recess. I believe we were
19 up to Commissioner questions.

20 And Chairman Hanson.

21 CHAIRMAN HANSON: Thank you, Ms. Cremer.

22 Mr. Wilhelm, good afternoon. Or morning. I
23 guess we're still in the morning. I'm going to ask you
24 the same question four different ways. I'll wait for an
25 objection, and then I'll note the objection.

1 COMMISSIONER FIEGEN: Yeah. Right.

2 CHAIRMAN HANSON: Does the financial viability
3 of the project depend upon state subsidy?

4 THE WITNESS: I would say that our ability to be
5 able to procure the project up to the 300.6 megawatts is
6 dependent upon some relief, I would say. You know, it
7 gives us more certainty that we would be able to procure
8 an additional 100 megawatts because of the uncertainty
9 that comes with it from, you know, the network upgrade
10 side of things.

11 CHAIRMAN HANSON: Are you in the process of
12 requesting a subsidy at the present time from the State?

13 THE WITNESS: We are. We are beginning to
14 prepare an application at this time, yes.

15 CHAIRMAN HANSON: Can you give us the amount of
16 the request?

17 THE WITNESS: I'm actually not familiar with the
18 amount. This is something that's very new that we are
19 just now pulling together.

20 CHAIRMAN HANSON: Have you requested or received
21 a statement that you're going to receive subsidy on prior
22 projects?

23 THE WITNESS: Yes.

24 CHAIRMAN HANSON: Do you know what the amount of
25 those are?

1 THE WITNESS: I don't have it on me. Something
2 that I either work to provide, or I could actually pass
3 that to one of our other witnesses. Daryl Hart would be
4 able to respond to that.

5 CHAIRMAN HANSON: Have you sold all of your
6 prior projects to other entities such as NSP?

7 THE WITNESS: No.

8 CHAIRMAN HANSON: In your Direct Testimony on
9 page 1 you state that, "NEER is the world's largest
10 generator of renewable energy from wind and sun in
11 generating over 19,000 megawatts in 20 United States and
12 Canada."

13 It's difficult for me to believe -- and I want
14 you to explain why on earth is it necessary to have a
15 subsidy from the State of South Dakota to build this
16 project?

17 THE WITNESS: When marketing these projects and
18 vetting them -- you know, when you're actively marketing
19 these projects to potential buyers to the PPA or PSA side
20 of things we look at historical trends that we have seen
21 as developing in certain states.

22 You know, when we've developed in South Dakota
23 previously, you know, we worked with -- to receive the
24 South Dakota tax reimbursement program. And those
25 economics go into assumptions when bidding your project

1 and, you know, makes your project more economic and
2 competitive when bidding your projects.

3 CHAIRMAN HANSON: Not really answering the
4 question other than the fact that you make more money
5 that way; correct?

6 THE WITNESS: I realize that I didn't
7 necessarily answer your question. So if you could please
8 repeat your question, I'll try to do a better job at it.

9 CHAIRMAN HANSON: We'll go on to a different
10 question.

11 Is your project competitive with other
12 generating facilities, new generating facilities such as
13 natural gas, coal, et cetera?

14 THE WITNESS: Yes, sir. I would say.

15 CHAIRMAN HANSON: So would you agree that the
16 product, the megawatts, are less expensive than other
17 newly constructed generating facilities?

18 THE WITNESS: I would say it's very competitive.
19 I can't confirm if it's less expensive. I would say very
20 competitive.

21 CHAIRMAN HANSON: So it really doesn't seem
22 necessary to have a subsidy, is it, if you're competitive
23 and if it's less expensive than other new energy?

24 THE WITNESS: I would say that, you know, the
25 goal of being a wind developer is to have -- or is to be

1 able to provide a product and energy at the least
2 possible cost to the potential customer, and pursuing the
3 subsidy in the State of South Dakota made us more
4 economic and competitive against potential competitors
5 across state lines. You know, maybe across the border.

6 It also helps us kind of leverage uncertainties
7 that are within the interconnection world that we face on
8 this project.

9 CHAIRMAN HANSON: Well, it's your intent, as you
10 testified, to sell this to NSP. Is that a guarantee at
11 this juncture?

12 THE WITNESS: The completed sale of this
13 project?

14 CHAIRMAN HANSON: Correct.

15 THE WITNESS: Assuming we receive all the
16 necessary permits and build in compliance with the
17 purchase and sale agreement, yes.

18 CHAIRMAN HANSON: So it's not really dependent
19 upon a subsidy from the State then; correct?

20 THE WITNESS: Yes.

21 CHAIRMAN HANSON: Thank you.

22 On page 6 of your Direct you state, "There will
23 be no lights on the towers other than what is required by
24 the FAA."

25 If the State -- if the PUC in our conditions

1 require an ADLS, are you stating that you would oppose
2 that?

3 THE WITNESS: I'm going to ask you to repeat the
4 question or rephrase it a little bit so I can understand
5 it a little better.

6 CHAIRMAN HANSON: Am I to infer from your
7 statement on page 6 that I stated -- am I to infer that
8 if the FAA were to state that you did not need the ADLS
9 and yet the PUC said as a condition that you would have
10 ADLS, would you contest that in Circuit Court?

11 THE WITNESS: I would say yes.

12 CHAIRMAN HANSON: What's the cost of an ADLS on
13 one tower if you are -- I don't want you to look at it
14 from the cost of just placing it on one tower. But one
15 tower in relationship to having it on multiple towers.

16 THE WITNESS: Is the question what would be the
17 cost of one ADLS radar on one tower versus having
18 multiple ADLS radar towers?

19 CHAIRMAN HANSON: Forgive me for my confusion on
20 that question. I just did not want you to allocate
21 bringing a crane in to place it on just one tower. I
22 wanted you to give us an idea of what it would cost to
23 place an ADLS on one tower. If you were placing them on
24 numerous towers, what would the cost be?

25 THE WITNESS: The way I'm understanding the

1 question is you want to understand the cost of an ADLS
2 system tower without the added costs that come from
3 installation and all of those pieces? Or are you
4 talking -- when you say "per tower" this is where I'm
5 confused. Is it per wind turbine tower, or are we
6 talking about ADLS tower?

7 CHAIRMAN HANSON: Talking about one tower.
8 Cost for --

9 COMMISSIONER NELSON: Average.

10 CHAIRMAN HANSON: Thank you. What's the average
11 cost to place ADLS?

12 THE WITNESS: I would say -- on a per radar
13 basis I would say just shy of -- just shy of a million.
14 Between three-quarter of a million and a million.

15 CHAIRMAN HANSON: Do you have any concern
16 regarding the timely application of the LNT blades on
17 this project?

18 THE WITNESS: No, I do not.

19 CHAIRMAN HANSON: You discussed the local
20 conditional permits. Are you aware of any conflicts of
21 interest by any of the parties?

22 THE WITNESS: No, I am not.

23 CHAIRMAN HANSON: There have been some changes
24 to the requirements by the counties, as was explained by
25 Mr. Robish.

1 Have you requested other variances from those
2 requirements?

3 THE WITNESS: No, we have not.

4 CHAIRMAN HANSON: Do you agree to abide by all
5 of the requests from the South Dakota Game, Fish & Parks?

6 THE WITNESS: I would say yes.

7 CHAIRMAN HANSON: On the last page, page 12 of
8 your Direct Testimony, you state, "The wind facility will
9 deliver enough energy to power more than 150,000 homes."
10 Can you give us an idea of what the number of hours per
11 year is produced --

12 Let's see. Perhaps I can rephrase that so it's
13 a little easier to understand.

14 What are the average hours -- let's see. I'm
15 trying to figure out, without going through the same
16 confusion I did with my previous question.

17 THE WITNESS: Megawatt hours on an annual basis?

18 CHAIRMAN HANSON: That would be great. Thank
19 you.

20 THE WITNESS: And I'll follow up with that and
21 say I'm happy to supplement that information. I do not
22 have that in front of me right now.

23 CHAIRMAN HANSON: All right. I'll look
24 forward -- since I didn't articulate the question and you
25 did, I'll look forward to your answer.

1 Thank you.

2 THE WITNESS: Yes, sir.

3 CHAIRMAN HANSON: Those are all the questions I
4 have.

5 MS. CREMER: Commissioner Nelson.

6 COMMISSIONER NELSON: Thank you.

7 I'm going to follow up on Commissioner Hanson's
8 question about the ADLS cost because I want to be very
9 clear about that. For this project can you describe the
10 ADLS infrastructure that will need to be utilized?

11 THE WITNESS: I can explain on a high level. We
12 do have Mark Thompson who is much more inclined to
13 respond to that.

14 COMMISSIONER NELSON: I could certainly wait and
15 ask Mark that question if you'd prefer.

16 THE WITNESS: Okay. Yeah.

17 COMMISSIONER NELSON: So the questions that I've
18 got directly for you come off of Exhibit A27-2, the map.

19 THE WITNESS: Uh-huh.

20 COMMISSIONER NELSON: We've got the blue and
21 yellow turbine dots that are indicated as safe harbor
22 turbines. And I know from a financial perspective that
23 means something to your company, but to us it's simply a
24 difference in hub height; is that correct?

25 THE WITNESS: Yes. Yeah. Yes.

1 COMMISSIONER NELSON: And how did you choose
2 those particular locations for those shorter towers?

3 THE WITNESS: So the siting of safe harbor
4 turbines in close proximity to one another comes from a
5 number of things.

6 One, we often place these shorter hub height
7 towers in areas of less wind resource so the taller
8 towers can capitalize more on better wind resource areas.
9 Oftentimes they will be strategically placed to minimize
10 wake within the project because they're a bit smaller and
11 they have a smaller nameplate capacity.

12 From an engineering standpoint, it does help
13 with the collector lines, the sizing of underground
14 circuits. And then also minimizes potential mishaps on
15 the delivery side of things with turbine components and
16 blades. You know, there's a lot coming into the project,
17 and having them in the general area does help.

18 COMMISSIONER NELSON: Thank you.

19 So we've got the 100 megawatts that's under plan
20 deferral right now. And as I'm looking at those green
21 dots, we've got -- most of them are concentrated in the
22 southeast corner, but we've got Turbine 34, Turbine 55,
23 and Alt. 3 that seem to be a little bit separated from
24 that larger cluster.

25 Can you help me understand what the reasoning

1 was in that?

2 THE WITNESS: So, like, for instance, Alt. 3
3 towards the top, that was a less suitable turbine
4 location within our 200 megawatt design and, you know,
5 was just delegated to be a part of the primary turbine --
6 part of the 100.

7 I think I could maybe have somebody else on our
8 team follow up with a better and more precise response
9 than that.

10 COMMISSIONER NELSON: And who should I ask that
11 to?

12 THE WITNESS: I would ask that to Mark Thompson.

13 COMMISSIONER NELSON: Okay. Mark's taking notes
14 back there. I can tell. So but I've got a follow-up
15 question, but I'll save that for Mark also with the
16 understanding if he can't cover it, you're coming back.

17 THE WITNESS: That's fine. Fair enough.

18 COMMISSIONER NELSON: That's all I've got.

19 THE WITNESS: Thank you.

20 MS. CREMER: Commissioner Fiegen.

21 COMMISSIONER FIEGEN: Thank you, Mr. Wilhelm.
22 You're just about done, except for --

23 CHAIRMAN HANSON: Cross.

24 COMMISSIONER FIEGEN: Yeah.

25 I want to go back to your opening statement. Or

1 in your opening statement I guess you did a concise
2 statement of what you put in your brief. You talked
3 about zero emission at the source.

4 So does this wind project ever use electricity
5 that is generated from fossil fuels?

6 THE WITNESS: I'd say yes. During certain
7 points of the project's lifespan, yes.

8 COMMISSIONER FIEGEN: Okay. Because sometimes
9 when we claim that zero emission from a project, yes and
10 no. I mean, there's a little gray area --

11 THE WITNESS: Sure.

12 COMMISSIONER FIEGEN: -- that I think the public
13 certainly has to be aware of.

14 So I went back to my public input meeting notes
15 this past week. And I'm not an attorney so I just get to
16 ask you questions --

17 THE WITNESS: Sure.

18 COMMISSIONER FIEGEN: -- because I'm a
19 Commissioner, and I bet you I'm not going to get a lot of
20 objections.

21 But in these notes that I had a lot of people
22 were talking about Bemis. And they were talking about
23 the county did not put that mile zoning requirement in
24 there.

25 THE WITNESS: Uh-huh.

1 COMMISSIONER FIEGEN: And I think I saw -- I
2 can't remember whose testimony it was of their 27 people.
3 Can you explain to me why Crowned Ridge II when they
4 developed this -- although I understand the county
5 ordinance didn't do that -- how far away are these
6 residents in Bemis that live there from a wind turbine?

7 And I understand that's pretty much that
8 100 megawatt project that's not here yet but --

9 THE WITNESS: As far as approximate location, I
10 would like to be able to follow up on the exact distances
11 there. I don't have a number I could say with
12 100 percent accuracy here.

13 COMMISSIONER FIEGEN: So did the company -- when
14 they looked at the wind turbine sites did they take that
15 into consideration that there are 27, or whatever the
16 record reflects, people living there? And did they take
17 into consideration more distance, even though you weren't
18 required by the county?

19 THE WITNESS: Yeah. We take into consideration
20 a lot of things. And during the ordinance revision
21 process, you know, bigger setbacks were implemented from
22 towns such as Goodwin and the Lake Park Districts, which,
23 you know, didn't allow us to spread the project out as
24 much as we would have liked to.

25 But yeah. Absolutely. Those -- we addressed a

1 lot of the concerns and did what we could to mitigate the
2 situation.

3 COMMISSIONER FIEGEN: So I'm going to go back to
4 that 100 megawatts because that kind of was new after the
5 Application was filed with us so we keep on reading all
6 the additional information --

7 THE WITNESS: Sure.

8 COMMISSIONER FIEGEN: -- on that. And it looks
9 like a MISO issue and a cost issue.

10 But I think of these people that live down there
11 and especially the nonparticipants. So if for some
12 reason they want to sell their property or someone wants
13 to build a home on those nonparticipant properties in
14 that 100 megawatt area and we have a permit for that,
15 would you adhere to the county policy of a nonparticipant
16 and the wind turbine being that certain distance away
17 from a new resident that would be moving in and maybe
18 building a new home?

19 Because how long do you have to just put those
20 people on hold?

21 THE WITNESS: Sure. So assuming that we
22 would -- you know, the project would be approved, you
23 know, as listed in the application at 300.6 megawatts,
24 you know, our understanding is that that permit would be
25 good for four years before we would have to potentially

1 do something or construct the project.

2 You know, during that time, you know,
3 absolutely, we're going to be in the area operating on
4 the 200 megawatt site and have an O&M team out there and
5 are happy to coordinate with anybody on such issues.

6 It's going to require us to come back in front
7 of y'all to coordinate further as well, you know, when
8 the time comes for us to be able to procure that
9 100 megawatts.

10 So, you know, we're happy to accommodate to the
11 extent possible with new planned development.

12 COMMISSIONER FIEGEN: Okay. So what you're
13 telling me is we have another bite at the apple for that
14 100 megawatts? Because I feel like I should ask all my
15 questions these next four days for the 100 megawatts.

16 THE WITNESS: I apologize how I phrased that.

17 What I meant was not come before you guys but to
18 coordinate with you guys. We're keeping you guys
19 apprised on the MISO studies and how viable the
20 100 megawatts are. You know, keeping that in mind, just
21 knowing when -- you know, it is feasible based off of
22 what questions may be coming from the community, we're
23 happy to coordinate to the extent possible.

24 COMMISSIONER FIEGEN: Thank you.

25 And, you know, I wasn't going to ask this

1 question, and now I -- we've had so many permits in front
2 of us, I swear I'm getting confused.

3 So the wind turbines close to I-29, was this
4 Crowned Ridge II that I asked that question or Crowned
5 Ridge I? I thought -- so I asked before in a permit that
6 they stay away or try to stay away a certain distance
7 from I-29. How far is like CR226 [sic], 19, 13 away from
8 I-29?

9 And I feel like I'm getting confused because --
10 THE WITNESS: Can you restate the turbine
11 numbers?

12 COMMISSIONER FIEGEN: There's turbine numbers
13 that are kind of close to I-29. It looks like they're
14 26, 19, and 13.

15 THE WITNESS: Oh, I'm sorry. Down here
16 (indicating)?

17 COMMISSIONER FIEGEN: And it's the slant.
18 Right.

19 THE WITNESS: I'm going to do the best I can
20 here without having the --

21 CHAIRMAN HANSON: Microphone, please.

22 THE WITNESS: I'm sorry.

23 COMMISSIONER FIEGEN: And so I know I asked at
24 another -- I can't remember if it was this permit or
25 other permit? Was it Crowned Ridge I? Was it Crowned

1 Ridge II?

2 Oh, it was Tatanka. Tatanka.

3 THE WITNESS: I was going to say, I don't
4 recall.

5 So using the scale here, right, this is 2 and a
6 half miles. I'll do the best I can here, but it looks
7 like it would be underneath the 2 and a half mile mark.

8 COMMISSIONER FIEGEN: Okay. Thank you.

9 And I believe that's my only question, except I
10 just have a curious question on the map that is in your
11 filing.

12 The lakes -- what is the black lines around
13 these lakes? Instead of a circle. Is that --

14 THE WITNESS: Yeah. It was used for some -- I
15 don't know the -- I don't have the exact answer. I know
16 it was used for some sort of data set, maybe from our
17 environmental scanning where it was a rough polygon to
18 identify it.

19 You know, I could get you more information, or
20 somebody from our environmental team I'm sure could
21 better address that.

22 COMMISSIONER FIEGEN: I tried to look at all the
23 keys, and I couldn't quite figure that out.

24 So thank you.

25 MS. CREMER: Crowned Ridge, do you have any

1 redirect?

2 But before that, can you just -- and I've been
3 telling them I'm going to ask this question. Can you
4 tell me who your next two witnesses are, just so we can
5 prepare?

6 MR. MURPHY: It's contingent on -- our property
7 value witness, Mark MaRous, was supposed to be here this
8 morning. His flight yesterday was canceled. My
9 understanding is he'll be here around 1:30. It depends
10 on when we break. We would like to bring him on next.
11 And after that would be Daryl Hart.

12 MS. CREMER: Thank you.

13 MR. MURPHY: And Mark Thompson after that.

14 MS. CREMER: So do you have any redirect?

15 MR. MURPHY: I have brief redirect.

16 REDIRECT EXAMINATION

17 BY MR. MURPHY:

18 Q. Mr. Wilhelm, in response to a Staff question, you
19 pointed out that Alt. 8 is still in need of an FAA
20 DNH. Of the 200 and 100 array, where is Alt. 8?

21 A. Alt. 8 is located within the 100 megawatt deferred
22 portion of the project.

23 Q. And in that exchange you were also asked about the
24 ADLS application that will go to the FAA, and I believe
25 you responded that it will be filed in April. Is that

1 application for the 200 array or 100 array?

2 A. It would be solely for the 200 megawatt array.

3 Q. In response to Chair Hanson's question with regard
4 to if the FAA says there is not a need for an ADLS, you
5 responded in a certain way.

6 What I'm asking, in your knowledge of how the FAA
7 reviews it, can you elaborate on whether it's a question
8 of need or it's a question of approval, just to provide
9 the Commission with a better understanding of the FAA
10 process?

11 A. Sure.

12 The FAA's review of the applications is on a
13 site-by-site basis. You know, obviously there's approved
14 technologies that are out there, but just because you're
15 utilizing an approved technology doesn't necessarily mean
16 you would receive an approval from the FAA for the use of
17 the ADLS.

18 You know, we've worked really close with our
19 consultants to put together what we see as a very solid
20 application. And with proposed radar locations that
21 provide ample coverage of the project. And, you know, we
22 feel confident in the approval process.

23 Q. You also received a question from Chair Hanson on a
24 South Dakota Game, Fish & Parks request. And you said
25 that you're committed to comply with those requests.

1 Given that that's not part of your testimony, I was
2 wondering if there was another witness that could
3 elaborate on how we would comply with those requests?

4 A. Yes. I would direct that to Sarah Sappington.

5 Q. Thank you.

6 And then, lastly, in response to Commissioner
7 Hanson's question with regard to the safe harbors, I
8 recall your answer was the only difference is the hub
9 heights. Is there also a megawatt difference between the
10 safe harbors and the non-safe harbors?

11 A. Yes. Yes, there is. The non-safe harbors or
12 primary turbines are 2.3 nameplate capacity. And the
13 safe harbors are 2.1 nameplate capacity.

14 MR. MURPHY: Thank you. That's all my redirect.

15 MS. CREMER: Thank you. We will go to recross.
16 But it is only as to Commission questions or redirect.
17 So we would start with Mr. Swanson.

18 MR. SWANSON: Well, I do have a line of
19 questions based off of what Staff counsel had asked. Are
20 you saying that's out of bounds?

21 MS. CREMER: Normally, yes. It would only be to
22 Commission questions and redirect. But hold on.

23 We're going to go to Chairman Hanson first. He
24 has a question.

25 CHAIRMAN HANSON: Mr. Wilhelm, in redirect you

1 were just asked pertaining to someone who would be,
2 paraphrasing, better versed perhaps to answering a
3 question, and you said -- I believe you said it was
4 Sarah; is that correct? Sarah Sappington?

5 THE WITNESS: Yes.

6 CHAIRMAN HANSON: In the order of -- well, I'll
7 just ask it directly. Are you in a supervisory capacity
8 to her?

9 THE WITNESS: No, I'm not.

10 CHAIRMAN HANSON: In the order of things, your
11 prefiled testimony shows that you are the person, senior
12 project manager. Do you not take a position of authority
13 above her?

14 THE WITNESS: I do on a project level, yes. You
15 know, she was a consultant that we worked with on the
16 environmental side of things and she's a subject matter
17 expert in the realm of where I felt the question was
18 asked and I felt she could better address it.

19 CHAIRMAN HANSON: At this time. However, you
20 are the person who has authority over that area.

21 THE WITNESS: Yeah. Ultimately.

22 CHAIRMAN HANSON: She doesn't have authority
23 over you.

24 THE WITNESS: That would be correct.

25 CHAIRMAN HANSON: All right. Thank you.

1 COMMISSIONER FIEGEN: You know, I should have
2 asked this before, but I have a clarifying question of
3 what Commissioner Hanson asked earlier. And he asked the
4 cost for ADLS per turbine, I thought. And did you give
5 the amount for the entire turbine or just the lighting
6 system per turbine?

7 THE WITNESS: That cost is associated with just
8 the ADLS radar tower needed for the site to function with
9 the ADLS technology.

10 COMMISSIONER FIEGEN: So that's per turbine?

11 THE WITNESS: No. That is per ADLS radar. So
12 there's two of those proposed on this site based off of
13 the size and spacial coverage needed.

14 COMMISSIONER FIEGEN: Thank you.

15 MS. CREMER: All right. Now, Mr. Swanson, it is
16 your opportunity. And it would only be as to redirect
17 and Commission questions.

18 MR. SWANSON: May I pose this question and you
19 can rule on it?

20 Staff counsel had asked about participation
21 agreements, and I did not understand the witness's
22 response about having those would bring benefits to CRW.
23 He indicated in the affirmative but didn't explain
24 himself. I'm asking him to explain himself.

25 MS. CREMER: Let me ask you this: Is this going

1 to take us down some rabbit hole, or is this a
2 one-question off?

3 MR. SWANSON: I have a total of three questions.
4 The next question is, from that, after the project is
5 sold to NSP who decides who gets a participation
6 agreement or if one is withheld?

7 Is that Crowned Ridge, or is it NSP?

8 MR. MURPHY: I'm going to object. One, I'm
9 hesitant to open up, you know, this door that will be
10 hard to close with regard -- and, you know, it's my
11 understanding it was redirect and Commissioner questions,
12 and I purposely did not go down that road because I did
13 not want to open that door.

14 MS. CREMER: So that would be my ruling on this
15 matter. It is possible you could ask those questions of
16 another witness. But we can't start going recrossing on
17 everybody's everything. Those appear to be questions
18 that could have been asked when you had your original
19 cross.

20 MR. SWANSON: Staff counsel proceeded after me,
21 and that raised the question.

22 MS. CREMER: And I understand that, but at this
23 point I would not allow us to go down that path.

24 Ms. Christenson.

25 MS. CHRISTENSON: Thank you. I want to address

1 the ADLS lighting costs.

2 RECROSS-EXAMINATION

3 BY MS. CHRISTENSON:

4 Q. The one tower that will emit the beacon to alert the
5 turbines is three-quarters of a million to a million
6 dollars each; is that correct?

7 Would that be a correct statement?

8 A. That's correct to what I had stated earlier. And
9 I'm happy to have somebody else on the team, you know,
10 further justify that when they come up here, which would
11 be Mark Thompson who is highly involved. If he needs to
12 provide a correction, he can, but I stand behind that.

13 Q. Okay. So I'm trying to clarify that in my head. So
14 I think the question Chairman Hanson was trying to get to
15 is on the top of each turbine there's a light that's
16 going to go off and on, and that cost for each turbine,
17 what would that be, provided that you don't bring in a
18 crane just for one turbine; you're doing a whole array?

19 A. That is a good question, and Mark Thompson would be
20 best suited to answer that as far as the lights on top of
21 the turbines.

22 Q. The cost question?

23 A. Yep. Yep.

24 Q. Okay. Thank you.

25 MS. CHRISTENSON: That's all I have.

1 MR. ROBISH: This is Al Robish. I have nothing.

2 MS. CREMER: Thank you.

3 Staff.

4 MS. REISS: Just briefly.

5 RE CROSS-EXAMINATION

6 BY MS. REISS:

7 Q. In response to Commission questions and also on
8 redirect, there was some discussion regarding requests to
9 the FAA regarding ADLS use. Do you recall that?

10 A. Yes, I do.

11 Q. Okay. And you had indicated in your testimony that
12 you were hopeful that it would be approved; correct?

13 A. Yes.

14 Q. Is it possible for the FAA to deny a request for use
15 of ADLS?

16 A. I believe that is the correct terminology as far as
17 a denial. We've seen it happen on other projects.

18 Q. Okay. And going back to some previous questions I
19 had posed to you regarding whether Crowned Ridge II would
20 utilize ADLS, I believe you indicated that Crowned Ridge
21 Wind II committed to using this prior to commercial
22 operation date; is that correct?

23 A. Yes. We're seeking approval and installing the ADLS
24 system. Absolutely.

25 Q. Okay. And given that commitment, does Crowned Ridge

1 Wind II have a plan in place in the off chance the FAA
2 would deny the request to use ADLS in this instance?

3 A. The default pivot there is to resume with the
4 standard lighting as required by the FAA for safety
5 reasons. And most rulings where an approval is not
6 granted is because of potential safety hazards.

7 Q. Just to follow up on that, are you partially aware
8 of a statute that was passed by the legislature in the
9 2019 session that addressed the use of ADLS systems?

10 A. Yes. I'm aware.

11 Q. And without giving a legal opinion, would Crowned
12 Ridge Wind, II's default plan adequately comply with that
13 statute?

14 A. I'd say that the necessary actions will be taken to
15 ensure that an ADLS system would be operational by COD
16 and that the system will be equipped. As to whether we
17 are given the approval to operate all the turbines, some
18 of the turbines with the ADLS technology, is dependent
19 upon how the FAA rules.

20 So yeah. I would say that we are committed to
21 equipping the site with ADLS technology needed to run the
22 site with that technology.

23 Q. Can you today provide a commitment as to whether or
24 not Crowned Ridge II would be willing to come back to the
25 Commission if ADLS were denied by the FAA?

1 A. I'm sorry. I'm going to ask you to repeat that one
2 more time.

3 Q. Perhaps I wasn't clear. So I'll just rephrase it
4 instead of having the court reporter read it back.

5 Is Crowned Ridge Wind II willing to commit today to
6 coming back before the Commission to obtain further
7 direction or a waiver or some other type of decision by
8 the Commission if the FAA were to deny Crowned Ridge II's
9 request for an ADLS system on this project?

10 A. I would say it's possible that a commitment will be
11 made today. I don't think I'm the right person to
12 address that, and I would like to pass it to somebody
13 else on our team to respond to, one of our other
14 witnesses.

15 Q. Can you identify who that witness is?

16 A. Yes. That would be Daryl Hart.

17 Q. Thank you.

18 MS. REISS: Staff has nothing further at this
19 time.

20 MS. CREMER: Thank you. Commission counsel,
21 however, does have a question.

22 MR. DE HUECK: Good morning still. Adam
23 de Hueck, Commission counsel. Just had a couple quick
24 questions about ADLS real fast.

25 What are some of the concerns or safety notions

1 that the FAA may have where they would tell an Applicant
2 not to use ADLS? Like what are those?

3 THE WITNESS: I'll speak on a very high level
4 because this is definitely not my swim lane. But, you
5 know, it could be proximity to an airport. It could be
6 various elevations or poor line of sight in the general
7 area. With the topography, not being able to confirm
8 adequate coverage of the site. You know, things of that
9 nature.

10 MR. DE HUECK: So they would just want the red
11 lights on all the time in those situations possibly?

12 THE WITNESS: Yep. That is a possibility.
13 There is also -- we've also seen cases where, you know,
14 certain portions of the project are approved to use the
15 technology. And then, you know, it could be a third of
16 the turbines or two-thirds of the turbines.

17 MR. DE HUECK: Okay. And then second question
18 real quick is these ADLS systems. If you get approval
19 and you've got to throw them on, is that easy for you to
20 purchase, or are they kind of limited in manufacturing
21 and they're just not readily available on the market?

22 What are your thoughts on that?

23 THE WITNESS: Yep. So there's not a lot of
24 vendors out there. You're very limited on where you can
25 go, as far as what's an approved technology with that.

1 And what we've experienced is we've seen hurdles, you
2 know, with the other pieces that come with it, other
3 consultants who would supply the towers and everything
4 associated with the ADLS.

5 It is a very limited market so, yeah, there is
6 hurdles with limited suppliers.

7 MR. DE HUECK: And then my last question real
8 quick, I'm going to assume this is a little over your
9 head, but are you familiar with the FAA's requirements
10 set forth for obstruction, marking, and lighting in
11 Chapter 14 of FAA Advisory Circular 70-74, 60-1L,
12 Obstruction, Marking and Lighting, dated December 4,
13 2015?

14 THE WITNESS: I'm somewhat familiar to it. To
15 what capacity, I'll wait for the next question.

16 MR. DE HUECK: Okay. So are those provisions
17 specific to the ADLS that we're all thinking of, the
18 lights turn on when a plane is coming, or are those
19 provisions -- do they also encapsulate just red light's
20 on all the time?

21 I'm just wondering how clear our legislature was
22 when they wrote that law. And I guess I need to look up
23 those provisions myself, but do you know?

24 THE WITNESS: I don't know offhand. I'm happy
25 to follow up with it. I don't want to answer it

1 incorrectly.

2 MR. MURPHY: To the extent helpful, and it
3 doesn't have to be on the record, I can give you a brief
4 overview.

5 Chapter 13 of the regulations are the
6 requirement to have blinking lights for safety purposes.
7 Chapter 14 is a voluntary option to have ADLS or
8 something similar to dim or turn off those lights all
9 together, and that's where the approval process is. I'm
10 happy to supply those regulations if you'd like.

11 MR. DE HUECK: I can get them. Thank you.
12 That's all I have.

13 MS. CREMER: Thank you.

14 Final redirect, Crowned Ridge?

15 MR. MURPHY: Nothing further.

16 MS. CREMER: Thank you, Mr. Wilhelm. You may
17 step down.

18 (The witness is excused.)

19 MS. CREMER: So it's 5 to 12:00. I'm thinking,
20 and others can think also, that if we go to about a 12:30
21 mark and then break from 12:30 to 1:30 to give your
22 property guy a chance to get here. We will then, you
23 know, go through until about 3:15. Take a break from
24 3:30 to 5:30. We have to conclude tonight at 5:30. But
25 otherwise the rest of the week we'll go later.

1 Does anybody have a -- does that work?

2 Okay. Do you have somebody you can throw on
3 here quickly?

4 MR. MURPHY: Yes. I'll call Daryl Hart.

5 (The oath is administered by the court reporter.)

6 DIRECT EXAMINATION

7 BY MR. MURPHY:

8 Q. Please state your name, business title, and company
9 for the record.

10 A. Daryl Hart. I was the director of business
11 development with NextEra Energy Resources and more
12 recently with NextEra Energy Transmission.

13 Q. What is your role with Crowned Ridge Wind II?

14 A. I worked on the commercial aspects of the project,
15 including the selling to Northern States Power Company,
16 and a deferral of the 100 megawatts until it was
17 supported by MISO in SPP studies.

18 Q. Please provide a short overview of your education
19 and experience.

20 A. I've been employed by NextEra since 2007 in various
21 roles including wind farm design, utility distribution
22 project management, transmission, and renewable energy
23 business development, including a number of wind farms.

24 Prior to joining NextEra, I spent 10 years as an
25 officer in the United States Air Force. I received a

1 Bachelor of Science in electrical engineering from
2 Worcester Polytechnic Institute, a master's of business
3 administration from Auburn University Montgomery in 2003,
4 and a master's of science and finance from Penn State
5 University in 2015.

6 Q. Did you file Prefiled Direct Testimony and exhibits
7 on July 9, 2019, A6, A6-1, and A6-2 and Prefiled
8 Supplemental Testimony on September 20, 2019, A13, A13-1
9 through A13-3?

10 A. Yes.

11 Q. Do you have any changes or corrections to the
12 prefiled testimony and exhibits?

13 A. No, I do not.

14 Q. Please provide a short overview of your prefiled
15 testimony.

16 A. Thank you.

17 Crowned Ridge Wind II is a project that will be
18 transferred to Northern States Power Company prior to the
19 commercial operations date. As explained in my
20 Supplemental Testimony, Crowned Ridge Wind II intends to
21 defer 100 megawatts until such time as MISO and SPP
22 support its construction.

23 At this time the next round of MISO and SPP studies
24 are expected to be completed by April 13, 2020, at which
25 time Crowned Ridge Wind II will decide whether to move

1 forward with construction of the deferred 100 megawatts
2 or to further defer the construction to a later date when
3 future MISO and SPP studies support its construction,
4 with the understanding that Crowned Ridge Wind II will
5 need to construct within four years of approval or seek
6 an extension from this Commission to defer construction
7 beyond four years.

8 Q. Thank you.

9 MR. MURPHY: I offer this witness for
10 cross-examination.

11 MS. CREMER: Thank you.

12 Mr. Swanson.

13 CROSS-EXAMINATION

14 BY MR. SWANSON:

15 Q. Mr. Hart, as I look at Exhibit A6, I understand the
16 plan is to have Crowned Ridge Wind II sold and
17 transferred to NSP. Is that correct according to page 3,
18 line 6 of your testimony?

19 A. That's correct.

20 Q. After that is accomplished, what then -- what
21 managerial duties would you or other NewEra -- or NextEra
22 officers or employees have as to Crowned Ridge Wind II?

23 A. There are two questions here. My personal
24 responsibilities will be none. And the managers of
25 Crowned Ridge Wind II as of today who work for NextEra

1 Energy Resources will have no responsibilities once the
2 project's been transferred.

3 Q. All right. So if circumstances arise because of
4 shadow flicker or noise that a participation agreement
5 might be in order to deal with nonparticipants, am I
6 correct in assuming that it would be NSP who would make
7 that decision?

8 A. That would be NSP's decision.

9 Q. And your company would have no play in it at all.

10 A. That is correct, sir.

11 Q. And that will happen at the time of sale, which is
12 predicted in the near future, I gather.

13 A. The fourth quarter of 2020.

14 MR. SWANSON: Thank you.

15 MS. CREMER: Ms. Christenson.

16 MS. CHRISTENSON: Thank you.

17 CROSS-EXAMINATION

18 BY MS. CHRISTENSON:

19 Q. Mr. Hart, hello.

20 A. Hello.

21 Q. I would like you to refer to Exhibit AC-17, which is
22 Applicant's Response to Intervenor's First Data Request.

23 A. I'm sorry. What was the number again? And I'm
24 going to need some time to find it.

25 Q. Yep. AC-17, Applicant's response to Intervenor's

1 First Data Request.

2 A. And I'm assuming I'm the respondent on that one?

3 Q. Yes.

4 A. This one goes up to 10. Was AC-17 your question?

5 Q. AC-17 is the exhibit number.

6 A. And what was the question number? I'm sorry.

7 Q. 5.

8 A. I'm not sure if I have the right --

9 Q. No. 5.

10 A. Thank you.

11 Q. Are you there? No?

12 MS. REISS: Do you want to read the beginning
13 just so he knows he's on the right one? Just the first
14 couple of words.

15 Q. "At the public input meeting, August 26." Got it?

16 A. Thank you. For the delay.

17 Q. No problem. I can just read the whole question too
18 if you'd like me to.

19 A. I have it here.

20 Q. Okay. You were asked how Crowned Ridge Wind II
21 would fund this project if permitted. Did I read that
22 correctly, that that's your interpretation of the
23 question?

24 A. Yes, ma'am.

25 Q. Your answer was, "Crowned Ridge Wind II will be

1 transferred to Northern States Power Company who will own
2 the project after the sale transaction is completed."

3 Could you explain how the project being transferred
4 to NSP will fund the project?

5 A. Yes, ma'am.

6 NSP is paying milestones payments per the purchase
7 and sales agreement tied to the transfer, and those
8 payments are utilized for the purchase of the turbines as
9 well as the construction of the site.

10 Q. Thank you.

11 The following question in that same Data Request,
12 No. 6, Intervenor asked, "Please provide the annual
13 balance sheet, annual profit and loss statement for the
14 Applicant for the last three years."

15 Do you understand that question as I read it? Is
16 that correct?

17 A. Yes, ma'am.

18 Q. Okay. Your answer, "Crowned Ridge Wind II does not
19 have an annual balance sheet, annual profit and loss
20 statement for the last three years and, therefore, there
21 are no documents responsive to this request."

22 Did I read that correctly?

23 A. Yes, ma'am.

24 Q. So your testimony would be there are no funds or
25 business transactions for the company, Crowned Ridge Wind

1 II, LLC?

2 A. There are no funds assigned to Crowned Ridge
3 Wind II, LLC.

4 Q. Would you please turn to Exhibit AC-15 and find the
5 fourth page, please.

6 A. Sorry. We'll need a second.

7 Q. Yeah. Absolutely. I believe that's the Grant
8 County application.

9 That page right there. Could you describe that
10 document for the Commission, please.

11 A. It looks like a check.

12 Q. Can you tell me who issued that check?

13 A. I seem to be corrected that there's a Crowned Ridge
14 Wind II, LLC check.

15 Q. So okay. Thank you. I guess that ends that.

16 So that is a check issued by Crowned Ridge Wind II,
17 LLC to Grant County on August 13 of 2018. That would be
18 within the last three years; is that correct?

19 A. Yes, ma'am.

20 Q. Thank you.

21 Applicant's Exhibit A6 is your direct testimony. On
22 page 3, lines 5 through 7, it reads, "Crowned Ridge II
23 will be transferred to NSP prior to the commercial
24 operations date. Crowned Ridge II will own, operate, and
25 maintain the project after the transfer to NSP as a

1 subsidiary of NSP."

2 I have to admit that confuses me. Could you explain
3 to me how ownership goes to Northern States Power and
4 once it's transferred to Northern States Power it goes
5 back to Crowned Ridge II?

6 A. I think there's a confusion here in your question.
7 Sorry. Let me clarify.

8 Q. Yeah. I'm really confused.

9 A. Yeah. Let me clarify.

10 So right now the entity that's the Applicant here
11 who will own and operate the assets within the wind farm
12 is Crowned Ridge Wind II, LLC. That entity will be sold
13 to NSP. So that is the transfer of ownership. There's
14 no additional transfer of ownership beyond that per the
15 purchase and sales agreement.

16 Q. Okay. So Crowned Ridge Wind II will be a subsidiary
17 of NSP, according to your answer.

18 A. That's correct.

19 Q. But retains no assets. NSP will retain the assets.

20 A. Good question.

21 The assets within the transfer, turbines, whatnot,
22 that will be transferred over to NSP will be transferred
23 as part of Crowned Ridge Wind. So they will be part of
24 that entity, of which the entire entity is owned by as an
25 affiliate of or wholly owned by NSP.

1 Q. I'll go with that.

2 A. Thank you.

3 Q. Applicant's Exhibit A13 is your Supplemental
4 Testimony.

5 A. I'll wait for the question.

6 Q. Okay. On page 4, line 8, you say, "Crowned Ridge II
7 will now use LNTE blades on all turbines."

8 Will those be attachments or actual blades that are
9 manufactured with low noise trailing edges already?

10 A. Those will be attachments.

11 Q. Thank you.

12 On that same exhibit, your Supplemental Testimony at
13 the bottom of page 4, beginning at line 20, you talk
14 about curtailing certain turbines to give two homes
15 relief from flicker to 30 hours annually.

16 How many hours each day would those homes be subject
17 to flicker?

18 A. I don't have the answer to that. I understand
19 that -- I understand that several turbines will be
20 curtailed. And I don't know the exact number. I would
21 have to defer that to our sound and flicker expert.

22 So that these two receptors fall under the limit but
23 I don't know the amount of hours or the -- I don't know
24 the amount of hours if they were not curtailed.

25 Q. And you don't know the hours -- amount of hours

1 daily. Would they ever exceed 30 minutes per day?

2 A. I would have to defer that question. I apologize.

3 Q. And who would I ask that to?

4 A. Jay Haley.

5 Q. Haley? Okay. Thank you.

6 Now that we've established that you are aware of
7 these two families -- and according to the receptor
8 numbers you've provided, one family is a participant and
9 one family is not a participant. Now the family that has
10 the designation as nonparticipator, they have not signed
11 any agreement with Crowned Ridge Wind at all; is that
12 correct?

13 A. That is my understanding.

14 Q. Okay. Has Crowned Ridge Wind or NextEra or any
15 affiliate of your company reached out to that
16 nonparticipating family to discuss these overage of the
17 flicker effect?

18 A. I don't know. I don't know the answer to that.

19 Q. And who would know that one?

20 A. I believe that would be Mr. Wilhelm.

21 Q. Okay.

22 MS. CHRISTENSON: You get back here.

23 Q. In this same Exhibit No. 17 -- oh, sorry.
24 Exhibit AC-9, which is a Data Request from Intervenors.

25 MS. CHRISTENSON: Mr. Murphy, thank you.

1 (Mr. Murphy provides document to the witness.)

2 A. This is marked.

3 Q. Awesome. I apologize for not having one handy for
4 you.

5 A. That's fine.

6 Q. Okay. No. 17.

7 A. This is AC-10?

8 Q. AC-9.

9 A. Oh, AC-9. Thank you.

10 Q. You state that, "NSP exercised its downsize rights
11 on August 16, 2019"; is that correct?

12 A. That is correct.

13 Q. And you go on to say, "The PSA also requires your
14 two parties to work together to determine other mutually
15 agreeable opportunities, including" -- it goes on to say,
16 "including MISO Q connection J722."

17 My question is would the repowering of a project
18 instead of building a new project be more cost-effective
19 and mutually beneficial to both parties versus building a
20 brand new 100 megawatt project?

21 A. I'm not following your question as in -- and I want
22 to restate this, that repowering a project would be more
23 cost-effective than building a new project?

24 Q. Yes. That's my question. Thank you.

25 A. That's a fairly broad question, and I can't talk to

1 the capital cost or the cost for repowering.

2 Q. Okay. If I ask this, perhaps this will help us
3 both: If approved by the Minnesota PUC, would repowering
4 the Mower project at 200 megawatts fulfill your agreement
5 with NSP to find a mutually agreeable opportunity versus
6 the 200 megawatts in Crowned Ridge I and II being
7 built?

8 A. I can't speak to the requirements of NSP or the
9 status of the Mower project at this time.

10 Q. In your response to Intervenor's question No. 18 of
11 this same document, you indicate the company has done a
12 number of studies in reference to, and I'll read from
13 this -- from the document.

14 "Section 5.2, Effects Easement. Effects listed are
15 audio, visual, view, light, flicker, noise, shadow,
16 vibration, air turbulence, wake, electromagnetic,
17 electrical, and radiofrequency interference, and any
18 other effects attributable to the wind farm or activity."

19 What studies has the company completed in the areas
20 of vibration, air turbulence, and other effects?

21 A. I'll have to defer that question to both Ms. Sarah
22 Sappington, as well as Jay Haley, as to the specifics of
23 the studies.

24 Q. Thank you.

25 So you wouldn't know if the company has completed

1 any study specifically concerning the lower threshold of
2 noise known as infrasound or low frequency noise?

3 A. I do not. I would have to defer that.

4 Q. Okay. Do you know if the company would intend to
5 initiate any studies in the near future regarding
6 infrasound, low frequency noise, or its effects?

7 A. I will have to defer that one as well.

8 Q. Okay. Exhibit A6-2, which is Applicant's exhibit,
9 it's a tax table supplied by you.

10 A. Thank you.

11 Q. You have that in front of you.

12 Does this tax table reflect tax estimates to be
13 presented as a 300 megawatt project?

14 A. That's 300 megawatts.

15 Q. Is there a 200 megawatt version of those?

16 A. I do not have that, but I can say that the -- that
17 the amounts of the tax revenues are reduced by one-third,
18 if you build 200 -- once you defer and then build the
19 100, it will be brought back up to these amounts.

20 Q. Okay. So pretty much one-third. It doesn't matter
21 like the area -- maybe the southeastern portion near
22 Bemis, you don't know if that would be a better producer
23 of wind versus more tax money? That doesn't matter since
24 we're taxed on nameplate?

25 A. You're taxed on a combination of nameplate and on

1 generation.

2 Q. Okay. So it could vary but slightly?

3 A. Correct. Correct.

4 Q. In the Applicant's response to Staff's First Data
5 Request, which can be found in Staff's Exhibit S1, pdf
6 page 61 -- there should be question --

7 A. No page numbers on this. Do you have the question
8 number?

9 Q. 38.

10 A. Okay. I have it. Thank you.

11 Q. Included in this paragraph, the paragraph
12 immediately preceding the table, I'll read it for the
13 record. You, the Applicant, "would seek qualified labor
14 for construction, operation, and maintenance. Crowned
15 Ridge Wind II will conduct local job fairs, plural, based
16 on the securing of local labor for the construction of
17 Crowned Ridge Wind. The assessment on the use of local
18 labor includes the likely hiring of 10 local construction
19 workers."

20 In your application to the PUC how many construction
21 workers did you estimate this project would employ?

22 A. Let me clarify the question. So the question is
23 just basically how many do we expect to employ during the
24 construction phase for 300 megawatts?

25 Q. Yes. I guess maybe I can ask it this way: In your

1 application to the PUC did you estimate Crowned Ridge
2 Wind II would hire 250 construction workers?

3 A. I would have to double-check the application, but I
4 do -- but the response is 250.

5 Q. Thank you.

6 So 10 of those 250 would be local construction
7 people, according to your answer? Or according to your
8 data response?

9 A. At a minimum.

10 Q. Okay. And then Tyler passed something on for you.

11 Oh, maybe not. I thought it was about the blade
12 disposal, but maybe he passed that on to Mr. Thompson.

13 Yeah. He raised his hand.

14 A. That would be Mr. Thompson.

15 MS. CHRISTENSON: Okay. That's all I have for
16 you. Thank you.

17 MS. CREMER: Mr. Robish.

18 MR. ROBISH: Al Robish. I have no questions for
19 you.

20 MS. CREMER: Thank you.

21 Staff.

22 MS. REISS: Yes. I have just a couple of
23 questions for you.

24

25

CROSS-EXAMINATION

2 BY MS. REISS:

3 Q. And I will admit following the testimony regarding
4 the business transaction regarding Crowned Ridge Wind II
5 I'm slightly confused as well. So I have a couple of
6 questions along that line.

7 So if I understand your testimony correctly, the
8 entity Crowned Ridge Wind II will be sold entirely to
9 NSP? Is that accurate?

10 A. That is accurate.

11 Q. Okay. Does that then include all 300 plus megawatts
12 potential?

13 A. That is correct.

14 Q. Okay. So following that up, would NextEra retain
15 any oversight or other interest in that project at that
16 time?

17 A. At the time of the closure?

18 Q. Yeah. After the closure. I'm sorry.

19 A. There is no additional interest by NextEra.

20 Q. Okay. So am I understanding it correctly that
21 Northern States Power, after the transfer is concluded,
22 will make all decisions regarding Crowned Ridge Wind II?

23 A. That is correct.

24 Q. And just to clarify, is the proposed transfer of
25 Crowned Ridge Wind II to Northern States Power, will that

1 occur after construction of the initial 200 megawatts or
2 after construction of the 100 in addition?

3 A. The current agreement is after the construction of
4 the 200 megawatts.

5 Q. Okay. Do you have any knowledge of who would
6 construct the 100 megawatts?

7 A. I do not. It would be -- it would be under NSP.
8 And if they would be interested in having NextEra build
9 it, then that would be a further agreement. But it would
10 be NSP.

11 Q. Okay. And just for some clarification -- forgive
12 me. I forget what the data request number was, but I
13 believe Ms. Christenson had pointed you to a data request
14 regarding the construction of the 100 megawatts and there
15 was -- as a part of the answer, there was discussion
16 about coordination between the parties as to the
17 construction of the 100 megawatts?

18 Does that ring a bell?

19 A. Yes, it does.

20 Q. Can you explain who the parties would be?

21 A. That would be between NSP and Crowned Ridge Wind II
22 prior to the sale. Prior to the close of the sale.

23 Q. Okay. So just to verify, NextEra would have no part
24 in those discussions after the sale?

25 A. That is correct.

1 Q. Okay.

2 MS. REISS: Staff has nothing further at this
3 time.

4 MS. CREMER: Thank you.

5 We'll start with Commissioner questions. It's
6 about 12:30.

7 All right. Commissioner Nelson, you are up
8 first, but you had none.

9 COMMISSIONER NELSON: No questions.

10 MS. CREMER: All right. Commissioner Fiegen.

11 COMMISSIONER FIEGEN: So this 100 megawatts
12 certainly has confused us a lot because the application
13 was 300, went down to 200, and now we're looking at this
14 100 megawatts. And you certainly state that the MISO
15 queue -- I do not understand why the SPP would be
16 studying this because this isn't part of the SPP queue
17 unless there's a Seams issue and it's going to be sold on
18 the market.

19 I don't understand that. Can you help?

20 THE WITNESS: So part of the second phase of the
21 studies, what's called DPP2, definitive planning phase 2,
22 MISO reaches out to SPP for any impacts to their system
23 because there are points within the MISO and SPP systems
24 where they interchange.

25 And, to our surprise, when DPP2 came out for a

1 J721, which is the queue position that was in question,
2 we were surprised by the increase in cost that would have
3 been applied to that queue position, which would have
4 been well over \$100 million.

5 COMMISSIONER FIEGEN: Okay. So that helps me
6 understand. Because certainly SPP has a lot of wind, and
7 we're certainly looking at the cost to the entire
8 footprint of additional wind and how that is changing
9 everything.

10 So thank you.

11 MS. CREMER: Chairman Hanson.

12 CHAIRMAN HANSON: Just have two easy peasy ones.
13 It's piggybacking a bit on Commissioner Fiegen's just now
14 on the interconnection queue that you also referred to
15 I believe it's J722 and said that preliminary results
16 would be available in the first quarter.

17 We're early in the first quarter at this
18 juncture, not quite halfway there, and I'm curious
19 whether you have any preliminary information on the cost
20 of that.

21 THE WITNESS: We received a draft of what DPP2
22 results would be, and it looks like it's \$28 million just
23 for the MISO portion. What MISO left off were the
24 estimates for the SPP affected systems which, if you go
25 to the MISO site, state that previous results or actually

1 the DPP results were delayed previously because of the
2 SPP affected systems.

3 We are still waiting by the end of March or
4 early April for the definitive results.

5 CHAIRMAN HANSON: Thank you.

6 And the last one is just I'm assuming a
7 typographical error, but it was confusing to me on
8 page 4, line 8.

9 It states, "Now CRW2 will now use LNTE blades on
10 all of the turbines instead only the 34 turbines
11 indicated in the application." Is there a word "of" that
12 should be in there somewhere between there, or is
13 there --

14 THE WITNESS: Oh, that's correct. Yeah.

15 CHAIRMAN HANSON: So it's qualifying by "instead
16 of" should be in there?

17 THE WITNESS: How would that sentence read then?
18 I'm sorry.

19 CHAIRMAN HANSON: Well, "instead of" only the 34
20 turbines indicated --

21 THE WITNESS: Oh. It should be "instead of the
22 34." I see how the sentence changed without the "of."

23 CHAIRMAN HANSON: That's all I have. Thanks a
24 lot.

25 MS. CREMER: Thank you.

1 Redirect?

2 MR. MURPHY: No redirect.

3 MS. CREMER: All right. Thank you for your
4 testimony. You may step down.

5 Why don't we go to lunch at this point. Let's
6 everyone try to be back at 1:30. It might be hard to get
7 food and be back here by then, but let's try. And we are
8 in recess until then.

9 Thank you.

10 (A lunch recess is taken.)

11 MS. CREMER: I will call the hearing back to
12 order.

13 Crowned Ridge.

14 MR. SCHUMACHER: Thank you. Crowned Ridge would
15 call Michael MaRous.

16 (The oath is administered by the court reporter.)

17 DIRECT EXAMINATION

18 BY MR. SCHUMACHER:

19 Q. Please state your name, business title, and company
20 for the record.

21 A. Michael S. MaRous. I'm president of MaRous & Co., a
22 corporation that specializes in real estate valuation and
23 real estate consulting.

24 Q. What is your role with regard to the Crowned Ridge
25 Wind II project?

1 A. I was and my company was engaged to review the
2 proposed project and particularly to look at impacts in
3 regard to property values of proximate properties.

4 Q. Please provide a short overview of your education
5 and experience.

6 A. I graduated from the University of Illinois
7 Champaign-Urbana in the School of Finance with a
8 specialization in urban land economics, which is really
9 real estate. I immediately began working for a real
10 estate appraisal and consulting firm and then have headed
11 in that path my entire career.

12 I founded MaRous & Co. in 1980, which we are a
13 consulting valuation firm of about six professionals. I
14 hold the MAI designation, have since 1980. I've served
15 on various leadership positions with the Appraisal
16 Institute, president of the Chicago Chapter, contributed
17 to the appraisal of real estate, been on the Appraisal
18 Journal Board, lectured, taught.

19 I was invited to the membership of the Counselors of
20 Real Estate. I'm just coming off of being on the
21 national board for the last seven years. But basically
22 have been involved in real estate valuation, particularly
23 in the Midwest, for 25 or 30 other states and I've
24 appraised \$15 billion of a wide variety of property,
25 including ag land, large estates, large industrial uses,

1 large commercial uses, large residential uses, to name a
2 few.

3 Q. Are you licensed to perform appraisals in the State
4 of South Dakota?

5 A. I am. I hold the general certified, which is the
6 highest appraisal license in the State of South Dakota.

7 Q. Do you have experience specific to South Dakota wind
8 projects?

9 A. I have. I believe Crowned Ridge II is either the
10 seventh or eighth wind project that I've studied in the
11 last few years, primarily in eastern and central
12 South Dakota.

13 Q. Have you previously testified before the
14 South Dakota Public Utilities Commission?

15 A. I believe I have on at least four occasions,
16 including the Dakota Range projects, Crocker, Prevailing
17 Winds, and Deuel.

18 Q. Did you file Prefiled Supplemental Testimony and
19 exhibits on September 20, 2019, that are marked as A16
20 and A16-1 and Prefiled Rebuttal Testimony on January 8,
21 2020, that is marked as A22?

22 A. I did.

23 Q. Do you have any changes or corrections to your
24 prefiled testimony and exhibits?

25 A. I found on the bottom of one of the maps in the

1 report a typographical error, which I've changed in
2 regard to the roads traversing the subject footprint.
3 That does not -- that was a clerical error and has
4 nothing to do with the impact to the report.

5 Q. Please provide a short overview of your prefiled
6 testimony.

7 A. Basically I reviewed the proposed project, the
8 impacts of the project, the heights, the size of the
9 project, the footprint area, the economics of the
10 project, including the various annual payments being made
11 to the various taxing bodies and also to the landowners.

12 I looked and I came out and inspected the footprint
13 all throughout, you know, looking at some of the small
14 towns. Familiar already with Watertown, familiar with
15 Deuel, familiar with a couple of the lakes and some of
16 the issues there. Looked at some of the sales of
17 agricultural properties and some of the residential
18 properties and then basically did an analysis of sales
19 transactions, demographic issues, and looked in concern
20 with the sensitivity that seems to come up with these,
21 such as shadow flicker, such as decommissioning, such as
22 tip height, such as noise, just so I understood, you
23 know, the particulars of the project.

24 I also took under consideration my experience with
25 driving all over looking at, you know, large acreages and

1 wind projects throughout South Dakota and take in the
2 experience and some of the issues that have come up with
3 those and then put it together into a report providing a
4 matched-pair analysis, looking at peer-reviewed articles,
5 looking at the economic impacts to the properties, took
6 into consideration various professionals that -- you
7 know, really throughout the Midwest that I have discussed
8 with these issues, and put together a 100-plus-page
9 report specific to the proposed development.

10 Q. Have you had the opportunity to review the
11 Supplemental Testimony of David Lawrence dated
12 January 23, 2020?

13 A. I have.

14 Q. Is there anything in his Supplemental Testimony that
15 causes you to change your position or provide further
16 comment?

17 A. That's an interesting question.

18 I think Mr. Lawrence did a very good job. Similar
19 to what we did, I think he probed a little bit more with
20 some of the sales transactions. And I think his analysis
21 is very well done, in particular to South Dakota, but
22 essentially came to the conclusion that there was no
23 indication of negative impact on property values,
24 consistent with my conclusions.

25 He obviously was looking -- I think he calls them

1 IDSD2, which is one of the transactions I think the
2 Richter family that I paid close attention to. And when
3 I was out, I had looked -- driven down the gravel road,
4 looked at the 1,500-square-foot house. I didn't knock on
5 the door and go into it. And also looked at sales
6 transactions and, you know, looked at some of the
7 comments he made.

8 But when it's all well and done, I think, you know,
9 one of his conclusions is there's certain people that
10 don't like turbines. I agree with him. I mean, certain
11 people don't like gravel roads. Certain people don't
12 like lack of infrastructure. There's a lot of opinions
13 with any type of real estate.

14 I think he still when he was done came to the
15 conclusion that there was no indication of negative
16 impact, which is concurrent with my opinions.

17 MR. SCHUMACHER: Thank you. That concludes
18 direct examination of this witness.

19 MS. CREMER: Thank you.

20 Mr. Swanson.

21 CROSS-EXAMINATION

22 BY MR. SWANSON:

23 Q. MaRous; is that correct?

24 A. I've been called worse, but it's MaRous.

25 Q. MaRous. All right.

1 Are there any externalities about a wind farm that
2 would tend to impact value, in your opinion, more than
3 some other feature or character?

4 A. I think it kind of goes to controls and properly
5 legislated or designed having to do with concern with
6 shadow flicker, having to do with sound, having to do
7 with decommissioning.

8 And my experience is the South Dakota PUC and the
9 local counties have really done a good job with that, and
10 they've learned from, you know, older experiences and
11 some bad experiences with other states.

12 Obviously, proximity can be an issue. You know,
13 there's some concerns with aerial spraying. But, again,
14 while that's efficient, the aerial sprayers -- and,
15 again, I'm not an aerial sprayer, but they do better with
16 lower wind speeds. Again, it's a matter of coordination
17 with the company. But the well run companies can turn
18 off these blades immediately, and they can work with the
19 community.

20 I think there's always a concern as to setbacks. I
21 think there's also a concern with density, which the
22 world is changing in the wind industry because the
23 originals going back were a half to one megawatt. And
24 for a project this size you might need 3 to 400 turbines
25 and you had view of a lot of turbines. Now that they can

1 be spread out more, that issue to me has probably gone
2 away.

3 But I think it's really kind of a concern of, you
4 know, properly laying them out.

5 Q. Well, I'm not sure that aerial spraying would have
6 much of an impact on a residential value, but would
7 shadow flicker, whether the home receives shadow flicker,
8 would that have an impact?

9 A. I think the norm today is 30 hours a year, which
10 when we kind of think about how we live, are you even
11 going to be in your house or anybody going to be in the
12 house the majority? Or are you going to be in that room,
13 or are there other measures that can block that out? And
14 I think that 30-hour limit seems to be well done.

15 Obviously, if you had 100 hours and it was something
16 that was constant, I would think that would be a
17 negative. But when you get it to a de minimus situation,
18 you know, if we think of 30 hours, 30 hours of bad
19 weather, 30 hours of rain, 30 hours of high wind during a
20 year, it's really pretty minimal.

21 Q. I looked through your Exhibit 16-1 I think it is.
22 MS1, the market appraisal from the market analysis that
23 you did.

24 A. Yes, sir.

25 Q. I didn't happen to notice where you had actually

1 made note of whether a home that you are studying
2 actually was within shadow flicker or elevated noise
3 levels.

4 A. My understanding is due to the requirements of
5 basically whether it be 45 dBA or 50 dBA. And the shadow
6 flicker of 30 hours per year, that's given. So those
7 criteria are met before the project can be developed or
8 to be adjusted so they meet that criteria.

9 Q. So your opinion is a house that receives 30 hours of
10 shadow flicker would have no difference in value as
11 compared to one that didn't receive any?

12 A. That's my opinion, yes.

13 Q. And, likewise, with noise, a house that would
14 receive 50 dBA and one that is under 40, for example,
15 that makes no difference?

16 A. To me that's really the question of a noise expert.
17 Obviously, at some level volume of noise is a problem.
18 But, you know, being out in these footprints and standing
19 on the side of a gravel road, you know, when a Ford 150
20 goes by at 30 miles an hour I think that dBA might be 60,
21 70. So there's natural noise in these areas already
22 because of the wind and the use of the property.

23 But I think there's a sensitivity and there's an
24 issue with noise, and my understanding, that's going to
25 be met in this project.

1 Q. Are you involved in actually retailing or marketing
2 homes that are within the footprint of a wind farm?

3 A. No. I am a licensed broker in the State of
4 Illinois, but my business is real estate valuation and
5 studying and analyzing impacts. So I am not a broker
6 that's active, selling these properties.

7 MR. SWANSON: All right. Thank you.

8 MS. CREMER: Ms. Christenson.

9 MS. CHRISTENSON: Thank you.

10 CROSS-EXAMINATION

11 BY MS. CHRISTENSON:

12 Q. I'm looking at your Supplemental Testimony. And you
13 talk about the Richter property, Greg Richter. Let me
14 know when you're --

15 A. Yes.

16 Q. Okay. On line 16 of page 5 you say, "I confirmed
17 with the broker that a buyer withdrew their offer with
18 the reason of the proposed wind farm. However, because
19 of the high price for the size of the home, the data does
20 not necessarily support that the proposed wind farm is
21 the sole reason that the property was not sold."

22 Those two sentences seem to conflict each other.

23 A. Not at all.

24 Q. If you confirmed with the broker the reason was the
25 wind farm, how does that not mean that the reason they

1 withdrew was the wind farm? I don't understand where you
2 get to your second conclusion.

3 A. So if you look at the contract, the contract had
4 various contingencies in it, including conditional
5 issues, including an appraisal. So if the property
6 didn't appraise out, which happens all the time, then the
7 buyer could withdraw.

8 There were conditional issues with the roof. The
9 property was on a gravel road. The buyer can withdraw
10 for a variety of reasons. The fact and the comment on
11 the potential of a turbine 2,000 feet away was an issue,
12 but that doesn't mean there were other issues that were
13 specifically in the contract.

14 Q. However, the broker did not express any other issues
15 with the property. They only expressed the withdrawal
16 because of a wind turbine; is that correct?

17 A. Well, that's the question I asked. I was able to
18 read the other potential issues that were in the specific
19 contract for the Richter house.

20 Q. How much does a bare acre of land near the Richter
21 home sell for per acre?

22 A. So is that with a 500-acre farm, or is that for a
23 farmette?

24 Q. Just a bare -- a bare land acre. Any -- in your
25 research did you look at -- apparently you did because

1 you talk about property value.

2 A. Sure. And the range can go for land that's part of
3 a larger agricultural parcel that's not productive --
4 let's say it's got a Dakota pothole on it, it's a couple
5 acres, it doesn't have road frontage, you know, it's
6 really only good for grazing, may be 800 to 2,500 per
7 acre.

8 A piece of land that maybe is part of a 2 or 3 acre
9 farmette could be in the 10, \$15,000 an acre range on a
10 small piece. So that's why I was kind of qualifying your
11 question.

12 Q. Okay. Thank you.

13 So in Codington County if you wanted to build an
14 acreage out near Mr. Richter, you would have to purchase
15 35 acres of land. Would that be correct, in your
16 research?

17 A. Well, that's another question because Mr. Richter
18 did it on two, two and a half acres. Depending what you
19 did you could have a 35-acre minimum, but the Richter
20 piece and some of these other pieces are done on much
21 smaller parcels and I'm not sure if they need zoning
22 variances or how they do it where they split off from a
23 larger farm.

24 But there's all kinds of examples on smaller acreage
25 pieces.

1 Q. But if you wanted to go purchase -- if you wanted to
2 build a new home in Codington County on a rural
3 residential property, an acreage, we'll call it, you
4 would need a minimum of 35 acres. You couldn't just
5 purchase two and a half acres of bare land to build a
6 home; correct?

7 A. It depends on the situation and the local ordinance
8 in place.

9 Yes, you could build on 35. But, again, there's all
10 kinds of indications of these rural properties being on
11 2-to-5-acre plots.

12 Q. Okay. So you're not familiar with the Codington
13 County ordinance?

14 A. No. I'm providing an answer based on examples that
15 are in the area. I think the Richters maybe paid \$500
16 for their land, if I recall, in 2005. You know, it
17 depends on the situation, the particular area, the
18 interpretation of the zoning ordinance. But, yes, in
19 certain areas you have to have 35 acres.

20 Q. Thank you.

21 On Mr. Richter's property what would be the value of
22 the pole building and the garage? You talked about \$2.05
23 per square foot for the home. So you're not giving value
24 to any other pieces of the property? Am I wrong about
25 that?

1 Let me look. \$205.62 per square foot. So you
2 really only put a value on the home, nothing else on the
3 property?

4 A. That's not correct.

5 Q. It's not. Okay. Can you explain that to me then?

6 A. Sure. As an appraiser when you do a measurement you
7 go above grade, heated and cooled, as the house size.
8 And if you're just looking at comparables -- so taking
9 his approximate 1,500-square-foot house above grade
10 divided by the asking price that was equivalent to \$205
11 per foot, but that takes into consideration the garage
12 and the pole building and the driveway and it takes into
13 consideration the land. That's just a unit of
14 measurement.

15 Q. So earlier you spoke about there are people who have
16 an aversion to turbines. I don't remember the word you
17 used, but there are people who would wish not to live by
18 turbines; correct? You stated that earlier?

19 A. What I stated is they wouldn't want to live on
20 gravel roads and they wouldn't want to live sometimes in
21 a more rural location not proximate to services or
22 schools or medical. It's just -- or some don't like a
23 two-story house. Some people don't like a one-story
24 house. It's just personal preference.

25 Q. So speaking specifically about turbines, that would

1 possibly narrow the buyer pool for a rural residential
2 property if turbines were placed near their home?

3 A. It might actually expand it. And it might reduce it
4 too. Again, like anything else, if you have a property
5 for sale and 10 people look at it, not all 10 are
6 generally going to want to buy it, for a variety of
7 reasons. Maybe only one or two do or none of them do.
8 So there's preferences the people have that are important
9 to them.

10 Q. Okay. Earlier also you said -- when you were
11 talking about aerial spraying you said depending on the
12 company -- I think you called it the company -- they
13 could turn off turbines immediately.

14 A. That's what I said, yes.

15 Q. Are you aware of any -- any time that has happened
16 with a wind project where a farmer calls and says, hey, I
17 want to do some spraying; can you turn off Turbine 34?

18 A. Sure. It's my understanding it's done quite
19 frequently. But it's kind of a scheduled -- again, it's
20 a mutual scheduled event based on their needs of both
21 sides and also the projections of a velocity of wind.
22 And it's also based on a set time, whether it be a
23 half-hour to an hour or two hours on a certain day, yes.

24 Q. Okay. And then you talked about a Ford going by at
25 70 miles an hour or some speed. You mentioned noise.

1 A. I think I said 35 miles an hour on a gravel road and
2 a Ford 150 with a dBA that might have been 70.

3 Q. Okay. And that would probably last a few seconds to
4 maybe a minute, and then that would be the end of that;
5 right?

6 A. For that one particular truck, sure.

7 Q. Uh-huh.

8 A. Yes. But you could have many trucks go by in a day,
9 correct.

10 Q. Okay.

11 MS. CHRISTENSON: That's all I have. Thank you.

12 THE WITNESS: You're welcome.

13 MS. CREMER: Thank you.

14 Mr. Robish.

15 MR. ROBISH: Yes. Al Robish talking.

16 CROSS-EXAMINATION

17 BY MR. ROBISH:

18 Q. Has anyone requested to buy property in a wind
19 turbine project?

20 A. Has anyone requested to buy property.

21 Q. In a turbine project, specifically wanted to buy
22 inside of a turbine project.

23 A. Are you talking ag owners? There's people chasing
24 land inside wind projects throughout the U.S. all the
25 time. So that answer is yes.

1 I think if you're -- I assume you may also be
2 discussing rural residential. Yes, there's properties
3 that are sold within footprints of wind farms.

4 Q. Okay. Looking at property for sale but not -- just
5 requesting to be in a wind project for any number of
6 reasons, like the residential part. I realize the ag
7 might want to do that because they would hopefully get in
8 on it maybe to have one.

9 A. That's an interesting question. So it's like
10 somebody that wants to be on a golf course or be on a
11 lake. I think it's more proximity to the services, the
12 paved roads, that kind of drives the location.

13 But, believe it or not, even though there seems to
14 be some feeling of adversity here, some people really
15 like looking at them. So I have heard people that do
16 seek them out and want them as a view amenity. But,
17 again, that's personal choice.

18 Q. You've heard of that. But did they personally ask
19 you?

20 A. No. I'm not a broker.

21 Q. Okay.

22 A. I've heard their testimony in hearings where they
23 have said that. But I'm just answering your question.

24 Q. Okay.

25 When a property is listed is it a requirement to

1 disclose a future wind project?

2 A. That was a major point of Mr. Lawrence's direct
3 testimony in various reports because I think the
4 Richter -- and I think some of the others that he
5 studied, generally they weren't disclosed. And then he
6 sent it to the State, and I don't think he got a clear
7 answer on that so I would probably defer that to legal
8 counsel.

9 I think in my personal -- in my experience, and I've
10 been an appraiser for a long time and a broker also for a
11 long time, I think if you feel that there's a negative
12 influence, you're bound ethically to disclose it. But
13 I'm not really getting into the moral and legal aspect of
14 it because it seems to be an issue that he brought up and
15 found some significant inconsistency.

16 Q. So that later -- one wasn't disclosed at first but
17 later it was disclosed and did that change something
18 then? Is that what it was? That's what I thought you
19 said.

20 A. No. And in looking at the comparables that
21 Mr. Lawrence used, he found inconsistency in the Richter
22 matter. It wasn't disclosed when the property was
23 initially put on the market. At some point I think it
24 might have been listed by a second broker. A decision
25 was made to put that on the disclosure.

1 Q. Okay. Thank you.

2 In your research have you found anyone having a
3 problem getting or keeping insurance in a wind project on
4 their -- like a residential house or --

5 A. I heard that for the first time a few months ago in
6 Iowa as to an insurance broker. And then I did summon
7 further investigation, and it's like with any other
8 liability but because of the issue of ice throw or, you
9 know, some concern about fire, some concern about blades
10 coming off, with the setbacks today I'm not aware of the
11 issue.

12 Again, I'm not an insurance underwriter, but we look
13 at these issues and risk management, and I haven't seen
14 anything conclusive with that.

15 Q. Okay. Thank you.

16 Have you discussed insurance issues with anyone
17 regarding living in a wind project?

18 A. Generally speaking, it hasn't been anything that has
19 been a tangible factor that I could evaluate. So the
20 answer is I haven't seen any conclusive evidence.

21 Q. What is your registered name at the Secretary of
22 State?

23 A. It's just Michael S. MaRous.

24 Q. Okay.

25 MR. ROBISH: Okay. Thank you. That's all I

1 have.

2 MS. CREMER: Thank you.

3 Staff.

4 CROSS-EXAMINATION

5 BY MS. EDWARDS:

6 Q. Thank you, Mr. MaRous. You'll find I become more
7 brief every time you see me.

8 You stated earlier that after you reviewed
9 Mr. Lawrence's Supplemental Testimony your conclusion was
10 there was no negative impact. Is that a correct
11 statement?

12 A. Yes.

13 Q. When you say "no negative impact" do you mean no
14 negative impact to the Richter property, or your study as
15 a whole didn't change?

16 A. My study as a whole didn't change. Obviously,
17 there's allegations -- and I'm not a lawyer. Mr. Richter
18 is making allegations, and I have not done a specific
19 study on his house.

20 Q. Sure.

21 A. But I've read the allegations. I had previously
22 looked into the listing history. I've read what
23 Mr. Lawrence has done. I looked at the property. I did
24 talk to the broker.

25 Q. Sure. Thank you. I just wanted to make sure I

1 understood what that statement was attached to.

2 Moving on to decommissioning, you said there was
3 some concern with decommissioning related to value.
4 What's that concern, in your experience?

5 A. Well, that I think with some of the earlier projects
6 that were done in any of the wind projects where there
7 wasn't, let's say, the rules in place to do proper
8 decommissioning, which left people in the footprint and
9 the public bodies with concern of potential financial
10 risk, I think with what's moved forward where Staff and
11 the PUCs have figured out, you know, whether it's by
12 guarantees, it's by bonds, however they do it -- and I'm
13 not going to provide that -- that they figure out how
14 deep they cut the foundations and, you know, what they do
15 to remove the project if it is terminated.

16 Q. So it would be your opinion then that as long as the
17 local residents had confidence in our process, there
18 would be no effect?

19 A. Absolutely agreed.

20 Q. Thank you.

21 In your statement about noise -- I think you said
22 volume and noise is a problem at a certain level. So is
23 it your testimony or opinion that if the permit is
24 appropriately conditioned, there would be no impact due
25 to noise?

1 A. Correct.

2 Q. Impact. Property value impact.

3 A. Correct.

4 MS. EDWARDS: I have no further questions.

5 Thank you.

6 MS. CREMER: Commissioner Fiegen.

7 COMMISSIONER FIEGEN: I was going to have no
8 questions for you, and then all the sudden you answered a
9 couple of questions so now I need to have you clarify
10 those.

11 One of them was about agriculture and farmers
12 that need to spray. Did you state -- can you -- I just
13 need to understand what you stated, that a farmer could
14 call the project operator and say I need to do aerial
15 spraying, we think the wind -- or I didn't quite
16 understand that.

17 THE WITNESS: So, again, I'm not an ag expert.
18 I'm an appraiser. But my experience is if there's
19 application provided -- one way is I call the Hagie unit,
20 which is surface, which is more efficient, which goes
21 down the rows, which seems to be the new way of doing it.
22 However, if you've got a lot of terrain, it becomes more
23 difficult.

24 The other is aerial application. Again, if it
25 makes economic sense, then usually the sprayers don't

1 want to go out in high wind conditions. So let's say
2 it's a 3-to-5-mile-an-hour wind. It's the same time that
3 many times the wind farms may decide it's not big enough
4 wind, and they're going to shut down anyway.

5 So it's a matter of some type of agreement
6 between the farmer and the wind company but not calling
7 them up at 10:30 and say I want it shut down at 10:35.
8 It's an agreement that's made days in advance.

9 COMMISSIONER FIEGEN: Okay. Thank you. That is
10 new information to me.

11 Also the insurance issue is new information to
12 me also.

13 So you talked about you heard in Iowa that some
14 residents had insurance issues with a broker. Could you
15 elaborate on that more?

16 THE WITNESS: No. It was an allegation that was
17 unfounded that an objector was bringing out that they
18 thought they were going to have a problem with having a
19 wind turbine in the area.

20 In my investigation, insurance companies are out
21 to make money. They're risk averse so if they hear of
22 anything that may be a problem, they're going to check it
23 out. So I think it was something that was brought out by
24 a concern, but, again, properly constructed, I haven't
25 seen it.

1 COMMISSIONER FIEGEN: Okay. Thank you. Thanks
2 for clarifying. Otherwise, you wouldn't have had any
3 questions from me this time.

4 THE WITNESS: I would have missed you.

5 MS. CREMER: Chairman Hanson.

6 CHAIRMAN HANSON: Good afternoon, Mr. MaRous.

7 THE WITNESS: Good afternoon, Chairman Hanson.

8 CHAIRMAN HANSON: Welcome back to South Dakota.

9 THE WITNESS: Thank you.

10 CHAIRMAN HANSON: You did market analysis. You
11 did not do appraisals on these properties; correct?

12 THE WITNESS: Correct.

13 CHAIRMAN HANSON: An appraisal would be far more
14 granular than the market analysis. You're obviously well
15 qualified to do a market analysis if you're doing
16 appraisals as much as you have.

17 THE WITNESS: Correct.

18 CHAIRMAN HANSON: Might you have found different
19 information under different rocks as you were going
20 through an appraisal?

21 THE WITNESS: Considering the footprint,
22 considering the character of the area, which is to some
23 extent more influenced as it goes northeast towards
24 Watertown where it becomes a little denser than it does
25 when it goes -- or, I mean, northwest towards Watertown

1 as opposed to when it goes south and east in the Deuel
2 area. I don't think so because of the setbacks and the
3 general character and the general benefits, the economic
4 benefits.

5 This basically will become, once it's developed,
6 a new norm. It's going to be another strong economic ag
7 crop that's going to add to the viability and the
8 vitality of the whole area.

9 So would it impact -- we've obviously seen the
10 issues with the Richter house, and those are allegations.
11 In my opinion, no. But if you studied every house in the
12 footprint, in my opinion, it wouldn't, but that would be
13 a different type of analysis and different type of
14 study.

15 CHAIRMAN HANSON: Thank you. In comparing a
16 market analysis to an appraisal, would you give us your
17 opinion on approximately how much more work an appraisal
18 would be in comparison to a market analysis? A
19 percentage is fine. You don't have to go through all of
20 the --

21 THE WITNESS: Well, to do an appraisal you've
22 got approximately 30,000 acres in this footprint. And
23 probably you would break it out in the ag pieces, and
24 you'd basically be appraising every single farm. And I
25 haven't counted the number of farms, but there would be a

1 lot.

2 But you'd have to get into the soil
3 productivity, the paved roads, any buildings on them that
4 had value, and that type of analysis.

5 And then the houses. And, again, I don't recall
6 the number -- let's say there's 200 in the footprint.
7 Again, you would have to basically go inside everybody's
8 house, which I could tell you from that type of
9 experience, a lot of people don't want to let an
10 appraiser just walk through their house. They consider
11 it trespass.

12 So if you're not able to do that, then you've
13 got an issue with do you know the condition? How old is
14 the washer and dryer? How modern, how functional is the
15 kitchen? Are the floors in good shape? How are the
16 mechanicals, et cetera, et cetera?

17 So it would be a significant amount of work.
18 And a lot of things that are going to influence value
19 have to do with the conditional issues, the locational
20 issues, and not necessarily a wind farm. So it would be
21 a monumental task if you were going to do it right and do
22 every piece. And, you know, it could take several years,
23 and it obviously would be a very, very large fee.

24 CHAIRMAN HANSON: I assume you'd use all three
25 methods: Income approach for value of farmland, market

1 for sales prices, and construction minus depreciation,
2 things of this nature?

3 THE WITNESS: Well, I mean, where necessary.
4 Simply with a farm -- let's just say it's a 500-acre
5 tract with no buildings -- you're not going to do a cost
6 approach. But you are going to look at the income of
7 that, and you're going to take out the expenses and then
8 cap it in a market cap.

9 Then you're going to look at sales. So you
10 definitely do two. If there's significant farm
11 structures on there, yes, you do all three approaches.

12 And the houses, you wouldn't do an income
13 approach because that's not the way they're bought and
14 sold. They're generally just bought the sales comparison
15 approach. You may do a cost approach as a check, but if
16 you've got a 60, 70 year old house, estimating accrued
17 depreciation can be quite speculative.

18 CHAIRMAN HANSON: You talk a lot about
19 valuations based upon feelings of people moving into
20 residential areas. And that's been pretty much our line
21 of questioning all along; do people want to live close to
22 these facilities or not, and what's the impact?

23 What about -- I don't know if this question's
24 ever been asked. What experience have you ever had with
25 someone who is farming or ranching that they don't want

1 to be close to them or they aren't going to be purchasing
2 the property? They're going to want to sell their
3 property? Any experiences of that nature?

4 Not by the fact that they don't want to live
5 there but -- and I can't introduce testimony from the
6 past, but we've had some businesses that have not wanted
7 to locate there.

8 THE WITNESS: So the quick answer is there are
9 owners of large agricultural pieces that don't want to
10 participate, don't want to be part of the project, and
11 decline the offer to lease their land or have a turbine.
12 I mean, that happens, just like with anything else. And
13 the developers don't have condemnation powers so they
14 can't force them to do it. So that happens all the
15 time.

16 Do some people want to sell their land?
17 Probably. But then there's other buyers that are more
18 than happy to buy it. It's kind of like we see all the
19 time with these estates when the patriarch passes or
20 doesn't want it anymore and the kids have no interest.
21 They put it on the market, and generally one of the large
22 property owners in the area buys it right away. So it's
23 the same type situation.

24 CHAIRMAN HANSON: Were you able to find any
25 ideal comparables on your market analysis?

1 THE WITNESS: I don't think there are any ideal.
2 There's a lot of examples. That's why we put a lot of
3 data in the report, as did Mr. Lawrence.

4 But I think on the land situation, you know,
5 there are groups out there buying land in the footprint
6 with the hope or, you know, chasing sites with turbines
7 on them because of the economic vitality that provides.

8 CHAIRMAN HANSON: Have you ever testified on
9 behalf of the landowners in relationship to their desire
10 and challenges to obtain -- well, I'll shorten that so
11 I'm not qualifying it.

12 Have you ever testified on behalf of the
13 Intervenors in opposition to a wind farm?

14 THE WITNESS: Not in opposition to a wind farm.
15 But I've actually represented numerous private
16 individuals in opposition to energy-related projects,
17 such as power lines and gas lines where power companies
18 were basically physically encroaching and causing
19 damages. So I have testified in those matters.

20 CHAIRMAN HANSON: On page --

21 THE WITNESS: Just maybe to clear that up, I
22 have been contacted by objector groups in relation to
23 doing a study in regard to adverse impacts of wind and
24 solar. And I have said I'm happy to do the study but
25 based on my experience, I don't think my conclusion is

1 something that may support your position and you can make
2 the decision and I've never been hired.

3 CHAIRMAN HANSON: On page 4 of your testimony in
4 the first paragraph you state that property values are
5 not negatively impacted by proximate wind farm projects.
6 I'm not sure. I believe it was -- well, it was one of
7 the Intervenors who had asked you a question pertaining
8 to values. And I don't recall exactly what you stated,
9 but I think one of the -- your very first response to
10 things that might impact the value was proximate to the
11 facility itself.

12 Is that controvert? Do you see a controversy
13 between your remarks of saying on one hand that property
14 values are not negatively impacted by proximate wind farm
15 projects and your answer that one of the first things you
16 thought of that would affect the value was its proximity
17 to the --

18 THE WITNESS: Sure. It's proper setbacks. It's
19 just like with power lines my experience has been
20 generally 200 feet.

21 The initial wind projects, some of them had
22 turbines less, in the 7 to 900 foot range. To me that's
23 too close. Now the norm is 1,200 feet, 1,500 feet, three
24 to four times tip height. I think the way the
25 legislation has been, that's the issue.

1 But if you come in, let's say, under 1,000 feet
2 at a 500-foot turbine, that's only two times the tip
3 height. But the problem, though, is when you have a
4 45 to 55 dBA and you've got 30 hours of shadow flicker,
5 you can't get that close anyway.

6 Again, I'm not the scientist or the engineer,
7 but in dealing with those people, that's really what's
8 come out.

9 CHAIRMAN HANSON: What are the three most
10 important items to consider in relationship to purchasing
11 a residence? The standard that everybody always says in
12 real estate business.

13 THE WITNESS: Well, it's obviously location,
14 location, location. For me it's what makes my wife
15 happy. But I think it's really location and the
16 services, the paved road, the modern amenities.

17 And, again, we're all bombarded, by these fix-up
18 shows and these HGTV and the modern kitchens and the
19 sleek and what's appealing to the people that are going
20 to be buying our houses, which are the millennials. And
21 it's really what does the market want? What can the
22 market afford? What will they pay for?

23 And what's really happening today in my
24 experience is location, is proximity to services, is
25 paved roads, is a modern, functional facility, and high

1 quality infrastructure in the area, which means school,
2 which means police, fire, health.

3 CHAIRMAN HANSON: Your later comments were along
4 the line of my next question, and that is that people
5 have a tendency to gravitate towards those facilities
6 that they want -- for instance, if they have young kids,
7 they're likely to gravitate towards schools; correct?

8 THE WITNESS: Absolutely.

9 CHAIRMAN HANSON: And towards comfortable
10 transportation to work so they're not driving into the
11 sun in the morning and driving into the sun in the
12 evening when they're going to and from work.

13 THE WITNESS: Correct.

14 CHAIRMAN HANSON: And some people like to be
15 closer to hospitals. Some people like to be closer to
16 parks; correct?

17 THE WITNESS: Correct.

18 CHAIRMAN HANSON: And most people don't want to
19 be around an industrial area; correct.

20 THE WITNESS: You know, it depends if the
21 industrial area is providing economic incentive and
22 providing jobs. Some of the strongest economic areas in
23 this country are proximate to industrial type areas that
24 are clean and modern facilities because they provide
25 infrastructure and they provide jobs.

1 Do you want to look at a 50-foot-high concrete
2 wall, and do you want 400 trucks a day going by? That's
3 a whole nother issue. And then you have the noise issue,
4 and then you've got the smell of certain productions if
5 you've got, let's say, a tire plant.

6 And, you know, these noise, traffic, use, smell
7 are all issues that we deal with.

8 CHAIRMAN HANSON: Based on that answer and the
9 other dialogue that we've had and Mr. Richter's
10 experience, which you verified by speaking with the
11 broker, how can we say that there is no negative impact
12 on value?

13 THE WITNESS: Simply because it's the modern
14 trend. It is the new farm crop. It does provide the
15 ability to sustain and improve the schools. It does
16 provide the ability to pave roads. It does provide the
17 infrastructure and the money that's needed and not only
18 on a taxing base but for the people on the footprint, the
19 money they now have to go buy the new vehicle, the new
20 coat, go to the local restaurant, and have some money to
21 spread in the community. It just provides the vitality
22 to the community rather than let it languish and not keep
23 up with competitive areas.

24 CHAIRMAN HANSON: Last question: Would you
25 agree that there are some folks that just absolutely do

1 not want to be living in a residence and are not willing
2 to purchase a residence close to, again, proximately --
3 close is a relative term -- to a wind farm?

4 THE WITNESS: I would agree. Just as there's
5 some people who don't want to be rural, out in a gravel
6 road, not convenient to services. I mean, people -- it's
7 a personal choice. And you're driving at where the
8 economics are, where the money is.

9 And I think I've said this before. One of the
10 denser areas in the country is Silicon Valley. But, you
11 know, a 1,200-square-foot house there is a million two
12 and probably is going to have 20 to \$25,000 a year taxes.
13 But it's the jobs, it's the economics, it's the driving
14 of the force. And that really -- that's economics of
15 real estate.

16 And not everybody has to like every house. So
17 I'm not here as a taste test. I'm here talking about the
18 economics and what drives the ability to have the
19 infrastructure, to have the high-speed internet, whether
20 it's 4G or 5G or whatever you need to have for your
21 grandkids to want to come visit you. I mean, it goes to
22 modernization and demand.

23 CHAIRMAN HANSON: The next time we have you up
24 for the very next wind farm I'm going to say yes or no.
25 So get prepared for that question.

1 Thank you very much.

2 THE WITNESS: Thank you.

3 MS. CREMER: Commissioner Nelson.

4 COMMISSIONER NELSON: And actually that question
5 feeds directly into where I wanted to begin.

6 Looking at this Richter property and as I looked
7 at the aerial photos, it appears that there's a feedlot
8 about 100 yards to the west of this home. Is it possible
9 that there's a subset of potential buyers that would not
10 want to live directly east of a feedlot?

11 THE WITNESS: Oh, clearly.

12 COMMISSIONER NELSON: The other question I've
13 got in relation to that property -- and this puzzles me.
14 And you talked about it a little bit, and you kind of
15 tried to avoid the question. But I want to go to this
16 property disclosure issue.

17 Now, obviously, in real estate you've got to be
18 intimately familiar with property disclosures; correct?

19 THE WITNESS: Yes.

20 COMMISSIONER NELSON: I am not. But I took the
21 time to review the property disclosure that's used in the
22 State of South Dakota. And it appeared to me that those
23 disclosures are all about disclosing items on your
24 property that's being offered for sale.

25 I didn't see anything on there that requires

1 disclosure of things happening on someone else's
2 property. Is that accurate, or am I misunderstanding the
3 disclosure?

4 THE WITNESS: No. I think that is accurate.

5 COMMISSIONER NELSON: And so did Mr. Richter
6 need to disclose what somebody else was doing on some
7 other piece of property on his disclosure?

8 THE WITNESS: So my answer is no. But then if
9 there was a personal feeling with some support, whatever
10 it was, that it was negatively impacting value, maybe
11 yes.

12 But, again, we get into a legal situation, and
13 if it clearly was something that was negatively impacting
14 value, then I think it, you know, maybe becomes a moral
15 or ethical issue. But, again, I'm not playing lawyer up
16 here.

17 COMMISSIONER NELSON: Well, so I want to pick
18 apart that. And I understand you're not a lawyer.

19 So is the requirement on that disclosure to
20 report anything that you're aware of that might
21 negatively impact the value, regardless of whether it's
22 on your property or somewhere else?

23 THE WITNESS: In my opinion, no. Because you
24 could get into a situation where during a marketing
25 period you may have something that comes up that, you

1 know, the stock market takes a big hit. You know, the
2 China issue. There's an embargo. Do you change your
3 statement? No.

4 Something that you think is permanent and
5 impacts the use and enjoyment of the property, then I
6 would say yes. So, I mean, it kind of goes both ways.

7 But things happen daily, and that's what happens
8 with ownership of real estate. So it's not always good,
9 and it's not always bad.

10 COMMISSIONER NELSON: Understand. And I
11 appreciate your working down that line with me. I mean,
12 obviously I'm looking for a clear answer as to whether
13 something that's going on on somebody else's property
14 needs to be disclosed.

15 You mentioned and I think you used the word
16 "personal feeling." And as I read through this scenario
17 obviously the Richters had a personal feeling about what
18 was about to transpire across the road and thought that
19 they needed to disclose that. And it appears, I mean,
20 that was their decision.

21 My question was whether or not legally they
22 needed to do that.

23 THE WITNESS: Well, and I'm going to divert back
24 a little bit or digress. A lot of times people have
25 neighbors they don't like or neighbors that don't

1 maintain their houses or neighbors that leave out junk
2 vehicles or crap all over the place.

3 Do they have to disclose that? In my opinion,
4 no. Again, that's personal choices. Because other
5 people may think that's some type of art. I don't know.

6 So it goes to this whole personal choice issue
7 and the view of turbines. While there's some people that
8 don't like them, there's others that love to look at
9 them. I mean, that's a personal choice. I'm not here to
10 evaluate that. I'm here, how does it impact value.

11 COMMISSIONER NELSON: Thank you, sir.

12 MS. CREMER: Go ahead.

13 CHAIRMAN HANSON: I lied.

14 THE WITNESS: No. You had another thought.

15 COMMISSIONER FIEGEN: Yes/no.

16 CHAIRMAN HANSON: This will be a yes/no, I
17 think.

18 I was just contemplating Commissioner Nelson's
19 question, and when he asked does the seller have a
20 requirement to disclose what is taking place close by in
21 a neighbor area. And I'm not certain what his thought
22 process is there except that it may lead someone to
23 understand something better. I just wanted to fill in
24 that just a little bit.

25 The seller may not have that requirement, but

1 certainly the broker who's showing the property and -- or
2 listing the property has the responsibility to do that,
3 or they're likely to end up in court after it's purchased
4 and discovered; correct?

5 THE WITNESS: Or lose their license. It's a
6 potential. I mean, just like a lawsuit, anybody can file
7 a complaint against a broker yes.

8 CHAIRMAN HANSON: Okay. Thank you.

9 COMMISSIONER NELSON: Well, I appreciate
10 Commissioner Hanson asking that question. You're going
11 to wish that he probably hadn't.

12 So using the Richter property then, you feel
13 that it would have been the broker's responsibility to
14 disclose this potential wind farm, even if it wasn't the
15 responsibility of the seller; is that correct?

16 THE WITNESS: I can't answer that yes or no. I
17 think it goes if the broker has done studies or is on the
18 record as saying that there's a negative impact, then
19 clearly they should have.

20 If they haven't rendered any opinions or don't
21 have any support, then I can't fault them. And I don't
22 know. I'm not aware that this broker has made those
23 statements.

24 And when I spoke with her she was very careful
25 with the discussion and her conclusions. I tried, as you

1 have with me, and I didn't get, let's just say, some
2 clearcut answers.

3 COMMISSIONER NELSON: Thank you.

4 MS. CREMER: Any redirect, Crowned Ridge?

5 MR. SCHUMACHER: Thank you. No.

6 MS. CREMER: So there was no redirect so there
7 will be no recross, I believe has been my position.

8 Thank you. You may step down.

9 (The witness is excused.)

10 (Discussion off the record.)

11 MS. CREMER: Let's break until 5 minutes to
12 3:00.

13 (A short recess is taken.)

14 MS. CREMER: Crowned Ridge, you can call your
15 next witness.

16 MR. MURPHY: Thank you. I call Mark Thompson.

17 (The oath is administered by the court reporter.)

18 DIRECT EXAMINATION

19 BY MR. MURPHY:

20 Q. Please state your name, business title, and company
21 for the record.

22 A. Mark Thompson. I'm the manager of wind engineering
23 within the engineering and construction organization
24 NextEra Energy.

25 Q. What is your role with Crowned Ridge Wind II?

1 A. I'm responsible for engineering that supports the
2 permanent construction and development of Crowned Ridge
3 Wind II.

4 Q. Please provide a short overview of your education
5 and experience.

6 A. I have over 17 years of experience in design,
7 engineering, permitting, project management, and
8 construction at both Florida Power & Light Co.,
9 NextEra Resources, including plants associated to similar
10 facilities, such as Crowned Ridge II.

11 I have a bachelor's of science degree in electrical
12 engineering from the University of Technology in Jamaica.
13 I also have a master's degree business administration
14 from Nova Southeastern University in Florida.

15 Q. Did you file Prefiled Direct Testimony and exhibits
16 on July 9, 2019, Exhibit A1 and A4-1, Prefiled
17 Supplemental Testimony and exhibits on September 20,
18 2019, Exhibit A15, and Prefiled Rebuttal Testimony on
19 January 8, 2020, Exhibit A25?

20 A. Yes.

21 Q. Do you have any changes or corrections to the
22 prefiled testimony and exhibits?

23 A. No.

24 Q. Please provide a short overview of your prefiled
25 testimony.

1 A. Crowned Ridge Wind II, a 300.6 megawatt layout,
2 consists of 117, sorry, GE 2.3 megawatt turbines and
3 15 GE 2.1 megawatt nameplated turbines, with the
4 understanding that the 200 megawatt array will utilize
5 79 GE 2.3 megawatt and nine 2.1 megawatt nameplated
6 turbines, and the deferred 100 megawatt array, if
7 constructed in 2020, would utilize 38 GE 2.3 megawatt and
8 six GE 2.1 megawatt turbines.

9 Although these turbines have the capability to be
10 upgraded, Crowned Ridge has ordered GE and GE will
11 deliver turbines that are nameplated 2.3 megawatts and
12 2.1 megawatts.

13 As it pertains to construction, we have evaluated
14 the issues during the construction of Crowned Ridge I and
15 determined the root cause to be a communication breakdown
16 between the project team in the field and those in the
17 Juno Beach office.

18 To ensure the same or similar issues do not occur,
19 we have implemented a change in the process which
20 involves assigning an internal compliance director. In
21 his capacity as a compliance director he will review all
22 permits and document all critical requirements,
23 milestones, material required for compliance.

24 He will also ensure that all communications
25 regarding permitting is communicated to all supporting

1 groups, including the construction contractor. Our
2 internal automated document system will track critical
3 requirements and provide weekly roll-up to senior
4 director of construction Shawn Herrington for his
5 oversight.

6 With the addition of this position and oversight by
7 management, we are more than confident we can meet all
8 permit obligations.

9 Thank you.

10 MR. MURPHY: Thank you.

11 I offer the witness for cross-examination.

12 MS. CREMER: Thank you.

13 Mr. Swanson.

14 MR. SWANSON: I have no questions for this
15 witness.

16 MS. CREMER: Ms. Christenson.

17 MS. CHRISTENSON: Thank you.

18 CROSS-EXAMINATION

19 BY MS. CHRISTENSON:

20 Q. Mr. Thompson, my first initial questions I don't
21 need an exhibit. Safety manuals were filed
22 confidentially in this docket. Could you tell me what
23 the GE safety distance would be for being in the
24 proximity of a turbine during normal operations?

25 A. As referenced by the GE safety manual, this would be

1 1.1 times the tip height of the turbine.

2 Q. For workers as well?

3 A. That's in proximity to facilities not on the direct
4 location of the turbines. For workers, they're able to
5 be closer to the turbines themselves.

6 Q. Okay. What distance would GE recommend or any -- or
7 the manufacturer, which is going to be GE, for the safety
8 in being in the proximity of a turbine during abnormal
9 operations, such situations as runaway operations or
10 uncontrolled operations, component liberation, things of
11 that nature?

12 A. The same requirement, 1.1 times the tip height,
13 would apply.

14 I just want to go a little bit further in that. If
15 you have a situation where you have a runaway turbine,
16 there are safety measures put in place to stop --
17 immediately stop that turbine. So, hence, the 1.1 times
18 tip height distance within the safety manual would be the
19 same application.

20 Q. So there is never an instance where 1.1 times the
21 tip height would be too short of a distance? Is there an
22 instance -- I'll rephrase that.

23 Is there an instance where more distance would be
24 required?

25 A. I'm not aware of any condition that exists at this

1 time or any situation that would dictate more distance
2 would be required.

3 Q. Okay. Just in a past docket I thought I heard
4 1,300 feet. Has that changed?

5 A. 1,300, to my recollection, refers to the setback
6 from certain property lines, maybe nonparticipating
7 property lines.

8 Q. Okay. I was thinking it was a manufacturer safety
9 zone. But that's not the case, in your opinion?

10 A. I'm not fully familiar with that situation.

11 Q. Okay. What distance does Crowned Ridge Wind's --
12 Crowned Ridge Wind II's insurer require for safe distance
13 for workers during abnormal operations such as runaway
14 operations, uncontrolled operations, or component
15 failures?

16 A. Could you clarify that question? Is this pertaining
17 only to the workers or any individual that might be in
18 the vicinity of the runaway turbine?

19 Q. Well, I was thinking workers, but actually it could
20 be anyone. It could be a farmer farming around his
21 turbine. It could be a worker.

22 Anyone in the vicinity of a turbine, your insurer,
23 what would they recommend or require?

24 A. Let me think about that for a second.

25 The safety manual clearly dictates the proximity

1 setback to these turbines, 1.1 times tip height. I'm not
2 sure whether or not it distinguished whether it's a
3 worker or an individual.

4 I think that the upper bounds of that limit would
5 cover both the worker and any individual that might be in
6 proximity to that turbine, which is the 1.1 times the tip
7 height setback.

8 Q. Okay. And your insurance carrier or Workman's Comp
9 insurance, there's no requirement for an insurance policy
10 of any other distance, that you're aware of?

11 A. That's a very interesting question. As far as
12 the -- to be quite honest, I've never looked into the
13 Workman's Comp situation as far as the design is
14 concerned. But I'm sure that someone from my
15 organization could establish some light on that. But I'm
16 afraid I don't have enough information to answer that
17 question.

18 Q. Okay. And that would probably be Mr. Wilhelm? No?

19 MR. MURPHY: No. Objection. It's in no one's
20 testimony, Worker's Compensation. That would have had to
21 have been asked in discovery. This is outside the scope
22 of everybody's testimony. No one's testified on Worker's
23 Comp for contractors.

24 MS. CREMER: And I will have to take him at his
25 word because we don't get Data Requests and that. So

1 that being the case then --

2 MS. CHRISTENSON: Okay.

3 MS. CREMER: Thank you.

4 Q. What is the closest distance a turbine in this
5 project is sited near a public road?

6 A. I don't want to give you a wrong answer.

7 MR. MURPHY: Yeah. The objection is this is not
8 a witness who has measured turbines to public roads. The
9 setbacks were addressed by Tyler Wilhelm. And we've had
10 people, consultants, who could -- we could provide that
11 answer, but it would not be Mark.

12 MS. CREMER: So you can ask it of another
13 witness, it sounds like.

14 MS. CHRISTENSON: Okay. So Mr. Wilhelm will
15 come back and I can ask further questions or --

16 MR. MURPHY: I think to facilitate it, partly
17 because Sarah Sappington is part of the organization who
18 develops our maps, I would assume that she has the answer
19 to that question or we can make sure she does.

20 MS. CREMER: Does that --

21 MS. CHRISTENSON: Yeah. Okay. Thank you.

22 Q. (BY MS. CHRISTENSON) Exhibit AC-9. And Staff
23 graciously made you a folder right here (indicating).

24 A. Yes. They helped me out tremendously.

25 Q. Okay.

1 A. Okay.

2 Q. Okay. That's a Data Request to the Applicant
3 that -- and Intervenors asked for a manufacturer's
4 diagram of each style blade that will be used in the
5 Crowned Ridge project.

6 The response by Attorney Schumacher claims that the
7 information is confidential. However, you did provide
8 pictures of blades and attachments to blades that are
9 similar, as you say, that would be used in the project.

10 Given that, if permitted, the blades will be in the
11 public, is there anything related to the GE blades that
12 would be or could be harmful or dangerous to the public
13 either in their design or the materials used to construct
14 those blades?

15 A. Based on the information we have from the
16 manufacturer, I would say no.

17 Q. Nothing toxic or carcinogenic?

18 A. Based on the information that was provided to us
19 from the GE manufacturer, I would say no.

20 Q. And by that are you talking about the material
21 safety data sheets that would be provided? Is there
22 anything --

23 A. I didn't go through it in its entirety, but based on
24 what I see, the information listed in there from a safety
25 perspective, there wasn't anything listed or -- that

1 would suggest that there are materials in there that
2 would be harmful to individuals.

3 Q. Thank you.

4 And I did ask Mr. Hart already. The low noise
5 trailing edge blades are going to be attachments.
6 They're not actual blades with trailing edges. Only
7 attachments.

8 A. Yes. These are attachments to the blade themselves.

9 Q. And still on that same exhibit, you state, "To the
10 best of Crowned Ridge Wind's knowledge, LNTE blades are
11 widely used and the best available technology to reduce
12 the sound pressure levels in order to achieve compliance
13 with county regulations."

14 Is that still your position today?

15 A. Could you just remind me when that was written?
16 Sometime in November?

17 Q. I don't know. It's No. 11. I don't have that in
18 front of me.

19 MR. MURPHY: For clarity, it was December 12,
20 2019.

21 MS. CHRISTENSON: Thank you.

22 A. So shortly thereafter we did find out that GE was in
23 the process of developing EPOC, enhanced power curve
24 operation, that could also achieve lowering of sound
25 generated by the turbine blades.

1 Q. Okay. And I remember us discussing that on
2 January 7 in a different hearing. And I did inquire to
3 GE about that.

4 And I'd like to give you this document and pass
5 another document to everyone else for your review. I'll
6 give it to you first so you have time to review.

7 (The document is distributed.)

8 MS. CHRISTENSON: It's going to take me just one
9 second here because now we went out of order.

10 Q. Okay. This is an e-mail chain between me an account
11 manager of General Electric -- or GE Renewable Energy
12 where I asked him about the power curve software.
13 Because it was described to us in that meeting as
14 software, and you believe it to be software, from your
15 testimony today.

16 A. Yes.

17 Q. However, Mr. Balleti says it's not software. And if
18 you look at -- I'm going to find where he says it's not
19 software. See what happens when I go out of order.

20 Oh. Right pretty much just below the middle of
21 page 2 he says -- and I'll just read that -- "It is not
22 software but hardware we put on the blades to help reduce
23 noise. It has a different power curve associated with
24 it. Yes. A reduced output would/could can the noise."

25 So then right above that is my next inquiry to him.

1 I apologize. My e-mail chains go backwards. And I wrote
2 to him and said, "I found the power curve software
3 thing" -- those are my words -- "we talked about in our
4 notes," and I was referring to that meeting that we had
5 January 2. And I described what I thought was said in
6 the meeting. I tried to transcribe off the recording
7 because we hadn't gotten our transcript yet.

8 And his reply right above that says, "Yes. But it
9 has nothing to do with noise or reducing output. It
10 helps out around the knee of the power curve."

11 And then on the previous page I asked for a
12 brochure, and he says, "There's nothing published. What
13 are you trying to do? Maybe I can answer the question."

14 I tell him, "We're trying to reduce noise. That's
15 our goal." Because I think that's all our goal here.
16 And then his final answer to me is, "That feature is not
17 intended to reduce noise. It is for getting a little --
18 for AEP out of the turbine."

19 So I seem to get conflicting answers. I don't know
20 where software comes in and where attachments to the
21 blade come in. Maybe I should just let you explain.

22 A. Yes.

23 Q. Thank you.

24 A. So I can tie this together for you.

25 So let me kind of weave the thread to put this

1 together.

2 Yes. It is software. Yes. It does reduce sound.
3 The maximum sound that can be generated by a turbine when
4 it is at its full output can be reduced.

5 So where this software comes in -- well, let me
6 start from what causes the noise -- or the sound. Sound
7 is generated by turbulence on the leading edge of the
8 turbines. If you can reduce that turbulence or break it
9 up -- similar to teenagers going to a party, if you put a
10 parent in there, you can reduce the amount of noise that
11 they make.

12 So you can reduce this turbulence that is generated
13 by the tip -- the blades two ways. Number one, you can
14 reduce the speed because the turbulence is a function of
15 the speed of the blades, or you can -- so reducing the
16 speed or you can actually let the blade spin at the same
17 speed, but you actually put things to break up that
18 turbulence.

19 As far as the EPOC is concerned, you can achieve
20 full output by reducing the speed, reducing the
21 turbulence by feathering the blade. For you to feather
22 the blade you have to put in a software or use a software
23 to send a signal to the turbine controllers to say, hey,
24 I want these blades to be feathered but I want you to
25 slow your speed down and increase your torque so that you

1 can generate the same amount of output at a lower speed.
2 So that's where the link between reducing noise,
3 containing your output, and the software comes in.

4 Q. That's a pretty good explanation. However, it's
5 still -- I have a question.

6 Actually I'll start with this, and you can stop me
7 if you've heard this one.

8 When we were out in the field in Crowned Ridge I
9 looking at blades there were little white pieces. It
10 wasn't the low noise trailing edge that were attached to
11 blades. They looked like a little L kind of. Would that
12 be the pieces that you're talking about that would be
13 attached to a blade on this EPCO [sic]? I'd have to find
14 a picture.

15 A. Well, actually for the EPCO there is actually no
16 attachment.

17 Q. Okay.

18 A. For the LNTes there's actually a physical attachment
19 on the blades. Both of them reduce sound reduction by
20 breaking up the turbulence.

21 It's similar to wing tips on aircraft, the
22 jetliner's wing. You put these wing tips on the end to
23 reduce the turbulence, and you get better lift with your
24 jetliner.

25 Q. Okay. So when Mr. Balleti says it's not software

1 but hardware we put on the blades --

2 A. Right.

3 Q. -- why does he say that?

4 A. I have no idea why he would want to say something
5 like that.

6 Q. Okay.

7 A. I've been in contact with the GE engineers, and we
8 talk about, you know, how it works and what are the
9 inputs, what are the outputs. So I don't know why he
10 would make a statement like that.

11 Q. Okay. I'm just going to move on then because you
12 gave me a good explanation. Thank you.

13 Your response to question 5 in my Data Request --
14 we're still on AC-11 there -- it states the purchase
15 dates of the turbines. You probably don't even need it.
16 You know this in your head.

17 A. Okay.

18 Q. They were purchased in June of 2016, the safe harbor
19 ones, and 2018 -- September of 2018, the other ones.

20 My question, and I had asked Tyler earlier, have
21 those turbines, those specific turbines purchased in 2016
22 and 2018, been specifically reserved for this project and
23 are the turbines that will be constructed for use in this
24 project?

25 A. Yes. So the ones that were purchased in 2016, those

1 are our safe harbor units. And the remainder of the
2 turbines that were purchased, the majority of those are
3 in storage. Nine of those turbines would be direct
4 shipped this year to complete the entire amount required
5 for the project.

6 Q. Okay. Since you purchased them in September of 2018
7 and 2016 -- I don't want to get into an argument about
8 nameplates and models, but the 2 megawatt platform, since
9 these were purchased back then, are these going to be
10 actually models of 2.1s and 2.3s, that you know of?

11 A. Yes. They're within the same family, yes.

12 Q. Okay. I think you're supposed to ask -- or answer
13 my blade question.

14 A. You remembered.

15 Q. Sorry.

16 So I'll reread that. Exhibit AC-9, your response to
17 question 3 about the weight of each blade. The weight is
18 25,203 pounds. I'm going to leave off the decimal.

19 So at the end of the life of this project there will
20 be 396 blades and many more during the life of the
21 project, which I understand the first five years are when
22 you -- the most blade failures because of shipping,
23 et cetera; right?

24 Okay. So just at the end of life that will require
25 a disposal of 9,980,575 pounds of refuse, or the shipping

1 weight is 11,840,004 pounds of refuse.

2 Not knowing if any of blades are toxic at this
3 point, which we don't believe they are, according to you
4 earlier, and we'll assume they're not, where is Crowned
5 Ridge II intending to dump 10 to 12 million pounds? And
6 that number would double if there was the -- the other
7 project would be at the same time. And I understand now
8 that those are different projects. So we'll just talk
9 about 10 to 12 million pounds of blade refuse.

10 Where have you made plans to dump that much blade
11 refuse? And that doesn't include any rebar, cement,
12 anything else. Just the blade refuse.

13 A. So as it stands right now, you're correct. They
14 would be disposed of in a landfill, pursuant to the
15 applicable laws. The plan -- and I assume that you mean
16 at the end of life of the project.

17 Q. Yes.

18 A. The plan as it stands right now is to cut these
19 blades up into pieces for transport and dispose of them
20 in landfills. Now this is usually a contracted process.
21 And the landfills could either be local or off-site or
22 out of state.

23 Given that we're over 20 years away, we think that
24 there would be, you know, processes that are developed or
25 put in place to maybe recycle some of these. So

1 disposing of these blades in landfills I think is the
2 worst-case scenario or would I say last resort.

3 So I think that with the options that are possibly
4 under development, you could see that the amount of
5 refuse going to these landfills could be significantly
6 less.

7 I just want to put something in perspective. As far
8 as the weight and the amount of refuse, when you compare
9 that to the landfill, it's relatively small for the
10 amount. And, again, we're hoping that at the end of the
11 day or the end of life we'll find a way to recycle these
12 Fiberglass blades. Or even reuse them.

13 Q. How long have they been using Fiberglass blades in
14 this industry? How many years, do you think?

15 A. Oh, my God. My first ever wind site that I went to
16 in California, Tehachapi Mountains, they were Fiberglass
17 blades there. And that site was built in the '80s. So
18 it's been a long time.

19 Q. Okay. And they haven't found a way to recycle them
20 as of yet, and that's, oh, my gosh, 40 years. Look at
21 that.

22 A. Oh, sometimes things change really overnight
23 sometimes.

24 Q. Okay. In your Direct Testimony, which is
25 Exhibit A4 -- A4, that's the Applicant's. Yeah.

1 And you probably don't need to see this either.

2 A. Okay.

3 Q. Well, you can try.

4 You say ice buildup can be detected through higher
5 than normal vibration. How would higher than normal
6 vibration affect the normal operating sound profile of a
7 turbine?

8 A. The sound profile of a turbine.

9 Q. Yes.

10 A. I have to go back to my engineering roots here. So
11 I did say maybe 15 minutes ago that sound or -- the sound
12 that's generated is a function of the tip speed, and it's
13 because of turbulence.

14 So if a blade is vibrating, as long as it's
15 spinning, it's going to generate turbulence. So I don't
16 know if there is a correlation between a vibrating blade
17 and the amount of sound it produces. I have no
18 information on that.

19 Q. Okay. So a follow-up to that. Ice buildup on a
20 blade, do you know if that causes more sound, more noise,
21 than a blade that does not have ice buildup?

22 A. From a logical perspective, if ice builds up on a
23 blade, normally they're going to -- that blade, that
24 turbine itself would be shut down. So if it's not
25 spinning, I assume that there wouldn't be any turbulence

1 so there wouldn't be any noise.

2 Q. But until you get higher than normal vibration, you
3 don't even know there's ice on the blade. Am I
4 understanding that correctly?

5 A. I have to think about that for a second.

6 Q. Okay.

7 A. My logic is not coming together. Sorry.

8 Q. That's all right. It just would stand to reason if
9 ice buildup is detected through normal or higher than
10 normal vibration, more vibration would equal more sound,
11 and you wouldn't know there was ice unless it's
12 vibrating.

13 And we're good.

14 A. Given a little bit more time, I'll probably be able
15 to put it together. But right now I'm kind of --

16 Q. Okay.

17 In your Supplemental Testimony, Exhibit A15, page 2,
18 lines 6 and 7. A15.

19 A. Just go with the question.

20 Q. Okay. You tell us that there are physical features
21 that prevent oil leaks from reaching the ground and are
22 contained in the basin in a nacelle. How much oil is in
23 each turbine?

24 A. So the gear box -- I had that on my fingertips. Is
25 it okay if I -- because I don't want to state the wrong

1 volume of oil that's in there. It's over 100 gallons of
2 oil.

3 Q. Okay. That's fair. And how much oil will the basin
4 hold? Is the basin -- it sounds like the basin --

5 A. It's a catchment basin that's designed on the
6 turbine floor. If you want to describe it, it has lips
7 all the way around it so if you have an oil leak, it will
8 contain that oil leak.

9 Q. It sounds like the basin may be a little shy of
10 holding the entire oil amount. Would that be right?

11 A. I would say yes. But in the event you have a leak,
12 unless you have a catastrophic failure, not all the oil
13 would be spilled from the gear box.

14 So I think the way the basin is designed, it's
15 designed to capture that oil resulting from a --
16 resulting from not a catastrophic leak then, so to speak.

17 Q. Okay. On page 3 of that same document you tell us
18 turbines that are placed closer than the manufacturer's
19 recommended spacing will increase wake. Tell me what
20 affect increased wake would have on a turbine's noise
21 profile, both the dBA and the dBC ranges, please.

22 A. Again --

23 MR. MURPHY: Objection. I know Mark well. I
24 don't think he would be able to articulate the acronyms
25 that were explained. Unless you feel comfortable.

1 My objection is it's not in his testimony. He's
2 not a sound expert.

3 MS. CREMER: Would you be speculating in
4 answering? Or can you answer the question, I guess?

5 THE WITNESS: I think I would probably use
6 background knowledge, but I could be wrong. So in that
7 sense, I'd rather not answer the question.

8 MS. CREMER: So then I would direct that you can
9 ask the question of a different expert.

10 Q. Okay. Would you know which expert would know the
11 effect of wake? Which of your fellows in the band back
12 here?

13 A. And let me just clarify your question. The expert
14 that could understand what's the effect of wake and
15 noise?

16 Q. Yeah. The effect the increased wake would make on
17 the noise, the sound profile.

18 A. To be quite honest with you, I don't think anyone on
19 this team has that background knowledge to correlate wake
20 and sound. That would probably have to be someone from
21 WindLogics working with the sound expert to put that
22 answer together.

23 It's probably more than one expert that would have
24 to come together to understand the effect and the output
25 of those two coming together.

1 Q. Okay. Would that be something that NextEra would be
2 willing to do? Or Crowned Ridge Wind II? Or I don't
3 know if you can make that decision.

4 MR. MURPHY: I think we would need to understand
5 a little bit more of the parameters. Because wake is a
6 general concept and I can't say I understand it but I
7 know working with those experts, they would need to know
8 the amount of wake you're concerned about or the distance
9 and, you know, the turbines involved.

10 I'm not -- I have no objection to trying to get
11 that information. But to Mark's point, it would be our
12 sound experts, Haley and Rich Lampeter would have to work
13 internally.

14 You know, I'm not sure how relevant it is
15 particular to this proceeding, but I would defer to the
16 Commission if they thought it was. And if it was, then
17 we would get the information.

18 MS. CREMER: So you can move on. We'll sustain
19 that objection.

20 MS. CHRISTENSON: Okay.

21 Q. Actually I could just ask, are there any turbines
22 that are placed closer than the manufacturer's
23 recommended spacing in this project?

24 A. Not that I'm aware of.

25 Q. Okay. Lines 5 and 7 say, "The increased wind loads

1 would compromise turbine structures and present a safety
2 risk for maintenance personnel." How would this
3 structure be compromised?

4 A. So the foundations themselves for each wind turbine
5 are designed based on certain wind loading and, of
6 course, the load-in by the towers.

7 When you start waking turbines you're introducing
8 more longitudinal and lateral load on these turbines.
9 And they might exceed the foundation design requirements
10 that could, you know, compromise the structure, the
11 integrity of the structure.

12 Q. Oh, and we already talked about the power curve so I
13 can let that go.

14 One last question. How much weight does it take to
15 knock the blades out of balance? How much
16 differentiation would have to be on one blade versus
17 another? Is it much? Is it five pounds? Is it
18 200 pounds to knock them out of balance?

19 A. I don't know. I don't have a specific number. But
20 just based on the fact that these are balanced and it has
21 to be balanced so that when it rotates within the hub and
22 the bearing within the hub it doesn't, you know, produce
23 longitudinal axial load-in.

24 I would say, you know, minimal -- and we'd have to
25 clarify minimal. Minimal amount of weight on these

1 blades that could throw it off balance and cause actual
2 load-in on these bearings.

3 Q. Okay. And I did think of one more.

4 When these blades are shipped for new turbine
5 construction they're shipped in threes, and it's like
6 it's a matched set, it seems like.

7 Are they a matched set? Are they specifically like
8 manufactured together? Yes?

9 A. They're a matched set, and they go to a specific
10 turbine site, yes.

11 Q. Okay. So if one blade delaminates or gets struck by
12 lightening, do you have to replace all three?

13 A. No. Replace one.

14 Q. Okay. So there's nothing specific about the other
15 two? The parameters would be the same?

16 A. Yes.

17 MS. CHRISTENSON: That's all I have.

18 MS. CREMER: Mr. Robish.

19 MR. ROBISH: Okay. Al Robish.

20 CROSS-EXAMINATION

21 BY MR. ROBISH:

22 Q. These are questions I asked Mr. Tyler. He referred
23 them to you.

24 MS. CREMER: Mr. Robish, I'm going to have you
25 just move your mic. a little bit closer.

1 MR. ROBISH: Okay. How is that? More?

2 Q. What building permits are required in the three
3 counties of Codington, Deuel, and Grant? What building
4 permits? Are all three counties the same?

5 A. It's my understanding, yes, they are. The permits
6 required for the construction of the wind turbines,
7 foundations, yes.

8 Q. Okay. Will the Applicant display all the building
9 permits at each site location?

10 A. Yes.

11 Q. Okay. And then when will they be displayed?

12 A. These will be displayed right at the start of the
13 construction, which is the excavation of these turbines.

14 Q. Will they get the permits, then go to the site and
15 display them before they start any construction?

16 A. My understanding in talking to the field as late as
17 today, that's the plan that they will put in place for
18 Crowned Ridge II.

19 Q. Okay. Thank you.

20 MR. ROBISH: That's all I've got for you, Mark.
21 Thanks a lot.

22 THE WITNESS: Thank you.

23 MS. CREMER: Thank you.

24 Staff.

25 MS. REISS: Thank you. I just have a few

1 questions for you.

2 CROSS-EXAMINATION

3 BY MS. REISS:

4 Q. The first one deals with ice accumulation and
5 vibration on the turbines. Do you recall talking about
6 that a little bit today?

7 A. Yes.

8 Q. So when you discussed that, was the vibration the
9 machine detects the vibration occurring on the blade
10 itself or on the rotor shaft?

11 A. It would be on the rotor shaft.

12 Q. Okay. And so if the vibration would be on the rotor
13 shaft, the vibration you mentioned in your testimony
14 wouldn't impact noise; is that correct?

15 A. Could you phrase that question a little bit
16 differently for me, please.

17 Q. Sure. If the vibration is occurring on the rotor
18 shaft, would it have an impact on the noise produced from
19 the turbine?

20 A. If the blades are spinning at the same velocity,
21 generating the same turbulence and it's vibrating, then I
22 think that the noise level would be the same.

23 Q. Okay. And then just to jump back to follow up on
24 some of Ms. Christenson's questions, on page 2 and 3 of
25 your Supplemental Testimony you testified about

1 potentially spacing turbines closer than the manufacturer
2 recommendations; correct?

3 A. Yes.

4 Q. I believe you indicated that at this point the
5 turbines are not spaced closer than recommendation; is
6 that correct?

7 A. Right. They are not spaced closer than recommended
8 by the manufacturer. That is correct.

9 Q. Okay. Can you clarify? Is the company seeking
10 approval to site them closer, if necessary?

11 A. I'm not aware of the -- for this particular project
12 whether the company has been seeking approval to place
13 them closer than recommended by the manufacturer.

14 Q. Okay. You mentioned an explanation on page 74 of
15 the Application, within that testimony. Do you recall or
16 do you remember what's on page 74 of the Application?

17 A. No.

18 Q. Can we pull it up possibly.

19 Before you pull it up, it has to do with county
20 ordinances. Perhaps that would refresh your memory.

21 A. Setbacks?

22 Q. Yes. And you had referenced page 74 in your
23 testimony. And I've been looking at the pages before and
24 after that. They all seem to be similar.

25 Are you familiar with this section of the

1 Application?

2 A. Yes.

3 Q. Are you aware of any requirements from the -- from
4 any of the three counties affected that would prohibit
5 spacing turbines closer than the turbine manufacturer's
6 recommendation?

7 A. I'm sorry. Could you just repeat that question. I
8 was trying to follow here while you were talking.

9 Q. So we've heard testimony there's three counties --

10 A. Right.

11 Q. -- involved?

12 A. Correct.

13 Q. Are you aware of whether any of those three county
14 ordinances would prohibit spacing turbines closer than
15 allowed by turbine manufacturer recommendations?

16 A. I'm not aware of that.

17 Q. Could you go to the end of page 75. And there's a
18 column listed Turbine Spacing.

19 A. Right. Correct.

20 Q. Can you tell me what your understanding of that
21 statement would be, that turbines shall be spaced no
22 closer than is allowed by the turbine manufacturer?

23 A. So this statement says, "The turbines shall be
24 spaced no closer than is allowed by the turbine
25 manufacturer in its approval of the turbine array for

1 warranty purposes."

2 So I think that goes back to my original statement
3 that you want to follow the recommendation of the turbine
4 manufacturer because there are implications if you go
5 closer than they recommend.

6 One of the situations I referred to was the waking
7 of one turbine to the next if they're placed closer and
8 the implication it has on the integrity of the actual
9 turbines. So this in effect is -- this particular
10 statement is relating to that, that you have to at least
11 abide by the turbine recommended -- turbine manufacturer
12 recommended spacing.

13 Q. Okay. So then can you help me understand what is
14 meant on page 2 to 3 about potentially spacing 10 percent
15 of the towers closer than manufacturer's spacing, knowing
16 that this is one of the county ordinances and with the
17 testimony you've provided today?

18 A. So if you don't mind, could you just refresh my
19 memory on that statement within the testimony?

20 Q. Sure. Those pages beginning on line 20. And I
21 can -- I can just pull it out for you if that would be
22 easier. And I guess if it's easier, I can rephrase the
23 question if it makes more sense.

24 I guess why is the company essentially, as I read
25 it, indicating that 10 percent potentially of the

1 turbines would be spaced closer than recommendations,
2 given the issues you've brought up in your testimony on
3 the county ordinance prohibiting that?

4 A. I think this is -- this is saying -- this is
5 consistent with what's in there. If you go to the
6 lines -- the remaining lines of this, it says that,
7 "Turbines that are placed closer than the manufacturer's
8 recommended spacing will experience increased waking,
9 which results in reduced turbine efficiency and increased
10 wind loads on foundations and towers. The increased wind
11 loads could compromise turbine structures and present a
12 safety risk for intended personnel."

13 And I'm seeing where you're seeing there's a
14 disconnect between the first couple of lines and the
15 remainder of the --

16 Q. Yes.

17 A. I'd have to get some time -- because it seems as if
18 the first couple of lines it's stating something
19 different from the actual final conclusion. It might
20 have been a typographical error, as far as that is
21 concerned.

22 And because the final four lines is consistent with
23 what's in the manual, I'm going to say this is probably
24 an error in responding.

25 Q. All right.

1 MS. REISS: Nothing further. Thank you.

2 MS. CREMER: Chairman Hanson.

3 CHAIRMAN HANSON: All but one of my questions
4 have been answered. So good afternoon.

5 THE WITNESS: Good afternoon.

6 CHAIRMAN HANSON: On page 4 of your testimony
7 you state, "The wind turbines provide the power needed to
8 operate the systems and components during normal wind
9 conditions, while the local retail power provider
10 provides the power during no wind conditions."

11 Can you tell me, do you have a special
12 arrangement with them for purchasing their electricity?
13 Is it wholesale or resale -- or retail that you're
14 purchasing?

15 THE WITNESS: So this would be retail emergency
16 power during no wind condition.

17 CHAIRMAN HANSON: Thank you very much.

18 COMMISSIONER NELSON: Good afternoon. And I'm
19 still trying to get you up here when it's 30 below, and
20 we have failed again this time.

21 THE WITNESS: You have not totally failed. It
22 was very cold this morning.

23 COMMISSIONER NELSON: No. Mark, that's the
24 wrong answer. Let me give you an easier one.

25 I want to follow up on some of Ms. Christenson's

1 early questions talking about the safety zone being 1.1
2 times the tip height during normal operation.

3 What does that mean? What does a safety zone of
4 that size mean?

5 THE WITNESS: So the safety zone was determined
6 by the ability for whether it's ice throw or maybe a
7 defragmented blade to be thrown.

8 And we looked at research. Not us in
9 particular, but GE has gone through extensive research
10 and looked at what's the maximum distance that a
11 dislodged part or piece of ice could be thrown? And they
12 have added an additional distance to that. And that's
13 how they came up with the safety zone for outside of this
14 zone.

15 Then the probability of being -- coming in
16 contact with either ice or a defragmented blade, the
17 probability is very, very low.

18 COMMISSIONER NELSON: And so inside the safety
19 zone, what are they saying? Are workers allowed there?
20 Are landowners allowed there? Are hunters allowed there?
21 Or not?

22 THE WITNESS: So, Commissioner Nelson -- so,
23 from experience, they could be in that vicinity, but I
24 take it they would have to make the necessary
25 arrangements if they're not workers.

1 For example, if I'm going in a wind site and I'm
2 going in close proximity to the turbines, I have to make
3 sure I call the local operating maintenance folks to say
4 I'll be in this vicinity. And normally, you know, you
5 would have to go through a safety orientation to be
6 within that vicinity.

7 Now turbines are located on farmland, they're
8 located on land that is sometimes accessible to local
9 folks. So to answer your question, they could be in that
10 zone determined by the turbine manufacturer.

11 COMMISSIONER NELSON: So it's a safety zone
12 where there could be safety issues, defragmenting blades,
13 ice throw, et cetera, but it is permissible for
14 landowners and hunters and others to be within that area.

15 That's what I'm hearing you say; correct?

16 THE WITNESS: I would say our general safety
17 procedure would be unless they have reason to be there,
18 they would be admissible. If they don't have reasons to
19 be there, I would say from just a -- just from an
20 individual safety concern you want to make sure that
21 you're acting in the right way all the time.

22 COMMISSIONER NELSON: I want to act in the right
23 way all the time. But I -- well, let me ask the natural
24 follow-up question. Has your company advised the owners
25 of the properties that you're going to have turbines on

1 that they should not be within 1.1 times the tip height
2 of the turbines?

3 THE WITNESS: They informed them that they
4 shouldn't have infrastructure, whether it's a building or
5 anything of that nature. I don't know of any
6 communication with landowners that they can't be within
7 1.1 times tip height. Because I know that some of the
8 local farmers, they do farm right up to the turbines
9 themselves.

10 COMMISSIONER NELSON: Okay. So you can see
11 where I'm a little puzzled here. If the safety zone
12 means anything, it would seem that your company should
13 communicate that with the landowners.

14 But I'm understanding that that has not
15 happened; correct?

16 THE WITNESS: I can't state definitely that it
17 hasn't happened. I'm not aware of it.

18 COMMISSIONER NELSON: Thank you.

19 Let's go to some of the earlier questions that
20 Mr. Wilhelm punted your way. Can you explain the ADLS
21 infrastructure?

22 I think there's some misunderstanding as to
23 what's involved in that. And I think even a few things
24 he said are even different than my understanding of what
25 it was. So explain it to us.

1 THE WITNESS: So the ADLS system, Aircraft
2 Detection Lighting System, is a means of detecting
3 aircraft and using that information to turn lights on and
4 off so that you don't have lights on all the time.

5 The system in itself has three major components
6 or three major designs. Number one, it's the radar
7 tower -- the radar on the tower. This radar system is
8 placed on the tower, strategically placed within the wind
9 farm so that it can scan the entire footprint.

10 The second portion to that is control cabinets
11 that are placed at the foot of this tower. The other
12 major component to that is another control cabinet that
13 is placed in a substation that is used to interface the
14 radar system, the remainder of the system.

15 And the fourth component is the actual lights on
16 the tower that is used as a beacon to go on and off when
17 there's aircraft detected in the area. So there's four
18 major components.

19 COMMISSIONER NELSON: And so would it be
20 accurate that the lights that are on the top of the
21 towers are going to be the same lights whether or not you
22 implement ADLS? Is that correct?

23 THE WITNESS: You're 95 percent correct. It
24 could be the same lights. However, the ADLS
25 manufacturers have come up with a specialized light that

1 they said this is the most optimum light that you have to
2 use.

3 So you're right. The lights will be there
4 regardless. As far as what lights, that's where the
5 distinction comes in. So the lights will be there, yes.

6 COMMISSIONER NELSON: So in relation to this
7 project, Crowned Ridge II, understanding that you may not
8 have permission from the FAA to implement this system
9 until July or later, the lights that you are going to be
10 ordering, will they be compliant with ADLS?

11 THE WITNESS: Yes. They are compliant with
12 ADLS.

13 COMMISSIONER NELSON: The two -- I understand
14 there's going to be two radar towers; correct? For this
15 project?

16 THE WITNESS: Correct.

17 COMMISSIONER NELSON: And if the extra
18 100 megawatts is added in the future, will those two
19 cover that also?

20 THE WITNESS: No. You'll need another -- at
21 least another radar within the vicinity of the
22 100 megawatts.

23 COMMISSIONER NELSON: Are those radar tower
24 locations indicated on map A27 too?

25 THE WITNESS: Yes.

1 Bear with me one second so that I can find the
2 radar locations. So they're closest to Turbine 71 and
3 17.

4 CHAIRMAN HANSON: Microphone, please.

5 THE WITNESS: So there's one location at --

6 I should know this. Can I call for help who
7 knows exactly where they are?

8 Mr. Oberg, can you point out where these radar
9 are?

10 MR. OBERG: One is to the north, and one is on
11 the south side.

12 COMMISSIONER NELSON: Okay. Mr. Thompson, since
13 you've got the microphone, I'm going to ask you this
14 again. Are these located on this map and indicated on
15 this map? I don't see them in the legend.

16 THE WITNESS: They're not showing on this map.

17 COMMISSIONER NELSON: Okay. Thank you.

18 How tall are those towers?

19 THE WITNESS: For Crowned Ridge II we haven't
20 yet established the height. The reason being, there are
21 trees in the area that we have to go out and do a survey
22 to see how tall these trees are. Because the radar dish
23 itself typically has to go above these trees to prevent
24 saturation.

25 So we are in the process of determining how tall

1 these towers will be. We're estimating between 40 and
2 70 feet.

3 COMMISSIONER NELSON: Thank you. So then using
4 the numbers that Mr. Wilhelm was talking about this
5 morning, we've got two towers, and so we're going to be
6 somewhere between a million and a half and \$2 million for
7 that infrastructure; correct?

8 THE WITNESS: Correct.

9 COMMISSIONER NELSON: And then to find out what
10 I think Commissioner Hanson was trying to get at this
11 morning, how much it costs per turbine, we would simply
12 do the division using the \$2 million figure.

13 Is that accurate?

14 THE WITNESS: That would be an average spreading
15 out the cost. But the individual turbine itself, which
16 consists of the light and down tower cables, you know,
17 you're talking somewhere in the region of about \$3,000.

18 COMMISSIONER NELSON: Understand. Thank you.
19 That clears it up for me. And I guess if Commissioner
20 Hanson has any further questions, he can ask those.

21 So let's look again at A27-2. I started asking
22 some questions about the 100 megawatts that's going to be
23 deferred. And obviously most of those turbines are in
24 the southeast portion. But we've got a couple scattered
25 ones that are going to be deferred.

1 And in particular I'm looking at Turbine 55 and
2 Turbine 34 that are going to be deferred. How did you
3 decide to pick a few random ones that are not directly in
4 the southeast portion?

5 THE WITNESS: So after we optimized the
6 200 megawatt -- after the engineers optimized the
7 200 megawatt array, we had alternates available. And
8 because we wanted to complete the deferred 100 as far as
9 the 100 megawatts, we decided to pick these turbines to
10 use as part of the 100 megawatts.

11 COMMISSIONER NELSON: And so was it reasonable
12 that those are maybe lower producing turbines or turbines
13 that you would expect a lower production from?

14 Is that the reason that you defer those?

15 THE WITNESS: They are turbines that have
16 constructability issues, difficult constructability
17 issues that, you know, we would rather not build them in
18 the 200 megawatts.

19 COMMISSIONER NELSON: Not impossible but more
20 difficult; correct?

21 THE WITNESS: More difficult. Correct.

22 COMMISSIONER NELSON: I think that's all the
23 questions I've got for you.

24 Thank you.

25 THE WITNESS: Thank you.

1 MS. CREMER: Commissioner Fiegen.

2 COMMISSIONER FIEGEN: Because we can't ask Staff
3 to clarify sometimes the testimony, I have to ask you in
4 public, of course.

5 On page 2 of your -- or 3 of your supplementary
6 testimony it talks about when there is low wind speed or
7 when there is calm winds and how much it costs or how
8 much electricity you would consume.

9 And it says 1 percent or 30 megawatt. That
10 doesn't make sense to me. So I'm reading this wrong.

11 THE WITNESS: No. You're --

12 COMMISSIONER FIEGEN: Because 1 percent would be
13 3 megawatt.

14 THE WITNESS: 1 percent of the overall 300
15 megawatt site.

16 COMMISSIONER FIEGEN: So what's the 30
17 megawatts? It would consume approximately -- if I went
18 to the "or," it would say 30 megawatts of its generation
19 capacity.

20 Help me understand that.

21 THE WITNESS: So the 30 megawatts of its
22 generation capacity, considering that you had -- have an
23 NCF of just over 50 percent, that would be the total
24 generating capacity of the site.

25 COMMISSIONER FIEGEN: Okay. So help me

1 understand. Because, of course, you're working with MISO
2 and SPP. And often we see on the coldest day or the
3 hottest day of the year there is no wind.

4 So just how much would you consume in megawatts
5 if you were not generating?

6 Like you would buy power from somebody.

7 THE WITNESS: Right.

8 COMMISSIONER FIEGEN: How much power would you
9 be buying?

10 THE WITNESS: Commissioner Fiegen, let me go to
11 the exact location where this is stated so I can answer
12 your question.

13 COMMISSIONER FIEGEN: Okay. Perfect. I'm sure
14 I'm just reading it wrong, Mr. Thompson.

15 So I just wanted to clarify on September 20 you
16 added testimony. And on page 3 it looks like line 20,
17 21, 22 -- I'm just having -- I'm struggling on
18 understanding how much generation you would buy.

19 Because, of course, the queue is very concerning
20 to a lot of people when we bring on wind to SPP or MISO.
21 How much generation are you using when it's the coldest
22 day of the year or the hottest day of the year and you're
23 not generating power -- this wind facility is not
24 generating power?

25 How much load are you going to take to operate

1 your facility?

2 THE WITNESS: So yes. This is correct. I got
3 to the page, and I saw it. It would be 1 percent. The
4 approximate load demand during no wind condition would be
5 1 percent of the total megawatt nameplate rating of the
6 site.

7 COMMISSIONER FIEGEN: So I am just really
8 struggling with my math today. So 1 percent to me is
9 3 megawatts. And so it causes me alarm when it says
10 30 megawatts.

11 THE WITNESS: It's 3 megawatts. I'm sorry.

12 COMMISSIONER FIEGEN: Okay. So it is 3
13 megawatts. I couldn't figure out if you were doing a --
14 okay. Thank you.

15 I bet you he's going to correct his testimony;
16 right?

17 THE WITNESS: Yes. It's actually 3.

18 COMMISSIONER FIEGEN: You were alarming me
19 because I'm always nervous about the SPP load and when
20 wind doesn't blow and what we're going to do on the grid.
21 So 30 megawatts was making me a little nervous.

22 THE WITNESS: I probably wrote this when it was
23 very cold.

24 COMMISSIONER FIEGEN: Well, SPP is actually --
25 yeah. Their biggest load, of course, is when it's hot.

1 But yes. You were probably up in North Dakota when you
2 wrote this.

3 THE WITNESS: Yes.

4 MS. CREMER: Is that it?

5 Redirect, Crowned Ridge?

6 MR. MURPHY: Just briefly. It's more in the
7 form of clarification.

8 REDIRECT EXAMINATION

9 BY MR. MURPHY:

10 Q. You were having a discussion with Staff over the
11 manufacturer's recommended distance and the county
12 ordinance. Do you recall that?

13 A. Yes.

14 Q. Can you go to the Application to the pages that you
15 were at, which starts on page 74? Let me know when
16 you're there.

17 A. I'm there.

18 Q. Okay. So on page 74 do you see -- it starts on --
19 73 starts at County Ordinance in Codington County, and on
20 74 there is a category called Turbine Spacing?

21 A. Yes.

22 Q. Do you see in that category the 10 percent language
23 that's also in your testimony?

24 A. Yes.

25 Q. And then if you scroll down or page over to 75,

1 which is Grant County?

2 A. Yes.

3 Q. Same turbine spacing on that page. Is that language
4 reflected in your testimony as well?

5 A. Correct.

6 MR. MURPHY: Thank you. That's all I have.

7 MS. CREMER: Thank you.

8 Mr. Swanson.

9 MR. SWANSON: No questions.

10 MS. CREMER: Ms. Christenson.

11 MS. CHRISTENSON: No questions.

12 MS. CREMER: Mr. Robish.

13 MR. ROBISH: No questions.

14 MS. CREMER: Staff.

15 MS. REISS: No, thank you.

16 MS. CREMER: Well, you're done. Thank you for
17 your testimony.

18 THE WITNESS: Thank you.

19 (The witness is excused.)

20 MS. CREMER: You may call your next witness.

21 MR. MURPHY: Thank you. Call Jay Haley.

22 (A short recess is taken.)

23 MS. CREMER: Crowned Ridge, you may call your
24 next witness.

25 MR. MURPHY: Thank you. I call Jay Haley.

1 (The oath is administered by the court reporter.)

2 DIRECT EXAMINATION

3 BY MR. MURPHY:

4 Q. Please state your name, business title, and company
5 for the record.

6 A. My name is Jay Haley. I'm a mechanical engineer and
7 a partner with EAPC Wind Energy in Grand Forks, North
8 Dakota.

9 Q. What is your role with Crowned Ridge Wind II?

10 A. I provided the noise and the shadow flicker studies.

11 Q. Please provide a short overview of your education
12 and experience.

13 A. I have a bachelor's degree in mechanical engineering
14 from the University of North Dakota. I spent five years
15 as the director of engineering for a small aerospace
16 manufacturing firm and then 10 years as a senior design
17 engineer and a research engineer at an energy and
18 environmental research center.

19 I've spent the last 20 years as a mechanical
20 engineer and a partner with EAPC Wind Energy. My
21 experience in the wind industry goes back to 1983 when I
22 developed a wind monitoring system for Northern States
23 Power while I was a student at the University of North
24 Dakota.

25 I have experience in most aspects of wind

1 development, including wind prospecting, wind resource
2 and energy assessment, wind farm design, noise and shadow
3 flicker assessments, photo visualizations, as well as due
4 diligence for financial institutions.

5 My firm is also the North and South American sales
6 and support agents for the software called WindPRO that
7 is -- was used to conduct the analyses for the Crowned
8 Ridge II project. WindPRO is the most widely used
9 software tool in the world for wind farm design.

10 As the agent, I have trained hundreds of engineers
11 and technicians in the proper use of the software in the
12 design of wind farms, including sound and shadow flicker
13 analysis.

14 Q. Did you file Prefiled Direct Testimony on July 9,
15 2019, Exhibit A2, Prefiled Supplemental Testimony and
16 exhibits on September 20, 2019, Exhibit A14, A14-1
17 through A14-4, and Prefiled Rebuttal Testimony and
18 exhibits on January 8, 2020, Exhibits A21, A21-1 through
19 A21-3, as well as Exhibit A28, an update to Exhibit A21-3
20 and an update to Exhibit A29, which was an update to
21 A21-1?

22 A. Yes, I did.

23 Q. Do you have any changes or corrections to that
24 testimony or exhibits?

25 A. No, I do not.

1 Q. Please provide a short overview of your prefiled
2 testimony.

3 A. For the Crowned Ridge project I provided the sound
4 and shadow flicker studies. For the sound study the
5 inputs to the model were the turbine locations and
6 specifications, including noise data, hub heights, and
7 blade type, the terrain elevation data, ground
8 attenuation assumptions, atmospheric attenuation
9 assumptions, occupied structure locations, and land
10 parcel boundaries for the Codington County.

11 The conservative assumptions that were used in
12 modeling the noise and the sound were that, number one,
13 the turbines were always operating at maximum sound
14 emission levels. An additional 2 decibels were added to
15 all of the turbine sound emission data. Receptors are
16 assumed to be downwind of all turbines at all times,
17 which is a physical impossibility. Atmospheric
18 conditions were assumed to be most favorable for sound
19 transmission. Grant County receptors were modeled with a
20 50-foot radius circle around the main receptor.
21 Alternate turbines were -- all alternate turbines were
22 also included in the analysis, with the exception of when
23 we conducted the Hessler analysis.

24 The noise limits applied to this project were, for
25 Codington County, 50 decibels at nonparticipating

1 property boundaries. For Deuel County it was 45 decibels
2 at nonparticipating occupied structures and 50 decibels
3 at participating structures. And for Grant it was,
4 again, 45 decibels at nonparticipating structures and
5 50 decibels at participating structures.

6 In addition, we also applied the Grant County limits
7 to all structures in both Deuel and Codington Counties,
8 which was the 45 decibels at a distance of 25 feet from
9 the perimeter of all structures.

10 The results of our sound studies -- and when I talk
11 about the results I'm talking about the latest study that
12 was submitted, which was a 300 megawatt alternative to
13 Mr. Hessler's proposal. And with those results all of
14 the receptors with all three counties were in compliance.
15 And in addition to that, all of the occupied structures
16 were in compliance with Grant County's ordinance.

17 For shadow flicker, the inputs to the model were
18 turbine locations and specifications, which included the
19 width of the blade, the hub height of the turbines, and
20 the turbine power curves. We also inputted terrain
21 elevation data, wind data, which included the
22 measurement, height, the wind speeds of the wind
23 directions. We input the sunshine probabilities on a
24 monthly basis. And we input the occupied structure
25 locations.

1 The conservative assumptions that were applied to
2 the study were, number one, that the sensors were treated
3 as a greenhouse sensor. That means that the sensor which
4 would be one meter by one meter square in a vertical
5 position is omnidirectional so it's simultaneously
6 looking in all directions at all turbines at all times.
7 There is no facade that doesn't have a window. It's a
8 very conservative receptor assumption.

9 We took no credit for blockage from trees or
10 buildings. We assumed that turbines were available to
11 produce 100 percent of the time. There was never a
12 turbine that wasn't in operation if the wind wasn't
13 blowing. The turbine rotor was always directly facing
14 the sun. And all of the alternate turbines were included
15 in the analyses, with the exception of when we performed
16 the Hessler studies.

17 The realistic assumptions applied to the model were
18 that the flicker does not occur unless the sun is
19 3 degrees above the horizon. I'm sorry. I missed that.
20 The realistic assumptions were that, yes, that the
21 flicker will not occur until the sun is 3 degrees above
22 the horizon.

23 The sunshine probabilities were taken into account.
24 Turbine operational time was taken into account. And the
25 turbine wind directions were taken into account. The

1 shadow flicker limits that we applied were 30 hours per
2 year at all occupied structures for all three counties.

3 And the results of the study were that all receptors
4 were in compliance with the 30-hour per limit, with one
5 exception, which was Receptor No. CR1-C10-P, which is a
6 participant. And we expect that receptor would
7 experience 38 hours and 20 minutes per year.

8 And the contributing turbine in that case is Crowned
9 Ridge II-Alt. 3, which is a turbine in the 100 megawatt
10 portion of the array.

11 That's the conclusion of my comments.

12 MR. MURPHY: I offer Mr. Haley for
13 cross-examination.

14 MS. CREMER: Thank you.

15 Mr. Swanson.

16 CROSS-EXAMINATION

17 BY MR. SWANSON:

18 Q. Mr. Haley, in identifying property owners as either
19 participating or nonparticipating for the purposes of
20 your study, did you rely on information that you would
21 have received from Crowned Ridge for that purpose, or did
22 you make that determination?

23 A. That information was provided to me by Crowned
24 Ridge.

25 Q. Did you -- you also did the sound study for the

1 purposes of the Special Exception Permit in Deuel County,
2 did you not?

3 A. I'm not sure what you mean by Special Exception
4 Permit.

5 Q. Conditional Use Permit?

6 A. Yes. I performed the studies for all three
7 counties.

8 Q. All right. I represent four individuals who are all
9 nonparticipating property owners. And in your study two
10 of those are identified as participating: Greber and
11 Ehlebracht. And if that, in fact, is the case and is
12 erroneous, that information would have been provided to
13 you by Crowned Ridge, I understand?

14 A. Yes, it would. But I'm not aware of that error.

15 Q. Nobody has brought that to your attention?

16 A. No.

17 Q. In your study -- or in your statement, Exhibit A2,
18 you do make mention to ISO 20 -- 9613-2. And I'm sure in
19 your line of work you have been involved in that standard
20 for quite a number of years, have you not?

21 A. Yes, I have.

22 Q. Is there another standard that would specifically
23 apply to wind turbine modeling or forecasting?

24 A. There are others. It depends on what kind of a
25 standard you're talking about. This standard --

1 Q. Okay. For acoustics then. Acoustics.

2 A. Yes, there are. There are a number of them.

3 Q. But you use ISO 9613-2?

4 A. Yes, I do. As do just about everyone else that I
5 know of in the United States.

6 Q. And the scope of that document, you're aware that it
7 specifically states it is intended for ground-based noise
8 sources?

9 A. Yes. I'm aware of that.

10 Q. Yeah. Do you consider a wind turbine to be a
11 ground-based wind source, even though it's relatively
12 high in the sky?

13 A. The industry as a whole in the United States and in
14 other countries has adopted the 9613-2 as a standardized
15 way of performing the noise assessments. It's commonly
16 used throughout the world.

17 It was developed long before wind turbines were
18 around, and it was adapted for wind turbine use by
19 standardizing a number of assumptions that go into that
20 model so that we know that the results that come out are
21 going to be reasonable and reproducible and measurable.

22 Q. Do you make any adjustments to your calculations
23 based on the fact that the noise source is, say, 80 or
24 90 meters in the air?

25 A. We input a number of conservative assumptions that

1 when used in combination with each other have been
2 demonstrated by verification in the field that the
3 results will yield numbers that are going to be
4 consistent with what would be measured when the turbines
5 are in operation.

6 Q. Is there a percentage or anything like that that you
7 can point to as a calculation that you apply?

8 A. I'm not sure what you're referring to.

9 Q. Well, you've added 2 dBA, for example, to maximum
10 sound power in your statement. It indicates you've added
11 that. Do you add anything else or subtract anything in
12 terms of a fractional or whole number dBA based on the
13 fact that it is emanating from a source that is high in
14 the air?

15 A. No. The uncertainty margin that we add is the
16 2 decibels.

17 Q. You talk a little bit in your statement -- and I
18 can't tell you exactly where it is, but you talk about a
19 G factor. And you know what that is, of course. For
20 ground attenuation; is that correct?

21 A. Yes.

22 Q. Can you tell me how that works? You indicate the
23 factor is 0.5.

24 A. Yes. That's the recommended value that we use in
25 combination with the other conservative assumptions.

1 Q. Are there other factors that would typically be used
2 in recording or estimating noise output from a wind
3 turbine?

4 A. Well, the ground factor goes from 0 to 1, where a 0
5 represents hard ground like concrete or pavement or water
6 or sheer glare ice, for example. On the other end of the
7 scale at a 1, that would represent a very soft, porous,
8 sound absorbing type of surface. The .5 is right in the
9 middle.

10 Q. So a 1 would have the ability to absorb sound?

11 A. Yes.

12 Q. And the 0 would be reflective of sound?

13 A. Yes.

14 Q. If you were -- what would snow cover be? What would
15 be the absorption qualities of that?

16 A. Snow is very sound absorbing.

17 Q. So you would give that a what if you were --

18 A. I'm not going to speculate on individual factors
19 because everybody would have a different opinion on that.

20 Q. So you say it might be a 1 if it's snow-covered?

21 A. Could be.

22 Q. And so if it's a factor of 1.0, then it assumes that
23 the sound output from the wind turbine is being lessened
24 by the time it reaches a dwelling or an occupied
25 property.

1 A. Yes.

2 Q. More so than if it was a factor of 0, for example?

3 A. That's correct. Yes.

4 Q. If you were to apply the same test then -- let's say
5 a hypothetical target is 45 dBA at a structure and you're
6 using a factor of 0 versus a factor of 1.0.

7 What's the difference at that destination of the
8 target on a dBA basis?

9 A. Well, if you use a 0, then clearly there would be
10 less attenuation, and the noise predicted at the
11 receptors would be higher.

12 Q. All right. And if you used a .10, what would it be?

13 A. A little bit less.

14 Q. Could it affect it by 2 or 3 dBA?

15 A. I don't know.

16 Q. Well, for mixed ground cover to be effective it
17 assumes that there is a -- I'm not in your line of work,
18 but it assumes that there is a -- from the source to the
19 receptor that there is some sort of a glancing or
20 bouncing effect for the sound; is that correct?

21 A. A .5? Is that what we're talking about?

22 Q. In that case, yes?

23 A. So a .5, it's halfway between a hard surface and a
24 fully absorbing surface so we could assume that there
25 would be some reflection and some absorption.

1 Q. What about sound transmitted directly from an 80 or
2 90 meter hub height to a residence that doesn't have
3 trees or anything of that sort blocking it?

4 That transmission of sound would not be affected by
5 ground attenuation, would it?

6 A. What you're talking about would be what I would call
7 a physics-based model, as opposed to an empirical model.
8 9613-2 is more an empirical model, which means that
9 you're not modeling the exact physics and the equations
10 that represent that physics.

11 You're coming up with factors and then empirically
12 verifying that those factors get you the right answer by
13 measurement. So you learn over time that if you put in a
14 .5 with these other factors, you get the right answer.
15 You can't explain it exactly with physics, which is what
16 you're asking me to do, with this turbine that height
17 directly pointing at a receptor. That's not how that
18 model works.

19 Q. So it's a fudge factor that's involved in your work?

20 MR. MURPHY: Objection to fudge factor. It's
21 not in evidence, and it's not what the witness said.

22 MR. SWANSON: I'm asking him to characterize
23 what it is. I think it's a fair statement. If he says
24 it's not that at all and he's got another explanation,
25 that's fine.

1 MR. MURPHY: Then I'll make an objection that
2 it's argumentative because he's inferring it's a fudge
3 factor.

4 MS. CREMER: It is argumentative, and I believe
5 you can ask it in another manner.

6 Q. Somewhere I've come along -- or come across a term,
7 which I think -- and I can't locate it right offhand, but
8 I think it is called extra attenuation.

9 Is there such a term?

10 A. I don't know.

11 Q. You're not familiar with that?

12 A. No, I'm not.

13 Q. Is there a type of attenuation which actually would
14 be magnifying in character, whether it's based on
15 atmosphere or moisture conditions or anything else?

16 A. I don't know. I would say that there could be some
17 reflection of sound. There can be absorption of sound.
18 I'm not aware of any amplification of sound.

19 MR. SWANSON: Thank you. That's all I have.

20 MS. CREMER: Thank you.

21 Ms. Christenson.

22 CROSS-EXAMINATION

23 BY MS. CHRISTENSON:

24 Q. Hi, Mr. Haley.

25 A. Hello.

1 Q. In Exhibit A1, your Direct Testimony on page 1,
2 line 6, you describe yourself as a wind engineer. Could
3 you tell me what that entails, if there is any
4 educational requirement to being a wind engineer?

5 A. No. A wind engineer is a term that's been adopted
6 by a number of us that work in the wind industry. I'm a
7 mechanical engineer by education. Because I've been
8 working in the design of wind farms over the last 20 to
9 30 years, when I tell people that I'm a mechanical
10 engineer they tend to get confused. When I tell them I'm
11 a wind engineer they say, oh, okay.

12 Q. So there's no extra formal education that you've
13 taken to be a wind engineer outside of being a mechanical
14 engineer; is that correct?

15 A. That's correct. Other than self-study and
16 experience.

17 Q. Okay. In line 9 you say your responsibilities were
18 to conduct sound and shadow flicker studies for Crowned
19 Ridge Wind II. By conducting studies do you mean that
20 you went into the field to the project area to perform
21 scientific tests or something similar?

22 A. No. I did not perform any field work. That was
23 done by others, and then their information was provided
24 to me by Crowned Ridge II.

25 Q. Did you visit the project area at all?

1 A. I've been around this -- the area in Watertown many
2 times.

3 Q. Okay. Just for like meetings and things but not
4 really going out into the field to look at any --

5 A. No. I've been in the wind farm area.

6 Q. Okay. So is it fair to say that you input data
7 given to you into a software program? There's no field
8 work. And so it's basically data input that produce your
9 studies or your modeling?

10 A. Yes.

11 Q. Okay. So to confirm, you did no preconstruction
12 ambient noise, no lay of the land, nothing like that,
13 that would make a difference on anything that you would
14 input into your computer?

15 A. I'm not sure what your question is.

16 Q. Me either.

17 No preconstruction ambient noise study was conducted
18 by you or anyone else that you're aware of?

19 A. That's correct.

20 Q. Thanks. When I left that last half off, it worked.

21 Okay. On line 15 you mentioned you've performed ice
22 throw studies, and you said that in your opening
23 statement. Did you perform any ice throw studies for
24 this project?

25 A. No, I did not.

1 Q. Did Crowned Ridge Wind II ask you or anyone that you
2 are aware of for any ice throw study to be done for this
3 project?

4 A. They did not ask me, and I do not know if they
5 contacted anyone else.

6 Q. Thank you.

7 Did Crowned Ridge Wind II approach you about
8 assessing infrasound or low frequency noise for this
9 project?

10 A. No. They did not ask for a specific study on low
11 frequency or infrasound noise.

12 Q. Is your program, WindPRO, is that capable of such a
13 study?

14 A. The program takes into account low frequency noise
15 but not infrasound.

16 Q. When you say it "takes into account," can you
17 explain that to me?

18 A. The noise data that we get from the manufacturers
19 that describe the noise profiles include sound emission
20 data in the low frequency octave range.

21 Q. Okay. Thank you.

22 On line 18 you say you are also the North and South
23 American sales and support representative for WindPRO,
24 the software you used for modeling this project.

25 In that capacity you state you've trained hundreds

1 of people on that program. In the manual for the
2 software that you represent and train people on, what
3 attenuation is recommended to be used for modeling?

4 A. I don't believe that there is a recommendation in
5 the manual on how to use the software. I don't recall
6 seeing that. I don't believe that they would put a
7 recommendation in there for that. They maybe would give
8 some general guidance, but I'm not aware of that.

9 This software is used all over the world and
10 conditions are different everywhere, so I can't imagine
11 they would put some single recommended value in there.

12 Q. A guide, perhaps, in there? Like you gave us just
13 an example of 0 to 1. Would that be listed in your
14 software?

15 A. I honestly don't know. It's been a long time since
16 I looked at the manual.

17 Q. Okay. On page 3, line 22 you state, "The dBA at the
18 base of a turbine is 55 to 60." Now in my head, in my
19 mind, the noisemaker on a turbine is nearly 300 feet in
20 the air, 295 feet in this project.

21 Noise doesn't drop like with gravity. Am I correct?

22 A. Just with distance.

23 Q. So more of a pie shape or an angular?

24 A. Spherical. It propagates outward in a spherical
25 manner in all directions.

1 Q. So noise is much louder downwind away from the base.
2 Would that be a correct statement?

3 A. Typically, yes.

4 Q. Lines 20 to 22 on page 4 you say, "The sound power
5 levels represent the highest operational sound
6 emissions."

7 By that do you mean normal operational emissions?

8 A. We get -- like I mentioned earlier, we get a sound
9 profile from the manufacturer that lists the sound
10 emission levels at different wind speeds, and the higher
11 the wind speed, the higher the noise level.

12 We picked the highest level out of that chart, and
13 then we assume that that's the level the turbine is
14 emitting all the time, regardless of wind speed.

15 Q. But, again, that would be normal, not an abnormal
16 operation such as a runaway turbine or a grinding gear
17 or --

18 A. Yes. That would be correct. No. It's under normal
19 operation.

20 Q. Do they give you any specifications for abnormal
21 operations that you have reference to? Perhaps, like I
22 say, a grinding gear?

23 Is there any instance in the information you receive
24 that is higher than normal sound --

25 A. No.

1 Q. -- factor?

2 A. We don't get information of that nature from the
3 manufacturer. And I've never been asked to model an
4 abnormal operational situation.

5 Q. Okay. On page 5, starting at line 16, you quote the
6 Grant County Ordinance, 2016-01C.

7 Are you aware of the ordinance requirements that
8 were in effect on December 17, 2018, when the Conditional
9 Use Permit was approved?

10 A. I know of the changes that were taking place. I
11 don't recall off the top of my head what those changes
12 were or the dates that they occurred.

13 Q. So in the ordinance that was in effect at the time
14 the Conditional Use Permit was approved the noise
15 requirement would include all accessory structures.

16 Did you include all accessory structures in your
17 modeling?

18 A. I did. Not in the current results, but at the time
19 I did. It was a lot of work.

20 Q. I believe you.

21 A. Yes.

22 Q. And so why are those not included at this time since
23 that ordinance is the governing ordinance of that
24 Conditional Use Permit?

25 A. Accessory structures are not a part of the

1 requirement in the new ordinance.

2 Q. Correct. But it was passed under the old ordinance.
3 So who directed you to drop the accessory structures?

4 A. I don't recall, but the -- I can tell you that
5 when -- at the time that the accessory structures were a
6 part of the ordinance we calculated -- we went out and
7 surveyed all of the accessory structures, and I
8 calculated all of them and produced reports with those
9 results.

10 When the ordinance got changed, I then took all the
11 accessory structures back out.

12 Q. Page 7, lines 12 and 13, you indicate your software
13 "calculates shadow flicker every minute of every day for
14 a receptor for an entire year"; is that correct?

15 A. Yes.

16 Q. I notice on your studies that flicker is presented
17 annually. Have you run reports for Crowned Ridge Wind
18 that have not been presented here depicting how many
19 minutes a receptor receives per day?

20 A. No, I have not.

21 Q. Are there any receptors who receive more than
22 30 minutes per day?

23 A. Yes.

24 Q. How many?

25 A. I don't know. I looked it up in the lunch break

1 today for the receptors that are over the 30-hour limit
2 that are going to be curtailed based on your question
3 from this morning.

4 Q. Could I ask for that report to be available to --

5 A. There is no report. It's one receptor. I looked up
6 the value. It's 55 hours per year, and it's receptor
7 CR1-C10-P, as I referenced earlier in my testimony
8 today.

9 Q. I also notice when you talk about flicker you
10 reference sunshine. Most of the homes in this project
11 are in the rural areas in wide open spaces.

12 Is moon flicker considered in your model?

13 A. No.

14 Q. Dakota Range turbines have not been included in any
15 of your sound studies for this project; is that correct?

16 A. That's incorrect. They have been included.

17 Q. In the recent ones or --

18 A. All of them. Well, all but the very earliest
19 studies, which is going back to 2017.

20 Q. Oh, I have a note in here. I see in your
21 Supplemental Testimony my flicker is reduced by two
22 minutes again, and I want to thank you for that.

23 A. It wasn't me.

24 Q. Okay. Here's my biggy. We're going to spend some
25 time on this probably.

1 In the Grant County Conditional Use Permit Letter of
2 Assurance, which is Exhibit A1-K, you might want to --

3 A. Is that the Application?

4 Q. A1-K. It would be the Appendix K of the
5 Application, I would say. Maybe you don't need to turn
6 that but --

7 A. Way in the back. You're making me work for this
8 one.

9 Q. Well, and you probably don't even need it.

10 A. I better need it. Okay. I'm in the A1-K.

11 Q. Okay. It says on page 11, item 3 --

12 A. No page numbers.

13 Q. Oh, sorry. It's subset 3 -- or subset B. I'll just
14 read it to you. Yeah. You're kind of right in there.
15 It's in the Letter of Assurance for Grant County.

16 A. Okay. I found that.

17 Q. Okay. Item 3, subset B. "Applicant agrees" -- oh,
18 sorry.

19 A. There is no B. It's like printed -- it's not
20 printed on the page.

21 Q. You might be looking -- oh, really?

22 A. It's like off the bottom of the page, and then I go
23 to 4.

24 Q. Printer error. Well, I'm just going to read it for
25 everyone, if that's all right.

1 "Applicant agrees that the construction and
2 operation of all WES towers will ply with noise and
3 shadow flicker thresholds exhibited in the Application's
4 Noise and Shadow Flicker Analysis." In the studies
5 presented in this docket there are four receptors listed
6 for Grant County.

7 In Exhibit AC-19, which is probably in your folder
8 on the corner there. My late-filed exhibit.

9 A. You said AC-19?

10 Q. Yes. I think it's AC-19. I better look and see.

11 A. All right.

12 Q. That's the Grant County --

13 A. Yep.

14 Q. -- sound and flicker report?

15 A. Yep.

16 Q. If you go to page 17 and the following four pages,
17 so a total of five pages, you'll see those are all
18 receptors for Grant County. And I counted 181 receptors
19 in Grant County for that permit.

20 A. Uh-huh. Yes.

21 Q. And, like I say, the sound and flicker -- or the
22 sound study submitted to this docket has four.

23 A. Yes.

24 Q. So how could you possibly be able to know if you're
25 in compliance with the Conditional Use Permit if you're

1 missing 179 receptors for study?

2 A. Remember those accessory structures we were talking
3 about?

4 Q. That are part of the ordinance that are governing
5 the --

6 A. Those are the ones that --

7 Q. I don't think there's only four people living in
8 Grant County.

9 A. In the Crowned Ridge II footprint there are.

10 Q. Actually now that you've closed that up, if you go
11 back to page 22, the map -- I think that's AC-19.

12 A. Okay.

13 Q. You'll see those three turbines down on the bottom.
14 And that's the sound profile, the lines there. You'll
15 see how that sound emanates up into Grant County beyond
16 four receptors.

17 A. This is a report from 2018.

18 Q. Yes. This is your Conditional Use Permit that you
19 have to abide by showing -- showing how the sound profile
20 travels out into the county. But there's no receptors in
21 your PUC sound study showing that.

22 A. This report is from 2018, and the layout and the
23 ordinance are completely different today than they were
24 when this report was generated.

25 Q. But the governing ordinance for that Conditional Use

1 Permit and the Letter of Assurance that's been submitted
2 to this docket say that you have to abide by these shadow
3 and sound studies that you submitted to Grant County.

4 You understand?

5 A. I think I do. But that would not be a question that
6 should be directed to me. I provided the shadow and
7 sound studies. I did not provide that Letter of
8 Assurance.

9 Q. Right. Okay. But you agree there's four receptors
10 in the Grant County -- in Grant County, what you
11 submitted to the PUC for your sound study. Yes?

12 A. The current reports, yes, they had there's four.

13 Q. Okay. So who would be the person to confirm that
14 the sound profiles are in alignment with the Grant County
15 CUP if you would not be that person? Who would do that?
16 Who would I ask? And maybe Mr. Murphy would tell me.

17 No. Sorry. You were napping, weren't you?

18 MR. MURPHY: I think we've already been through
19 this with Mr. Wilhelm so I'm not seeing why we need to
20 rehash it.

21 So we have an objection to recalling a witness.
22 That's already been asked and answered several times
23 about this ordinance and when it was in place, the Letter
24 of Assurance.

25 MS. CHRISTENSON: We didn't discuss the Letter

1 of Assurance earlier, I don't believe.

2 MR. MURPHY: Then I would have to understand
3 what the question is around the Letter of Assurance.

4 MS. CREMER: Is it insurance or assurance? What
5 are we saying?

6 MR. MURPHY: Assurance.

7 MS. CREMER: All right. Ms. Christenson, what
8 is the relevancy of the ordinance to our permitting
9 procedure?

10 MS. CHRISTENSON: They're following the wrong
11 ordinance. They submitted the wrong ordinance to the
12 docket.

13 MS. CREMER: And would that not be an issue in
14 front of the county?

15 MS. CHRISTENSON: No. The county has an
16 ordinance. The county issued a CUP. The county issued a
17 Letter of Assurance. The Applicant submitted the wrong
18 application and is using -- or the wrong ordinance and is
19 using the wrong ordinance to define the sound and shadow
20 flicker -- or, well, probably just the sound.

21 MS. CREMER: So this sounds like a legal
22 argument that will be covered in your brief. Unless the
23 Commission wants to hear more about what I am hearing is
24 county ordinance issues, I would sustain the objection.
25 But I'm willing to listen.

1 CHAIRMAN HANSON: I would just iterate that the
2 first rule that we have is obey all rules and all laws
3 that we promote from the standpoint of our regulations.
4 And if you submit in your closing arguments and show
5 that, then that is something that we have to look at and
6 determine whether or not they are following all rules and
7 regulations, regardless of whether it's a county or --

8 It's all laws and all rules. And so we would
9 just simply look at that and state they have to follow
10 the permits exactly as they are provided.

11 Does that solve what you're --

12 MS. CHRISTENSON: I think so. Except we don't
13 have a study to really go by for the permitting process
14 then, would be my argument. But we can move on from
15 there. But there's no accurate sound study.

16 CHAIRMAN HANSON: Additionally, they have the
17 burden of proof. So if they have not accomplished that,
18 then they need to accomplish it.

19 MS. CHRISTENSON: Okay.

20 Q. Moving on, in Exhibit A1-I, which is Appendix I, the
21 sound study submitted with the Application for Crowned
22 Ridge II, page 1 continuing to the top of page 2 you
23 assert, "Also the sound pressure level was calculated at
24 a distance of 50 feet from the perimeter of structures
25 instead of 25 feet. This is also a conservative

1 assumption because the sound pressure levels will be
2 higher at 50 feet than at 25 feet."

3 Did you take sound pressure levels at 25 feet and
4 compare them to 50 feet, or how do you come to that
5 statement?

6 A. Yes. I did do those comparisons. So what I do is I
7 generate a series of 12 additional receptors in a circle
8 with a radius of 50 feet around the receptor location
9 that was provided to me by the client. And then I do the
10 sound simulations and take the highest level reading from
11 those 12 receptors.

12 So in most cases it's going to actually be a little
13 bit more conservative even than what it would be at 25.
14 And in other cases it will be what it would be at 25.

15 Q. I have a question about that. So the receptor is
16 typically the home. That's a principal structure?

17 A. Yes.

18 Q. If there are -- which most of these places have
19 other buildings on their property. Does it reverberate
20 from building to house? Would that show in your model?

21 A. No. The model does not take into account any sort
22 of an obstruction or blockage or reflection from any sort
23 of buildings or trees.

24 Q. Okay. Thank you.

25 A. It doesn't know the house is there. So it wouldn't

1 matter if it was on the west wall or the east wall. It
2 wouldn't see that. That wall wouldn't come into play.

3 Q. How many projects have you modeled for NextEra?

4 A. I don't know the exact number, but I'm going to
5 guess and say less than 10.

6 Q. Over the course of about how many years? Do you
7 have an idea?

8 A. Going back to 2003.

9 Q. Have you ever had any complaints about the sound or
10 flicker and that differing from the model you provided?

11 A. No. None.

12 Q. So you have not been told of any complaints or
13 discrepancies in regard to the Crowned Ridge I project?

14 A. No, I have not.

15 MS. CHRISTENSON: That's all my questions.
16 Thank you.

17 MS. CREMER: Mr. Robish.

18 MR. ROBISH: I have none.

19 MS. CREMER: Thank you.

20 Staff.

21 MS. EDWARDS: Thank you.

22 CROSS-EXAMINATION

23 BY MS. EDWARDS:

24 Q. First of all, is there a difference between noise
25 and sound, or are those two words used interchangeably

1 when we're talking?

2 A. They get used interchangeably, but noise has more of
3 a negative connotation to it. It's considered to be
4 sounds that you don't want to hear, where a sound could
5 be music or -- so that's more or less the difference.

6 Q. Okay. But, in effect, there's no difference? I'm
7 not screwing anything up if I use one over the other?

8 A. I use them both.

9 Q. Okay. Thank you.

10 As a preliminary matter, I want to go back to
11 something you've said -- you've testified before this
12 Commission before; correct?

13 A. Yes.

14 Q. Do you recall testimony where you talked about how
15 far sound could travel?

16 A. Boy, do I ever.

17 Q. And previously you've testified it can travel
18 25 miles; is that correct?

19 A. No. It's not correct. It was a misstatement or a
20 lack of clarification on my part when it came up. It
21 came up in the context of the change in noise levels at
22 one of the Intervenor's homes. And it looked odd because
23 it should have probably been a reduction, but it turned
24 out to be an increase.

25 I had prepared that table at 10 o'clock at night the

1 evening before and noticed the discrepancy but did not
2 have enough time to really figure out what the
3 explanation was or, you know, what was going on.

4 So, sure enough, sharp eyes caught it and brought it
5 up the next day. And the only thing that I had had time
6 to figure out at that point was -- the first thing I do
7 is say, okay. What's the difference between this model
8 and that model? And the only difference that I had come
9 up with at that point was that in the earlier version I
10 had not included the Dakota Range turbines at that time.
11 So I made that statement to Commissioner Nelson.

12 At the time I made that statement I really had no
13 spacial idea of where Dakota Range was relative to the
14 receptor we were talking about. And I should have
15 stepped in and said, no, it's not 25 miles because it's
16 more like 3 miles.

17 You know, even with your own noise expert, he has
18 noted that with Deuel Harvest there would be no need to
19 include that project in this noise study because there's
20 no acoustical interaction because it's five miles away.

21 Q. Okay. And so when I was looking at your testimony
22 in the Application that was sort of in the back of my
23 mind. So you're saying take that 25 miles out of my
24 mind; it's not accurate?

25 A. Please.

1 Q. I might try.

2 Have any of your models been verified based on
3 actual measurements after a project came into operation?

4 A. None that I'm aware of. It's not to say that there
5 haven't been some, but if there were, I'm not aware of
6 it. Because my role with the developers, I come in, I
7 provide my information, and that's maybe the last time I
8 hear from them on that project.

9 I don't get any feedback two years down the road
10 when something happens, unless there's a problem. And,
11 like I mentioned earlier, I've never heard an issue with
12 any of the work I've done so far.

13 Q. And I just had Amanda hand you a copy of what's been
14 marked for illustrative purposes as Staff Exhibit 7.
15 It's not been admitted into the record at this time.

16 Are you familiar with any sound conditions that the
17 company may have agreed to?

18 A. Yeah. I read through the -- the noise protocol
19 that's being discussed. Is that what you're referring
20 to?

21 Q. Yes.

22 A. Yeah. I read through that yesterday morning maybe.

23 Q. Okay. And would that condition serve as a check on
24 your models in practice?

25 A. Yes, it would.

1 Q. Thank you.

2 Within the last couple days it's come to my
3 attention that my understanding of shadow flicker might
4 not have been completely accurate. Can you explain to me
5 exactly what shadow flicker is?

6 A. Sure. Shadow flicker occurs -- first of all, it's
7 the changing light intensity within a closed space like a
8 room in a house.

9 So what happens is the shadow from the blade passes
10 over the window of the room, causing the light levels in
11 the room to fluctuate, like your son or your daughters
12 playing with the light switch and it can be annoying.

13 Q. So could there be -- if I can describe this, could
14 there be a change in, say, a shadow on the wall that's
15 not shadow flicker?

16 A. Yes.

17 Q. And so you could have, in theory, a house modeled at
18 0 hours of shadow flicker, but they could note some
19 visible change at some point?

20 A. Yes. The way the model works is it -- when it's
21 doing its calculation it -- based on the width of the
22 blade, it makes a preliminary calculation to decide at
23 which distance from the wind turbine there will be no
24 more appreciable shadow flicker.

25 That's not to say that physically if you line the

1 sun and the turbine and the window up, that's not to say
2 that they may still be in alignment for some distance
3 beyond that. But at a particular distance, the shadow
4 becomes so diffused that it's really no longer capable of
5 causing flicker.

6 So in this particular case that distance based on
7 the width of these blades is about 1,700 meters. And we
8 do have receptors that are out to 2,000 meters. So the
9 receptors that are beyond that 1,700 meters could, for a
10 few hours a year, have that alignment where it
11 potentially could be shadow flicker, but because it's so
12 far away, that flicker is weakened, diffused to the point
13 where it can't be considered shadow flicker.

14 Q. Okay. I don't think I understand that enough to ask
15 more questions. So I'll have to move on.

16 And also turning to the proposed conditions in S7,
17 are you familiar with a condition for shadow flicker?

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

19 Q. Okay. Then I won't ask you about it. And I --

20 MS. EDWARDS: One second.

21 Q. Is the one nonparticipating receptor Ms. Christenson
22 asked -- well, were you in the room for Mr. Hart's
23 testimony?

24 A. Yes, I was.

25 Q. And I believe Ms. Christenson asked him about one

1 shadow flicker that was -- or receptor that was
2 identified as CR2-98-NP. Are you generally familiar with
3 that?

4 A. Yeah. On a lunch break I went and looked up the
5 number she was looking for.

6 Q. Do you happen to know if the owner at that residence
7 at that receptor location also owns property that is
8 signed up as a participant?

9 A. I do not know that.

10 Q. Do you have any additional details on that receptor?

11 A. Which one? The one that we've --

12 Q. That CR2-C98-NP?

13 A. Right.

14 Q. And you said you looked into it a little more?

15 A. Yeah. That one would have a maximum of 40 minutes
16 per day. And it would occur sometime during the month of
17 December.

18 MS. EDWARDS: Thank you. No further questions.

19 CHAIRMAN HANSON: We had determined ahead of
20 time that 5:30 is our drop dead date -- time.

21 We will begin tomorrow at 8:30 and start where
22 we left off.

23 (The hearing is in recess at 5:23 p.m.)

24

25

1 STATE OF SOUTH DAKOTA)

2 :SS

CERTIFICATE

3 COUNTY OF SULLY)

4

5 I, CHERI MCCOMSEY WITTLER, a Registered
6 Professional Reporter, Certified Realtime Reporter and
7 Notary Public in and for the State of South Dakota:

8 DO HEREBY CERTIFY that as the duly-appointed
9 shorthand reporter, I took in shorthand the proceedings
10 had in the above-entitled matter on the 4th day of
11 February, 2020, and that the attached is a true and
12 correct transcription of the proceedings so taken.

13 Dated at Onida, South Dakota this 25th day of
14 February, 2020.

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/s/ Cheri McComsey Wittler
Cheri McComsey Wittler,
Notary Public and
Registered Professional Reporter
Certified Realtime Reporter

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