

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

COLES COUNTY

PLANNING & DEVELOPMENT COMMITTEE

ITEMS FOR DISCUSSION AND POSSIBLE ACTION:

COLES WIND, LLC

TRANSCRIPT OF PROCEEDINGS

April 14, 2025

6:30 p.m.

PLANNING AND DEVELOPMENT COMMITTEE PRESENT:

Mike Watts, Chairman
Darrell Cox
Tad Freezeland

Also Present:

Kelly Lockhart, Regional Planning
Samantha McCullough, Regional Planning

Court Reporter:
Jamie S. Atkinson
License No. 084-004156
Atkinson Reporting, LLC
(217) 806-6297
jamieatkinson5@gmail.com

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1
2 APPEARANCES:

3
4 FOR THE APPLICANT:

5 Ms. Amy Antonioli
6 ArentFox Schiff LLP
7 233 S. Wacker Drive, Suite 7100
8 Chicago, IL 60606
9 amy.antonioli@afslaw.com

10 Ms. Sarah L. Lode
11 ArentFox Schiff LLP
12 233 S. Wacker Drive, Suite 7100
13 Chicago, IL 60606
14 sara.lode@afslaw.com

15 Mr. Jerald Hess
16 Associate General Counsel for Apex
17 Apex Plaza
18 120 Garrett Street
19 Charlottesville, VA, IL 22902
20 jerald.hess@apexcleanenergycom

21 FOR COLES COUNTY:

22 Mr. Andrew Keyt
23 Ms. Alex Rives
24 Mr. Frank Ierulli
Heyl, Royster, Voelker & Allen P.C.
300 Hamilton Blvd.
Peoria, IL 61601
akeyt@heyloyroyster.com

HEARING FACILITATOR:

Scott Kains, Springfield, IL

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

I N D E X

ANDREW LINES

EXAMINATION CONDUCTED BY:	PAGE
By: Ms. Antoniulli	6
By: Mr. Keyt	85
By: Ms. Antoniulli	20

JACOB RUNNER

By: Ms. Lode	89
By: Mr. Keyt	138

1 (In public session.)

2 MR. WATTS: Okay. We're going to
3 continue this meeting of the Coles County Planning &
4 Development Committee to take up the license
5 application from Coles Wind for the project in Coles
6 County. So if you'll all rise and join me for the
7 pledge of allegiance.

8 (Whereupon, the pledge of allegiance was held.)

9 MR. WATTS: Thank you. Take the roll
10 call.

11 Clayton.

12 (No response.)

13 MR. WATTS: Cox.

14 MR. COX: Here.

15 MR. WATTS: Doty.

16 (No response.)

17 MR. WATTS: Freezeland.

18 MR. FREEZELAND: Here.

19 MR. WATTS: And I'm Michael Watts,
20 Chairman presiding. And I will now turn the meeting
21 over to Mr. Scott Kains.

22 MR. KAINS: All right. Thank you,
23 Chairman, and good evening, folks. Welcome to night
24 four of the public hearing on the wind energy

1 application submitted by Coles Wind. We are in the
2 processes of hearing testimony and evidence from the
3 Applicant. And I -- as I've said before, there will
4 be ample opportunity for folks to testify when it's
5 their turn. We're in testimony from the Applicant
6 now, and then after that is all done, and they have a
7 number of witnesses, it will probably take most of
8 this week. After that then there will be testimony
9 from the public. First from folks who are in support
10 of the application, then from folks who are opposed
11 and then from folks who are neutral on the
12 application.

13 All right. With that said, I see, counsel,
14 you already have a witness on the stand. But prior to
15 having your witness testify, do you have any
16 preliminary matters, Ms. Antonioli?

17 MS. ANTONIOLLI: No. No preliminary
18 matters.

19 MR. KAINS: Okay. Very good. Mr. Keyt
20 and Ms. Rives on behalf of Coles County?

21 MR. KEYT: No, sir.

22 MR. KAINS: Okay. Very good. All
23 right. I assume you're called this gentleman?

24 MS. ANTONIOLLI: Yes.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

MR. KAINS: All right.

A N D R E W L I N E S,

was called as a witness on behalf of the Applicant
and, having been first duly sworn, testified as
follows:

MR. KAINS: Very good. Thank you. Go
ahead Ms. Antoniolli.

MS. ANTONIOLLI: Thank you.

DIRECT EXAMINATION,

QUESTIONS BY MS. AMY ANTONIOLLI:

Q. Mr. Lines, can you please state your
full name for the record?

A. Andrew Lines, L-I-N-E-S.

Q. Thank you. And can you just please tell
us a little bit about your experience and background
and we'll pull up the first slide from your first
slide.

A. Sure. Again, Andrew Lines. I'm a
partner with CohnReznick which is a national
accounting firm, and I help lead our real estate
valuation department which is about 30 professional
strong. We cover valuation of real estate from a
small house, all the way to the Sears Tower, and we do
it across the country. I have been a certified

1 general real estate appraiser here in my state of
2 Illinois since 2007, and I've been in the real estate
3 industry for about 22 years. I am also an MAI which
4 means I'm a member -- a full member with the Appraisal
5 Institute. It's the highest designation that you
6 could receive for doing real estate valuation that's
7 internationally recognized. I'm also a councilor of
8 real estate which is an invitation only association
9 internationally; brokers, attorneys and other people
10 involved in the real estate industry. So I was very
11 grateful to be asked to join that association. I'm a
12 member of the Institute of Real Estate Management,
13 it's called IREM. And I'm also a member of the
14 National Council of Housing Market Analysts referred
15 to some people as NCHMA. And I'm -- also hold a
16 Certified General Real Estate Appraiser license in
17 several other states, I've got a list there. And one
18 of the things that I've done as a specialty over the
19 last 20 years is prepare impact studies on various
20 kinds of properties that people might be worried about
21 having an impact on adjacent home values.

22 Q. Okay. You mentioned preparing impact
23 studies. Have you prepared impact studies for wind
24 farms in Illinois?

1 A. Yes, I have.

2 Q. And about how many times have you
3 testified in so many hearings like this one?

4 A. For wind farms about six times.

5 Q. Okay.

6 MS. ANTONIOLLI: I'd like to introduce
7 Mr. Lines as an expert on the issue of property of
8 values.

9 MR. KAINS: Yes. Mr. Keyt, any voir
10 dire?

11 MR. KEYT: Nothing for me.

12 MR. KAINS: Okay. I find that Mr. Lines
13 is qualified to serve as an expert witness in this
14 hearing. His expertise limited, however, to property
15 valuation and studies in which properties at various
16 other wind projects have been valued and associated
17 matters such as that. And so he is an expert witness
18 and he will then -- I'm sure you'll have him for less
19 than an hour, but he is as an expert witness afforded
20 the opportunity to testify for as long as you need to
21 have him testify on direct, but I assume it's going to
22 be less than an hour.

23 MS. ANTONIOLLI: Thank you.

24 MR. KAINS: Thank you.

1 MS. ANTONIOLLI: Before we let him talk
2 about the slides that he's prepared for tonight I
3 would like to address a couple issues that came up
4 earlier in hearing.

5 So, Mr. Kains, may I approach the witness
6 with the application?

7 MR. KAINS: Yes, you may.

8 MS. ANTONIOLLI: Okay. Thank you.

9 **QUESTIONS BY MS. ANTONIOLLI:**

10 Q. And what I'm presenting the witness is
11 Appendix E-3. It's a report called Real Estate
12 Adjacent Property Value Impact Consulting Report.

13 Do you recognize this report?

14 A. I do.

15 Q. And is this a report that you prepared
16 or oversaw the preparation of?

17 A. I did.

18 Q. Okay.

19 MR. KAINS: Folks, this is Appendix E-3
20 in case you're following along.

21 MS. ANTONIOLLI: Yes.

22 **QUESTIONS BY MS. ANTONIOLLI:**

23 Q. So do you have a copy of the report in
24 front you?

1 A. I do.

2 Q. Okay. If we go to page 9 of your report
3 there is a description of the project property
4 boundary. Are you able to go to page 9?

5 A. Okay. I'm at page 9.

6 Q. Okay. It says the Coles Wind Project is
7 to be located on land bounded by County Road 1900
8 North to the west and Interstate 55 to the east. It's
9 a sentence that starts that way. Could you please
10 correct for the record the boundaries for this
11 project.

12 A. Absolutely. I'm sorry about that. I do
13 note that it's I57 in other places in the report. But
14 the project area is bounded by North County Road 1200
15 East to the west, County Road 2 to the east, and it's
16 in between East County Road 1900 North to the north,
17 and East County Road 1200 North to the south.

18 Q. Thank you.

19 A. No worries. With I57 obviously being
20 west of the boundaries.

21 Q. Okay.

22 MS. ANTONIOLLI: We just want to note
23 that correction for the record.

24 MR. KAINS: We'll note for the record

1 that it has been corrected. We all know Interstate 57
2 is the one that runs through Coles County. Interstate
3 55 goes -- well, right past my house about an hour and
4 45 minutes from here.

5 Go ahead, Ms. Antoniolli.

6 MS. ANTONIOLLI: Okay.

7 **QUESTIONS BY MS. ANTONIOLLI:**

8 Q. And then, Mr. Lines, did you prepare
9 some slides for tonight?

10 A. I did.

11 Q. And can you please walk us through those
12 slides.

13 A. Absolutely. If we can go to the
14 methodology slide. So I'll cover what's in the
15 reports themselves. The reports are large. One is a
16 general report which kind of has most of the meat and
17 potatoes. It describes some academic studies that we
18 reviewed. It describes studies that we've done
19 ourselves. It describes some interviews that we've
20 had with market participants, including County
21 Assessors who witness sales, transactions in and
22 around wind farms all the time. And then we have a
23 second report, it's an addendum called Site Specific
24 Report where I've gone and analyzed the project area

1 itself, looked at real estate demographics, trends in
2 the area and tried to identify some of the
3 similarities the project area may have with other wind
4 projects to see whether or not it's been designed in
5 the manner that would minimize any kind of impact that
6 the wind turbines might have.

7 So part of the methodology in doing this work
8 is, you know, first I want to know, well, what did
9 other people say about wind turbines and their impacts
10 on adjacent home values. So in the report, and I'll
11 go over a few of them here, but we've identified a
12 bunch of different reports that were done over the
13 last 20 years. Some of them were done by academics at
14 universities, some were academics at the Berkeley
15 National Laboratory which is part of the Department of
16 Energy, and others were done by appraisers, some of
17 which are like myself. And also wanted to concentrate
18 on those studies that talk about wind farms that are
19 here in Illinois. That would be probably the most --
20 most relevant. So I'll get into those in a second.

21 The second part after we understood what was
22 extracted from those studies and what the conclusions
23 were was to see if we could determine for ourselves
24 what those conclusions might be. So I've prepared

1 nine different paired group sales analyses for nine
2 different wind farms, eight of which are in Illinois
3 and one in Indiana. And so I'll go over those
4 conclusions, then I'll give you an example of what and
5 walk through kind of the steps we did.

6 Third, I'll go over the market participant
7 interviews, which I just mentioned. And now you've
8 heard a little bit about the site specific report
9 where I've driven the site, I've looked at some of the
10 homes in the area, I have a decent understanding of
11 where this is going to be located.

12 Next slide. So I wanted to start with the
13 reports that are out there that state in their
14 conclusions that wind farms have a negative impact on
15 residential property values. And it was important
16 that I address this kind of right up front. I discuss
17 most of these in the report itself. Of the four that
18 I note here, three are appraisers. The first one,
19 which is at the top, is an appraiser in Canada who
20 looked at five homes that sold next to a couple wind
21 turbines, a project up there. And Lansing, what he
22 did was he looked at five sales and then studied their
23 sales five years later. The sales first started in
24 2007 and then he picked up same transactions from

1 those five sales five years later in 2012, and he
2 noted that their prices went down. Well, if we
3 remember back, that was also during the Great
4 Recession and Canada was not immune to the impacts of
5 the Great Recession. He did not use any control data.
6 If you talk to scientists or other statisticians
7 they'll tell you you have to use a control data to
8 compare to. He didn't necessarily do that. He
9 projected forward what he thought these sales would be
10 in five years based on trend lines from 2007. And
11 they were inconsistent and so he called this a
12 negative impact. It's just a very, very small study.
13 It's one sample size. So is what it is.

14 There are two other appraisers that are more
15 local to the Midwest, a gentleman by the name Mike
16 McCann and one named Kirk Kielisch. Both of which
17 have gone around and done a lot of work in working for
18 residences and the people of residences who are going
19 to be around proposed wind farms. Both have heavy
20 critiques and will be that they're extremely negative.
21 I found their information to be kind of outside of the
22 norm of realism. Meaning that they often say that
23 homes might be damaged from 25 to 80 percent in some
24 circumstances. Both use a specific methodology called

1 a paired sales technique where they look at one home
2 to one home and they make considerable adjustments to
3 those individual characteristics, sometimes by as much
4 as 50 to 80 percent and come to a conclusion that
5 these things are overwhelmingly negative. Both of
6 those appraisers in situations like this have been
7 debunked by other academics and other appraisers. So
8 I wanted to put them up there. I didn't want to hide
9 any of this information. But I myself don't give them
10 a lot of merit.

11 The one academic study that's up there was
12 done by two people, Heintzelman and Tuttle in 2011.
13 Both were doing this with the Clarkson University and
14 looked at a couple of wind farms in northern New York
15 State. And while they said that their conclusion was
16 that these wind farms are negative, the actual data
17 within it was a little bit mixed. They themselves in
18 their report state that overall, the results of this
19 study are mixed as regards the effect of wind turbines
20 on property values. They found that there's really --
21 one of the counties had very little effect and in some
22 specifications a positive effect. But they still said
23 that the conclusion was -- was negative. They also
24 surmised that older turbines, but when they looked at

1 the only sales closer to the start date they
2 actually -- those sales were more positive. So while
3 they surmised that, some of the turbines -- or some of
4 the dates of the sales would be worse closer to when
5 the wind turbines are first erected they actually
6 found that the data didn't -- wasn't consistent with
7 that.

8 So, again, my feeling is that the study is
9 mixed. It's one of the earlier studies in terms of
10 the Lexiconic studies. But it's out there, and I
11 wanted to everybody understand it and to -- for me to
12 talk about it. Next slide.

13 So these are three of the most recent studies
14 that have come out. And these studies deal with a
15 tremendous more amount of data than the ones on the
16 previous slide. So I'm actually going to go into
17 opposite order of what's up there. But the first one,
18 and it might be hard for you guys to read it in the
19 back, but it was a study done by Dong, Lang in
20 covering Massachusetts and Rhode Island. It was done
21 in 2023. And they looked at four different regions,
22 three in Massachusetts, they looked at Western Mass,
23 the looked at Eastern Mass and they looked at
24 specifically Cape Code. And you're familiar with

1 Massachusetts. And what they found that -- sorry,
2 number 4 was Rhode Island. And of those four regions
3 three of them they found no impact at all. And one
4 region they found an impact. And so, again, I think
5 that the information is mixed. They also noted that
6 there was no impacts on any rural areas of Western
7 Massachusetts which is predominantly rural. And they
8 looked at wind farms built between 2001 and 2019. So
9 it covers the -- a good amount of time.

10 Another study up here going one up is by Hoen
11 and Brunner also in 2023. Hoen is well regard as like
12 one of the premier statisticians in this particular
13 area. He's worked at Berkeley National Labs in their
14 environmental department for a really long time. And
15 he's done several of these large Hedonic Regression
16 studies of data around wind farms. He's also done
17 solar farms. And their conclusion is that there's
18 relatively small and an insignificant effects after
19 five years of operation. And so a part of their
20 premise is that they think that when you first put up
21 a wind farm everyone's really upset about it and so
22 there might be a knee-jerk reaction to some of the
23 people and that it completely goes away after a
24 certain amount of time. And actually a lot of the

1 studies up here look at that and they have some
2 disagreements as to how long that might go. They call
3 it a U-shape effect. But, again, I find that some of
4 their data is mixed and a little bit inconsistent.
5 They also point out that anything farther than two
6 miles are completely unaffected. And they notice that
7 there's no impact for wind properties built in more
8 rural communities, which is important. It's an
9 important -- it's important distinction.

10 And then the last one which is the most
11 recently done in 2024 -- I'm sorry. The one before
12 Hoen covered about 350 -- or, excuse me, 500,000 home
13 sales. This last one by Guo and Wenz covered 300
14 million homes from coast to coast. They literally
15 looked at the entire United States. It also put a
16 view vector on top of the data, so they studied
17 exactly where each home would view a particular wind
18 turbine and they put that on top of the real estate
19 data. They concluded to a 1.12 percent negative
20 difference between their control sales data which is
21 generally data in between three and ten miles and data
22 within a half mile or a mile. In some circumstances a
23 little bit higher, some circumstances it was a little
24 bit more positive, but that was their total

1 conclusion. They noted that the effects diminished
2 within seven years. They also noted that there's no
3 impact for recently built turbines. So any turbine in
4 their study or any home that was near a turbine built
5 after 2017 they said there was zero impact. And they
6 also noted that for a county's very first wind farm
7 installation which I think is probably important here
8 for this community, the introduction of the first wind
9 farm resulted in an insignificant minor effect. So
10 that's what that study says. And, again, it's a very
11 robust study. There's a lot of data and information
12 in it. Next slide.

13 MR. KAINS: Mr. Lines, if we could go
14 back to the previous slide.

15 THE WITNESS: Sure.

16 MR. KAINS: With respect to the negative
17 impact. I don't know if you can read the last column
18 on each of those. It says impact found; is that
19 right?

20 THE WITNESS: That's correct.

21 MR. KAINS: And then the first case
22 study, the Canadian one from 2012, I believe that says
23 negative impact. Can the Board Members read this?

24 MR. WATTS: We've got it.

1 MR. KAINS: Oh, you have it in front
2 you. Okay. Excellent. Okay. Then the second one,
3 the academic study - negative impact. What does it
4 say in parentheses?

5 THE WITNESS: But mixed.

6 MR. KAINS: But mixed, okay. Yes, sir.
7 And then the other two from the McCann and Kielisch,
8 the Midwestern appraisers, they say negative impact?

9 THE WITNESS: That's correct.

10 MR. KAINS: Okay. Can we go to the next
11 slide, please.

12 THE WITNESS: Sure.

13 MR. KAINS: Okay. Then on the low
14 impact, on the impact found, because I don't have this
15 in front of me and I don't know if the public has it
16 in front of them, the first one, the Guo and Wenz,
17 small impact, what is that percentage?

18 THE WITNESS: Diminishes one percent and
19 it says diminishes over time.

20 MR. KAINS: Okay. And then the second
21 study by Brunner and Hoen?

22 THE WITNESS: It says small impact of
23 two percent and no impact after five years.

24 MR. KAINS: Okay. And then the third

1 one by Dong, Lang, etc.?

2 THE WITNESS: Massachusetts and Rhode
3 Island, it says one 3 of 4 regions - no impact.
4 Negative impact only within one kilometer which is
5 about 3,300 linear feet.

6 MR. KAINS: And these are all studies
7 done within the last two years; is that right?

8 THE WITNESS: That's correct.

9 MR. KAINS: Okay. Very good. Okay.
10 That's all the questions I had. I just wanted to
11 clarify because I can't see it.

12 Okay. Go right ahead.

13 THE WITNESS: Next slide. So these are
14 the studies that you can find online that suggest that
15 there's no impact. So in that last column there they
16 all say the same words, which is no impact. These are
17 14 different studies. Some of these, again, are
18 academic studies. Some of them are appraisers. I
19 noted a couple of the other MAI's who have done
20 studies and these are in the public record and
21 available online. There are several that I box in
22 orange which are studies that contain data from
23 Illinois Proper. And so, you know, there's a couple I
24 think that are important. One of the first ones is

1 Hoen who did one of the ones over last year.
2 Initially in 2009 had looked at about 7,500
3 transactions from ten different communities, including
4 Lee County, Illinois. And so if you didn't know, Lee
5 County had the first wind farm in the state of
6 Illinois in 2003. So what Hoen says is that there is
7 not consistency measurable -- measurability and
8 significant affected by either view of wind facilities
9 or the distance of the home to these facilities. So,
10 again, that was back from 2009.

11 There's another study done by a gentleman
12 named Carter at Illinois State University in 2011. He
13 also looked at Lee County. At the time that he did it
14 in 2011 Lee County had three operating wind farms.
15 And so he looked at 1,300 transactions out of a
16 possible 3,300 from the county. And Carter's
17 conclusions that the results of the analysis showed
18 that wind farms in Lee County have not had a
19 specifically significant or reliably quantifiable
20 impact on nearby residential property values. And
21 then he also indicated that in some circumstances
22 homes may appreciate faster when they're located by
23 wind turbines, which is what he said.

24 And then another impact study which I think

1 is relevant is, again, Hoen did a larger one in 2013
2 where he looked at 27 counties in 9 U.S. states.
3 There are three counties in Illinois that are part of
4 that study, including DeKalb, Lee and McLean -- excuse
5 me, Livingston and McLean. And, again, Hoen found no
6 impact. He states in that report there's no
7 statistical evidence that home, in either the
8 pre-construction or post-construction periods that
9 sold near turbines i.e., within a mile or even a half
10 mile, did so for less than similar homes that sold
11 between three and ten miles away in the same period.
12 They also note in that report that sizes are not
13 statistically significant from zero, meaning that the
14 sizes of the wind turbines themselves. So there's a
15 lot of data to suggest that there really is no impact
16 from wind projects. So, again, that's what everybody
17 has said before I picked up the pen. Next slide.

18 So I want to talk a little bit about my
19 methodology. As I show you what we did. The
20 methodology is straight from a textbook called Real
21 Estate Damages by a gentleman named Randy Bell, who is
22 an MAI and also a Ph.D in statistics. He suggests
23 doing a paired sales technique. What we do is a
24 paired group sales. So we identify test areas which

1 are a group of sales, sometimes one sale that's
2 located immediately adjacent to a wind farm or near a
3 wind farm. We generally look at homes that are
4 generally within a mile to sometimes a mile and a
5 half. And we compared them to control groups which
6 are similar homes but located farther away. We don't
7 go any closer than three miles. And I think for our
8 controlled data we've averaged somewhere around 15 or
9 16 miles away from an existing wind farm. There are
10 obviously a lot of wind farms in Illinois as of right
11 now. So we have to pay particular attention to make
12 sure that the control sale isn't overlapping into
13 another wind farm, and I think we do a pretty good job
14 of that. At any rate, in this textbook Dr. Bell talks
15 about is if there's a legitimate detrimental
16 condition, there likely be a measurable and consistent
17 difference between the two sets of market data. So we
18 can't just do a study, see it one time negative and
19 say it's definitely negative. We have to do it over
20 and over again and we have to see very similar results
21 over and over again. So that's why I've done multiple
22 studies with multiple groups to try to get a sense of
23 whether or not there is a measurable and consistent
24 difference. Next slide.

1 So our test sales, again, we're looking at an
2 existing and operational wind turbine project. We
3 obviously are going to look at the sales that are
4 within close proximity and likely visible to a turbine
5 and outside of the turbine setbacks. So per the
6 County Ordinance, you can't have a non-participating
7 owner that's within 1.1 of the tip height. So we
8 generally look at things that are beyond, let's say,
9 1,300 linear feet away from a turbine. We need to
10 find properties that sold after the construction of
11 the wind farm. We try not to do it during. Nobody
12 likes construction and we want to get a sense of
13 what's happening after these things are actually
14 operating. We only look at arm's length transactions.
15 So it's got to be between an unrelated party. And it
16 can't be any distressed sale; so no foreclosures, no
17 short sale, no bank-owned sales where there's pressure
18 on the price. And I mentioned the non-participating
19 landowners. So we make every effort to identify
20 potential participating landowners. We get lists from
21 developers of the projects that they've built and get
22 the names of all the participating landowners and we
23 cross-reference that with the buyers and sellers of
24 all the data that we look at.

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1 So our control sales, how do we find these?
2 So after we've identified where the test sales are we
3 go in that same community and we go out a lot farther.
4 So we start at about three miles from a turbine and
5 we'll extend outward until we feel we have enough
6 sales to constitute a meaningful group. Again, the
7 property that sold or sold after the construction of
8 the wind farm and within 12 to 18 months of the test
9 sale group. So if we find the sale next to a wind
10 turbine that sold in 2002, we're going to look for
11 control sales that are 12 months -- 12 to 18 months
12 before and after that so we can stay pretty consistent
13 with the market conditions in that area.

14 The most important thing is we look for
15 similar construction, ages, land areas, sizes and home
16 type when we're identifying our control groups.
17 That's the most important part. Again, arm's length
18 transactions and no distressed sales. Next slide.

19 So here's an example of one of the studies
20 that we've done. So this is one on Top Crop Wind Farm
21 in Livingston. It actually spills over into Grundy
22 and LaSalle Counties a little bit. It covers about
23 28,000 acres. The project was completed in 2009,
24 2010, and it's about 300 megawatts. So we found a

1 couple groups that we were able to analyze here. So
2 you have a picture of an aerial. And so the two pins
3 in yellow are the two test sales that we found that
4 sold after the wind farm was developed. And the red
5 pins represent all the turbines in the area. And so
6 the information on the bottom regards to those two
7 sales. So these two sales; one occurred in 2019, one
8 in 2022. Both of them were three bedroom, two bath
9 houses between 1,500 and 1,800 square feet in size.
10 They're both built in the '70s, both on one acre of
11 land, and we look at their prices per square foot.
12 Next slide.

13 So, again, we measure the distance from all
14 the test sales to see how far they are away from
15 turbines. These particular homes ranged from 1,600
16 feet or 1,400 feet at the minimum up to about a mile
17 away. And both of them we're looking at about 10 or
18 11 turbines. Next.

19 Here's the control sale data. So we found
20 nine control sales in the general area. We tried to
21 stay as close to the area as possible, but also
22 avoiding a close distance with other -- other wind
23 projects. And these sales were generally very similar
24 home types, fairly similar number of bedrooms and

1 bathrooms, ages that were comparable and on very small
2 lots. Because each of the control sale dates is a
3 little bit different from the test sale date, we do an
4 adjustment using the Federal Housing Finance Agency's
5 house price index which tracks to the month, and so
6 we're able to adjust those slightly for the particular
7 market conditions. So if things were going up then it
8 could be that a house gets adjusted slightly so that
9 they all end up being as if they had sold as of the
10 same date. Next slide.

11 Here's a map, it's a little hard to see, but
12 we do have mapped out the control sales there. The
13 yellow sales -- yellow pins are in the wind turbine
14 project area which is all blue and then there's red
15 dots with the control sale listed next to them and
16 they're obviously spread out a lot farther away from
17 the wind project. Again, we look at each one the
18 sales individually, make sure that it's not near any
19 other wind turbines and measure them, how far the
20 distance is from this Top Crop Wind Farm itself. Next
21 slide.

22 So the results were we looked at two sales
23 from the test area and we looked at nine control area
24 sales. We found that the price per square foot of the

1 two test sales was \$92.40 -- 47 cents a square foot.
2 And when we looked at the median price per square foot
3 of the group of the nine sales that were consistent in
4 physical characteristics but not located near the wind
5 farm, they had a median price per square foot of
6 \$90.47 per square foot. So it's about two percent
7 different in favor of the two sales that were closest
8 to the wind project. Again, we have the physical
9 characteristics noted here. The control sales
10 bracket, the test sale group in terms of gross
11 finished living area, in terms of land sizes, in terms
12 of year built and roughly the same number of beds and
13 bathrooms.

14 The other thing we looked at is marketing
15 time. So that's a really good way of studying whether
16 or not something is desired by the marketplace or not.
17 So the test area sales were on the market for about 69
18 days between the two of them. The median days on
19 market with the control area sales was 62 days.
20 Almost identical. And the control sales ranged from
21 22 to 342 days. 70 days on the market in a rural area
22 is not an exhaustively long time period to be on the
23 marketplace. But we look at these in every
24 circumstance to see whether or not there's something

1 else going on. Next slide.

2 So this is a list of all the wind farms that
3 we studied. This includes the Top Crop Wind Farm,
4 which we just noted. The Pilot Hill Wind Farm in
5 Kankakee and Iroquois Counties. The Kelly Creek Wind
6 Project in Kankakee and Ford Counties. Camp Grove
7 Wind Farm in Marshall and Stark Counties. The
8 Lee-DeKalb Wind Energy Center. The White Oak Wind
9 Energy Center in McLean County. Rail Splitter Wind
10 Farm in Tazewell and Logan Counties. And the Bright
11 Stalk Wind Farm in McLean County as well. So those
12 are all the ones that we studied in Illinois. Bright
13 Stalk was recently developed in 2019. We also looked
14 at the Headwaters II Wind farm which is in Randolph
15 County Indiana. That was just completed in June 2021.
16 It has a design that's fairly similar to the one
17 that's proposed. And so we evaluated all of these
18 wind farms which we split into 21 groups, and the
19 median variance between the test sales and the control
20 sales was 2.06 percent. And that included 35 test
21 subjects compared with 193 control sales. We didn't
22 find, based on our review of the data, that there were
23 quantifiable and consistent detrimental impacts in
24 terms of a range of sale prices, in terms of variance

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1 in unit sale prices, in terms of time on the market,
2 in terms of rates of appreciation or their impact on
3 new development. So homes are still being developed
4 in areas that now have a wind project. Next slide.

5 So that's what we found. Again, I told you
6 about the interviews that we've conducted. We try to
7 interview every County Assessor in every wind project
8 where we're doing a study.

9 So Shelly Renken in Livingston County. She's
10 familiar with the Minonk Wind Farm and Streator Cayuga
11 Ridge South Wind Farm. She reported that there's --
12 the potential impact on home values is always a
13 concern to some people, but there's no documentation
14 that shows that's happening, that values have gone
15 down or up as a result of being near a wind farm. And
16 that statement is consistent with almost every single
17 assessor that I've spoken to.

18 Renee Johnson of Stark County could not see a
19 difference in home prices between current values
20 before and after the wind farm was built.

21 Bridget Nodurft, that's a rough name, Chief
22 Deputy of the Supervisor of Assessments in DeKalb
23 County reported being near turbines did cause harm to
24 values.

1 Wendy Ryerson from Lee County. She has the
2 most experience with wind. She was in -- that was her
3 county that had the first wind farm, reported has not
4 noticed any difference in values of homes that are
5 near wind turbines.

6 Tracey Vinavich, Assessor in Henry County.
7 There have been no changes in values because of the
8 wind farms that have been developed.

9 And Christine Anderson, in the Assessor's
10 office in Bureau County, they have never received any
11 complaints about potential changes in home values,
12 before or after and of the wind farms were built.

13 We have also quotes from market participants
14 and brokers that are in the report that share very
15 similar sentiments. Next slide.

16 So based on all the analysis of all the
17 academic studies and some of the impact reports that I
18 mentioned previously, based on the nine different wind
19 projects that my group has studied over the last five
20 years, and given some of the participant interviews
21 that we've conducted with assessors and other brokers,
22 we're not finding a consistent negative impact that's
23 occurred to adjacent property values that could be
24 attributed to the proximity of the adjacent wind farm.

1 And so that's essentially what the two reports state.
2 And I'm happy to answer any more questions about them.

3 MR. KAINS: Thank you, Mr. Lines.

4 Ms. Antonioli, do you have any other questions for
5 your witness?

6 **QUESTIONS BY MS. ANTONIOLLI:**

7 Q. Just a further clarification based on my
8 earlier question about the project description. That
9 I asked you about when I talked about page 9 of your
10 impact report. Is that the second report of the two
11 reports that are included in Appendix E-3?

12 A. That's correct.

13 Q. And so would you have to flip through
14 the first 108 pages of the first report to get to the
15 impact report and then it's on page 9 of that report
16 for the project description?

17 A. The project description in the first
18 report is not on page 9 of that report.

19 Q. Right. So you have to flip through the
20 whole 108 pages of that report?

21 A. That's correct, yes.

22 Q. To get to the beginning of your impact
23 report?

24 A. That's correct, that's the addendum.

1 Q. And then that would be on page 9?

2 A. Correct.

3 Q. Okay. Thank you. And also did you have
4 an opportunity, with your slides you presented today
5 were in other parts of Illinois and wind farms in
6 those other parts of Illinois. Did you have the
7 opportunity to drive through the footprint of the
8 Coles Wind Project?

9 A. I did. I drove around. I looked at a
10 lot of the homes. We looked at home sale prices in
11 the general area over the last year and a half to get
12 a sense of what homes are generally selling for. I
13 did find a sale of a home that's within the project
14 area which has happened since I think the project was
15 announced publically, and so I looked at that home
16 sale as well. Again, we looked at local demographics
17 to get a sense of how many people are coming to the
18 county, how is the county growing. We looked at
19 aerals over time to get a sense of where the trends
20 of development were, how things might be changing
21 because that would be obviously a consideration. I
22 studied the zoning with relation to the project and
23 came to a determination based on my investigation of
24 the area and the design of the site that it appears

1 that it wouldn't negatively impact any of the homes in
2 the area based on the construction.

3 Q. Okay. Thank you.

4 MS. ANTONIOLLI: I don't have any
5 further questions for now.

6 MR. KAINS: All right. Very good.
7 Thank you, Ms. Antoniolli.

8 All right. Questions from Members of the
9 Coles County Planning and Development Committee for
10 Mr. Lines regarding his testimony?

11 (No response.)

12 MR. KAINS: All right. Very good.

13 Questions for Mr. Lines from members of units
14 of local government, including County Board, school
15 districts.

16 MR. SHOOK: I got one.

17 MR. KAINS: Mr. Shook.

18 MR. SHOOK: You said you did a study on
19 the population in Coles County. When your study, did
20 Coles County population raise?

21 THE WITNESS: That's correct.

22 MR. SHOOK: By how much? So --

23 THE WITNESS: I mean, Coles County
24 has -- population has reduced from 50 -- almost 54,000

1 in 2010 census to an estimate of about 45,000 in
2 currently 2024, and it's projected to go down even
3 more.

4 MR. SHOOK: Who -- who's opinion is that
5 for saying it -- it's going to go down?

6 THE WITNESS: It is statistics compiled
7 by a company called Esri, which is known in the real
8 estate industry to have a very proper statistical
9 analysis that stems from census taken across the
10 county. It's used by almost every real estate person
11 that I know.

12 MR. SHOOK: Where are they from?

13 THE WITNESS: I don't know where Esri is
14 based from. That's a good question.

15 MR. SHOOK: I'm done.

16 MR. KAINS: All right. Any other
17 questions from members of units of local government?

18 (No response.)

19 MR. KAINS: Questions from interested
20 parties, members of the public? First, folks from
21 Coles and Douglas Counties, questions for this
22 witness.

23 We have this lady right here in perhaps the
24 fourth row. Are you Ms. Clark?

1 MS. CLARK: Yes.

2 MR. KAINS: Okay. Ms. Clark, do you
3 have a question?

4 MS. CLARK: Yes.

5 MR. KAINS: Okay. And then lady next to
6 you and then the gentleman in back. And you all are
7 from Coles and Douglas?

8 SPECTATOR: Yes.

9 MR. KAINS: Okay. Thank you. Ma'am, if
10 you could state your name and spell your first and
11 last names for the court reporter, please.

12 MS. CLARK: I thought you had it
13 memorized.

14 MR. KAINS: Well, I do, but she -- she
15 wasn't here last time. We're switching out court
16 reporters because they have to type transcripts of
17 everything that's said. So if you could give your
18 name for the court reporter, please.

19 MS. CLARK: Kelly Clark. And Coles
20 County.

21 MR. KAINS: Okay. Go ahead.

22 MS. CLARK: Okay. I don't know quite
23 how to ask this. But I am going to be within a mile,
24 say, from one of the turbines -- actually four of

1 them, and you're saying that it doesn't affect the
2 property value. Even if it doesn't affect my property
3 value, can you give me numbers that's going to say
4 that somebody's going to still want -- be willing to
5 come in and buy my house even with that turbine
6 sitting right there.

7 THE WITNESS: So, you know, I think at
8 the most basic level we have wind farms all over the
9 state of Illinois and it hasn't stopped people from
10 buying those homes that are within a mile of the
11 turbine. There are lots and lots of sales of homes
12 near turbines in the state of Illinois in very similar
13 rural communities like this one.

14 MS. CLARK: Okay. Okay. That's it for
15 now.

16 MR. KAINS: Thank you, Ms. Clark. And
17 the lady in the -- well, I'm going to say red top, but
18 there's probably lots of people wearing red. I was
19 unaware that red meant something.

20 Ma'am, what is your name?

21 MS. PEDIGO: My name is Rhonda Pedigo.

22 MR. KAINS: Okay. Could you spell your
23 name for the court reporter, please.

24 MS. PEDIGO: Sure. It's R-H-O-N-D-A,

1 P-E-D-I-G-O.

2 MR. KAINS: And you are from Coles
3 County?

4 MS. PEDIGO: I am.

5 MR. KAINS: Okay. Go right ahead with
6 your questions for Mr. Lines.

7 MS. PEDIGO: My question is that when
8 there have been a sale of a home that would be having
9 a turbine within a quarter mile north and south of
10 their home and having six turbines within three miles
11 of their home, as well as a substation and switching
12 station within a mile.

13 THE WITNESS: Yes. So the example that
14 I showed earlier showed two homes that have 10 and 11
15 turbines around them each that ranged from 1,400
16 linear feet up to -- up to a mile. So I think that's
17 actually more turbines than what you're telling me you
18 might have. One of the nice things about what I
19 understand from the progression of turbine designs is
20 that now they can have fewer turbines. And so I think
21 it was really interesting the most recent academic
22 study reports -- again, I have data that I think means
23 that you're going to be fine, but the academic
24 studies, the ones that I mentioned, indicate that they

1 didn't find any kind of impact for anything that was
2 built after 2017. So this is more modern technology,
3 fewer turbines, so it will be -- it will be a little
4 bit less. But, again, I can't find any data that
5 suggests that you're going to be negatively impacted.
6 But I haven't given you all the data that I'm aware
7 of.

8 MS. PEDIGO: Okay. Thank you. And my
9 other question was, so many of the homes in our area
10 are people lived there for many, many years, there's
11 not much sales in --

12 THE WITNESS: Right.

13 MS. PEDIGO: -- in the area, so how does
14 that impact your study?

15 THE WITNESS: That's a really good
16 question. I do understand as in a lot of rural
17 communities people do stay in their homes for -- for a
18 lot -- a lot longer, and no doubt you might have your
19 own personal reactions to the fact that the turbine is
20 going up, but we've also covered other rural locations
21 that have somewhat similar demographics and have home
22 values that are very consistent with the prices that
23 I've seen here in this particular area. You're still
24 relatively close to Charleston which has something

1 going for it, and, you know, I think people would be
2 drawn to the area, but I don't know that that's an
3 issue and I can't find any information that would
4 suggest that because you're in a more established and
5 older rural community where people tend to stay longer
6 that that means their home values will go down. In
7 fact, the academics studies say exactly the opposite.

8 MS. PEDIGO: Okay. Thank you for your
9 time.

10 THE WITNESS: Uh-huh.

11 MR. KAINS: Thank you, Ms. Pedigo. All
12 right. Then gentleman, yes, in the last row. And if
13 you could state your name for the court reporter.

14 MR. SMITH: Yes, it's Terry Smith.

15 MR. KAINS: Okay. Mr. Smith.

16 MR. SMITH: Do you live next to a wind
17 turbine?

18 THE WITNESS: No. I live next to lots
19 and lots and lots of people with all of their stuff.

20 MR. SMITH: Well, that's the difference
21 between living in a town and living in the county.
22 See where I lived, I'm central located. I'm probably
23 ten miles from Arcola, ten miles from Oakland, ten
24 miles from Charleston. You see why open spaces are

1 now going to see 52 of these stupid things, okay.

2 It's -- I don't have a choice, and I'm going to have
3 people deciding that don't live anywhere near it.

4 MR. KAINS: Mr. Smith, you'll be able to
5 testify when it's your turn.

6 MR. SMITH: Yes, I know.

7 MR. KAINS: Ask him a question, please.

8 MR. SMITH: The question is, if a
9 person's lived in their house for almost 30 years, how
10 do you justify what that house is going to be worth?

11 THE WITNESS: So, I mean, that's the
12 thing that appraisers do and we get to see whether or
13 not our appraisal was right or wrong based on when or
14 if that house sells. You know, you have obviously the
15 opportunity to, you could develop somewhere else, but
16 based on the information that I've reviewed, and,
17 again, there are plenty of examples of homes that have
18 sold both immediately after turbines when a project is
19 built or well afterwards, up to 10 to 15 years
20 afterwards, that suggest that those home values
21 haven't suffered by the fact that this turbine is now
22 there.

23 MR. SMITH: Okay. With your studies
24 that you've shown and you talk about the amount of

1 people that have left, say, Coles County, for
2 instance, don't you think that the study shows that
3 people are leaving the state of Illinois because of
4 the taxes?

5 THE WITNESS: I'm not -- I don't know
6 that has anything to do with the data that I found.

7 MR. SMITH: Well, it would -- I mean, it
8 would if people are leaving Coles County, correct? I
9 mean, they might be leaving the whole state not just
10 Coles County.

11 THE WITNESS: I'm telling you what I
12 found from the demographic information. It could be
13 that there's just a general lack of economic
14 generation in the particular area which is why people
15 are leaving, if they're leaving because of a lack
16 jobs. My understanding is that this project would
17 bring a bunch of jobs to the area which could be good.
18 And, you know, another point that I found especially
19 when I think about the academic study in Illinois
20 State University by the gentleman, Mr. Carter, you
21 know, he noted some areas that had a very specific
22 positive momentum of real estate transactions after
23 the wind projects were built, maybe that had something
24 to do with the amount of taxes that are going to the

1 local government and to your school systems. You
2 know, us real estate appraisers find that home values
3 are typically correlated with being in an area that
4 has a very good school system and a commonality of
5 good school systems is that they're typically well
6 funded.

7 MR. SMITH: So tax wise though, I mean,
8 people leave counties or states because of taxes, they
9 can leave for any reason, but your studies don't show
10 anything. All they talk about is about the wind
11 turbines, whatever, but it doesn't state anything
12 about what other reasons for these impacts on the
13 people leaving, period. All you're doing is talking
14 about the wind turbines and the studies of them. I
15 mean, for me, people that have lived and lived in a
16 home for 20 or 30 years, they don't plan on leaving,
17 but now we will be faced to be looking at these things
18 every day. Not by our choice. So let's say if we go
19 to sell our house, have you guys -- has your company
20 ever bought houses that you know of?

21 THE WITNESS: That's not what my company
22 does.

23 MR. SMITH: I mean, I didn't know.
24 Okay.

1 MR. KAINS: Thank you, Mr. Smith. What
2 does your company do, CohnReznick?

3 THE WITNESS: We're a national
4 accounting firm. We specialize and work with a lot of
5 companies in real estate. In fact, our company does a
6 lot of work with Don Yost, if you a guys know who he
7 is. So it's -- we're pretty well known nationally.

8 MR. KAINS: Okay. Very good. Thank
9 you.

10 All right. Any other questions -- are you a
11 Coles or Douglas County resident, ma'am?

12 MS. TAYLOR: Yes.

13 MR. KAINS: Okay. Yes, ma'am. And if
14 you could state your name for the court reporter.

15 MS. TAYLOR: Sure. My name is Meg
16 Taylor. I'm a Coles resident.

17 MR. KAINS: Okay. Can you spell your
18 name.

19 MS. TAYLOR: Meg, M-E-G, Taylor,
20 T-A-Y-L-O-R.

21 MR. KAINS: Okay. Very good. Go ahead,
22 Ms. Taylor.

23 MS. TAYLOR: My first question was you
24 said that there was recently a home within the area

1 that sold. And could you tell us, did you say that it
2 affected the price -- or the value of the home?

3 THE WITNESS: I just noted that there
4 was a local home that was bought. It was 1320 Decker
5 Springs Road. And I think my understanding if I
6 looked at the research on that that was not
7 necessarily an arm's length transaction.

8 MS. TAYLOR: It's not within the wind
9 farm area?

10 THE WITNESS: It is within the wind farm
11 area.

12 MS. TAYLOR: It is within. Okay. So in
13 the studies, the homes that were sold, were they
14 before the turbines were put up?

15 THE WITNESS: No. So all of our studies
16 are done on the -- comparing home values of properties
17 that are next to wind turbines as they exist. So all
18 the sales are from when the wind turbines were
19 starting to operate and after. So after construction.

20 MS. TAYLOR: Okay. So what happens
21 within this wind farm is outside of the studies? Your
22 studies show farms -- or homes that have sold after
23 they've already been erected then?

24 THE WITNESS: Correct. We want to know

1 what the impact is --

2 MS. TAYLOR: Right.

3 THE WITNESS: -- after they're built.

4 MS. TAYLOR: Right. But I'm just
5 wondering how many people know, find out about it and
6 then sell before, you know, construction, they get out
7 while they can.

8 THE WITNESS: So I haven't necessarily
9 done my own research in looking at pre-construction
10 situations, but I can tell you that the academic
11 studies do look at some of that, and a few of them
12 that I mentioned note specifically that they didn't
13 find any difference and there's no statistical
14 evidence that there's a negative impact both on
15 pre-construction and post-construction activities.

16 MS. TAYLOR: Can you tell us which study
17 that was.

18 THE WITNESS: Sure. I can do that.
19 That was the Dong, Lang study. I'm going to try to
20 find a page for you. Yes, it's the University of
21 Rhode Island study from 2023, Property value impacts
22 of onshore wind energy in New England: The importance
23 of spatial heterogeneity and temporal dynamics. I'm
24 sure I butchered the pronunciation of that word.

1 MS. TAYLOR: Okay. And then my next
2 question, when you were talking about the studies with
3 negative impacts, you mentioned that they were outside
4 the norm of realism, can you explain what you mean by
5 that?

6 THE WITNESS: Sure. So I've tracked
7 downturns in the market in real estate over -- in a
8 lot of different circumstances. For example, in the
9 beginning of the Great Recession I looked at lot sales
10 in Phoenix for subdivisions that had been platted but
11 not yet developed, and looked at how those prices
12 dropped, right, from 2009 to 2010 to 2011 to 2012.
13 It's to me one of the most egregious situations,
14 right. You have this really speculative development
15 that is occurring in a place that supposedly has a lot
16 going for it, everybody's moving to, and then all of a
17 sudden the money dries out because the money was bad
18 to begin with. But in those circumstances I found
19 that those lots on average were selling to -- at
20 discounts, like the most discount was usually like 30
21 to 40 percent. So when I see another appraiser come
22 out and say that something's going to be damaged by 60
23 to 80 percent, that doesn't seem reasonable to me.
24 And those percentages aren't also -- they're not

1 consistent at all with any of the other academic
2 studies. Even the study that says that things are
3 definitely negative has a limit of 15 to 20 percent.
4 So they're not consistent with all of these other
5 individuals that have studied this particular issue.
6 And you don't have a lot of other people like me,
7 other MAI's who've been jumping up and down and saying
8 that the world is on fire, saying well, it's
9 absolutely horrible what happened over there. That
10 just doesn't -- that's not happening with the
11 exception of these two individuals.

12 MS. TAYLOR: Okay. And then my next
13 question, your chart that, I'm not sure what page, but
14 it explained like how many turbines and how many acres
15 and things, and we weren't listed. Can you explain
16 like where we would fall within that, or something
17 comparable, which one would we compare to with a
18 number and the acreage.

19 THE WITNESS: Oh, go back one more
20 slide. Okay. So, again, this was -- this is one
21 group for one wind farm. So we looked at a test sale.
22 We looked at two sales that were within the wind
23 project. Those two homes were 1,532 square feet and
24 1,848 square feet. So one was 1,532, one was 1,848.

1 They both were on one acre parcels. Both of them were
2 built in the 1970's and both had 3 bedrooms and 2
3 baths. So that's one particular group. We have other
4 studies of farmettes, ones with 15 acres and 20 acres
5 and have accessory buildings, more consistent with
6 like real world property. So I've done that analysis
7 as well and have not found an impact.

8 MS. TAYLOR: Okay. I'm sorry. On the
9 slides before where it lists like how many turbines,
10 where -- what would we compare to, meaning how many
11 turbines we're getting and how many acres of land.
12 I'm not sure if I'm saying it correctly.

13 THE WITNESS: Understood. And I'm
14 sorry, I don't remember off the top of my head. I
15 think it's 52.

16 MS. TAYLOR: 52. So, I mean, who do we
17 most closely compare to in that term?

18 THE WITNESS: 51, sorry. So the design
19 of this is most consistent with some of the other
20 newer wind farms. So on this list here, right, it
21 would be Bright Stalk Wind Farm in McLean County and
22 Headwaters 2 Wind Farm in Randolph County, Indiana.
23 But it would be most consistent in terms of larger
24 turbines and fewer of them over a similar amount of

1 acreage.

2 MS. TAYLOR: Okay. So the negative
3 studies, did they have less turbines than what we're
4 looking at?

5 THE WITNESS: Actually most of the ones
6 that I noted were from over ten years ago. In those
7 situations they would have been in situations where
8 they were smaller turbines but a lot more of them.

9 MS. TAYLOR: Much smaller, can you
10 compare them to the size that we're looking at.

11 THE WITNESS: My understanding is that a
12 lot of the ones that were developed in the aughts
13 were, you know, about, you know, one, possibly two
14 megawatts in size and it increased in size over that
15 time period. But I'm not an expert or an engineer.

16 MS. TAYLOR: You said one megawatt?

17 THE WITNESS: Correct.

18 MS. TAYLOR: And what the ones that
19 we're proposed to get?

20 MR. KAINS: Rather than having Mr. Lines
21 go through, Mr. Moore, do you know the answer?

22 MR. MOORE: It's 6.1.

23 MR. KAINS: 6.1 megawatts.

24 MS. TAYLOR: So it went from 1.2 to 6.1.

1 Okay. I think my last question, could you explain who
2 funds the studies?

3 THE WITNESS: Sure. So the studies that
4 are done by appraisers, it has to come from whoever
5 their client is.

6 MS. TAYLOR: Would that be a private
7 company like Apex?

8 THE WITNESS: It could be.

9 MS. TAYLOR: Okay.

10 THE WITNESS: For the academics studies,
11 those are all publically funded.

12 MS. TAYLOR: All right. Could you tell
13 us who funded the study that you did?

14 THE WITNESS: Apex Clean is my -- is my
15 client.

16 MS. TAYLOR: Okay. Okay. Thank you.

17 MR. KAINS: Thank you for your
18 questions, Ms. Taylor.

19 Any questions -- any more questions from
20 residents of Coles -- Ms. Clark, I'll give you another
21 bite at the apple, but usually I don't, but I know
22 you'll be brief. I see that Mr. Borgman has hand up
23 and, yes, Mr. Sherman.

24 Ms. Clark, then Mr. Borgman, then

1 Mr. Sherman.

2 MS. CLARK: I promise just one.

3 MR. KAINS: I'm not going to hold you to
4 it Ms. Clark.

5 MS. CLARK: Okay.

6 MR. KAINS: Go right ahead.

7 MS. CLARK: My question is, in stuff
8 I've read, and you said something about it earlier on
9 the negative impact, it talks about basically before
10 construction and then like a five year period after
11 construction. So in that -- from the time they
12 construct to the five years, so are you down -- so in
13 other words, is it saying it's down in that five
14 years?

15 THE WITNESS: So I didn't say that.
16 There are a couple of academic studies that feel that
17 that may be the case. But I would argue that those
18 are only a couple out of the larger group of studies
19 which are 20. So I don't necessarily believe that
20 that's a hundred percent accurate.

21 MS. CLARK: So if I'm wanting to sell my
22 home I can either like sell it now or wait like seven
23 years is what you're saying? I mean, you're saying
24 that -- by what some of the studies are saying?

1 THE WITNESS: There's a couple of
2 studies that think that that is the case. I don't
3 have any data that I've looked at personally, and the
4 studies that we've done we haven't noticed a
5 difference. We've also done before and after studies.
6 So I've done appreciation rate study for some of the
7 homes around Bright Stalk looking at how they've
8 appreciated versus other control sales data and also
9 compared to the entire county and those before and
10 after sale studies actually showed that the home sales
11 next to the wind farm had appreciated better than the
12 rest of the county. So I don't know that that's true
13 from any of the data that I've pulled and done
14 research for.

15 MS. CLARK: Okay. All right. Thank
16 you.

17 MR. KAINS: Thank you, Ms. Clark.
18 Mr. Borgman.

19 And, sir, if you could state your name
20 spelling first and last for the court reporter.

21 MR. BORGMAN: Okay. Phil Borgman,
22 B-O-R-G-M-A-N.

23 MR. KAINS: Go right ahead with your
24 question.

1 MR. BORGMAN: Does you -- did any of
2 these studies include like when a house goes up for
3 sale and then -- you know, I -- I watch the -- you
4 know, the real estate market around here a little bit,
5 and you'll see prices, you know, they won't sell for a
6 couple weeks and they'll decrease the price, and then
7 if, you know, they're not going to get the money they
8 thought they were going to get out of it they'll just
9 pull it off the market all together. Do any of your
10 studies count that?

11 THE WITNESS: No. But I think marketing
12 time is probably the best in terms of understanding
13 that kind of situation. So we purposely only use
14 actual sales and all of the studies only use actual
15 sales because somebody might list their property for a
16 ridiculous price. It's only when the transaction
17 happens that you know you have confirmation. And as
18 every single broker I know always tells me, everyone's
19 got a price.

20 MR. BORGMAN: All right. Thank you.

21 MR. KAINS: Very good. Thank you,
22 Mr. Borgman.

23 All right. Mr. Sherman.

24 MR. SHERMAN: My first question is going

1 to -- my name is Tom Sherman. Coles County. T-O-M,
2 S-H-E-R-M-A-N. And my first question is based on the
3 Appendix E-3 that you referred to earlier, page 17, it
4 might be 18. I'm going to lose all my -- I know you
5 said the first night that this could be a lot bigger,
6 but we need a bigger podium. Page 18. And this may
7 be similar to what you had on one of your slides. You
8 have 19 studies listed on that page, correct?

9 THE WITNESS: I do.

10 MR. SHERMAN: And on that you list that
11 4 of the 19 have a negative impact, correct.

12 THE WITNESS: Correct.

13 MR. SHERMAN: Is 4 out of 19
14 significant?

15 THE WITNESS: I don't know.

16 MR. SHERMAN: Is 4 out of 19
17 substantial?

18 THE WITNESS: I'm noting that 4 of them
19 are negative and the other 15 were not.

20 MR. SHERMAN: The reason I'm asking that
21 is because the Wind Ordinance it says specifically the
22 WECS project will not be injurious to the use of and
23 enjoyment of other property in the immediate vicinity
24 for the purposes already permitted nor substantially

1 diminish and impair property values of surrounding
2 properties. So, again, is 4 out of 19 significant, 21
3 percent?

4 THE WITNESS: I don't -- I don't know
5 how the 21 percent relates to what you're about.

6 MR. SHERMAN: If you've done 19 studies.

7 THE WITNESS: Okay.

8 MR. SHERMAN: In your own application
9 and 4 of them show a negative impact, that's 21
10 percent, right?

11 THE WITNESS: That's not the rules of
12 how I'm understanding whether or not there's a
13 consistent and measurable. So 4 out of 19 wouldn't in
14 my word be consistent and measurable. And the other
15 thing is you're making all the 21 percent absolutely
16 equal. Some of those negative impact reports aren't
17 in my eyes equal to some of the other ones, so I don't
18 weight them the same.

19 MR. SHERMAN: Okay. I understand. I'm
20 just using your information so.

21 Another technique that you use on page 21 of
22 that same appendix. So if you turn over about 3
23 pages, you start listing properties in close proximity
24 to the wind turbine projects. You list 9 that I've

1 seen here. Of the nine, five of them have sites of
2 328 -- one of them has 328 feet from the ground to the
3 tip height, another one is 426 feet tall, another is
4 it 453 feet tall, another one is 328 feet tall, and
5 the tallest one is 488 feet tall, and then the others
6 don't have any heights given. How tall are these 51
7 turbines going to be?

8 THE WITNESS: My understanding is that
9 they could be in excess of 600 feet tall.

10 MR. SHERMAN: And, again, I'm going to
11 go back to the substantial. Is 600 a lot more than
12 488?

13 THE WITNESS: It can be but it depends
14 on your perspective.

15 (Laughter from the audience.)

16 MR. KAINS: Folks, we're not going to
17 laugh, we're not going to argue. This is -- this is
18 something that's serious. His answer is serious. His
19 question is serious. We're just not going to have
20 laughing.

21 MR. SHERMAN: The 488 feet, on the
22 tallest of the 5 that you list comparable to the 600,
23 that's only 76 percent tall of the 640 feet tall. So
24 my question is, having said all that, how tall -- you

1 don't list any heights on any of the charts or
2 anything that you've done. How tall are some of those
3 turbines or any of them?

4 THE WITNESS: So I understand and I get
5 this question, I've gotten this question at other --
6 other wind hearings. So one thing is you have to
7 understand that I can only research the data that's
8 available. So if you have very recently developed
9 wind turbine which might be on the taller side and
10 it's only been there for less half a year, I may not
11 get enough data or data that I can use to actually
12 conduct a full property value impact study. So that's
13 one part of it. I can only study what's actually
14 happening and what's there. There was lot of data
15 with some of the older designed wind farms which does
16 have a lower height. That's how -- design has changed
17 over the last 20 years, so they are increasingly
18 getting -- getting taller. But in an area where
19 almost every single building is only two stories or
20 less, it's like being at the bottom of the Hancock
21 Tower and looking up, and like it's really difficult
22 to tell difference between like a 70 story building
23 and a 90 story building even though that's the same
24 amount of linear feet. And so the issue is not that

1 exactly how tall it is, it's just the fact that
2 they're both really, really tall in that particular
3 environment.

4 MR. SHERMAN: Let me ask it a different
5 way. Is there a difference between the height of a
6 grain elevator in coles County and a 644 foot tall
7 wind turbine?

8 THE WITNESS: Sure.

9 MR. SHERMAN: Okay. What's -- in any of
10 the studies, pick one, what's the tallest wind turbine
11 that you've done?

12 THE WITNESS: So Bright Stalk has
13 turbines that are up to 540 feet I believe. And
14 Headwaters also has some taller turbines.

15 MR. SHERMAN: So is it safe to say, I
16 don't want to put words in your mouth, is it safe to
17 say that none of them on this sheet that you had when
18 Ms. Taylor asked about the comparison, the nine that
19 are on there, is any of them 644 feet tall?

20 THE WITNESS: Not the ones that I have.
21 But in some of the academic studies, especially the
22 more recently ones, they have covered long -- longer
23 tip lengths and taller turbines within their studies.

24 MR. SHERMAN: Okay. Now, I'm going to

1 be going through your slide presentation so you can
2 follow along with that if you want to. Is the -- and
3 maybe this -- I'm not sure quite sure where to get
4 into to this part of it, but farmland value, now I'm
5 talking the farmland, not of a house, but farmland
6 value, does it decrease when a wind turbine footprint
7 is put on it? So if I've got -- this is my farmland
8 and I put wind a turbine in this corner, does my whole
9 farmland go up, down, stay the same? What happens to
10 my farmland?

11 THE WITNESS: I mean, most farmland's
12 sold based on its productively and its area. So the
13 turbine doesn't have anything to do with it.

14 MR. SHERMAN: So then the next question
15 is for a landowner that is leasing, the 62 people that
16 signed -- or it's less than that, the 37 people that
17 have signed an agreement for this, are they getting
18 compensation for that area that the wind turbine is
19 going to go on?

20 THE WITNESS: Again, I'm not privy to
21 those contracts. I'm not sure.

22 MR. SHERMAN: Let's try to ask it a
23 different way. If they are getting compensation for
24 that wind turbine that's going to go on that piece of

1 property, will that increase the value of the
2 farmland?

3 THE WITNESS: Not the farmland as of
4 itself. If you have ownership rights in something
5 that have -- that you're getting lease revenue for
6 that you're getting additional lease revenue. That
7 has nothing to do with how your farmland is
8 necessarily valued.

9 MR. SHERMAN: Has there been any studies
10 that you've done on farmland that is sold relative --
11 I know you've done all the studies about residences,
12 what about farmland for future sale?

13 THE WITNESS: So, again, if the height
14 of base use of the farmland is for continued farmland
15 use then it's going to sale based on its productively
16 outside of any lease income that might come from
17 particular sale that is different than anything else.
18 I don't see any necessarily how a wind turbine is
19 going to be impact the raising and rearing of crops or
20 the overall productivity of that particular
21 agricultural land.

22 MR. SHERMAN: Oh, my. I'm going to have
23 to agree to disagree on that one.

24 On the next page the -- the insignificant

1 minor effect that you talked about for the -- the I'm
2 going to say this wrong, the Guo and Wenz study.

3 THE WITNESS: Uh-huh.

4 MR. SHERMAN: What did you mean by
5 insignificant minor effect?

6 THE WITNESS: It's 1.12 percent, the
7 difference between essentially their test and control
8 areas.

9 MR. SHERMAN: So if you can say that 1
10 percent is insignificant. Back to my -- one of my
11 first questions, is 19 percent significant?

12 THE WITNESS: In terms of -- in terms of
13 what? 19 percent in terms of?

14 MR. SHERMAN: A negative impact on
15 values.

16 THE WITNESS: So that significant cause
17 is based on their statistical analysis. I didn't do a
18 statistical analysis for impact reports versus 19
19 impact reports.

20 MR. SHERMAN: Okay. The homes that have
21 been sold in these studies, maybe you said this, if
22 you did I apologize, the homes that have been sold,
23 were they have participant agreements, non-participant
24 agreements?

1 THE WITNESS: In my studies or in the
2 academic studies?

3 MR. SHERMAN: In your studies first and
4 then --

5 THE WITNESS: So we've done everything
6 we can to only use non-participating sales, sellers
7 and buyers.

8 MR. SHERMAN: I thought that you had
9 said that, but I wanted to make sure. Going over.
10 Okay. On the test and control property selection
11 criteria, when you've got the test area sales and then
12 the control area sales, that slide. That one. The
13 properties that sold after the construction of the
14 wind farm, so, again, there was no studies that have
15 taken place on any sales during construction?

16 THE WITNESS: We attempted to make sure
17 that all of the sales were after the wind farms were
18 already erected.

19 MR. SHERMAN: Is there any study that's
20 done about sales during construction, to your
21 knowledge?

22 THE WITNESS: Yes. So the Hoen studies
23 all use data that occurs during construction and even
24 preconstruction. And then, as I mentioned earlier,

1 the Dong and Lang report looks at differences between
2 preconstruction and post activity.

3 MR. SHERMAN: Has there been any studies
4 based on project areas or areas where there have been
5 wind turbines and they've been decommissioned?

6 THE WITNESS: Not to my knowledge.

7 MR. SHERMAN: None?

8 THE WITNESS: Not to my knowledge.

9 MR. SHERMAN: Wow. Why -- or maybe -- I
10 don't know. I'll ask this question. What about the
11 wind turbine in Douglas County? Do you know anything
12 about that, sales of property in Douglas County?

13 THE WITNESS: I did not directly study
14 sales in Douglas County for -- in preparation of this
15 report.

16 MR. SHERMAN: How about the wind
17 turbines in Morgan County?

18 THE WITNESS: Not for this report.

19 MR. SHERMAN: How about Piatt County?

20 THE WITNESS: Not for this report.

21 MR. SHERMAN: And I know Douglas County
22 wasn't an Apex project. Do you know if Morgan County
23 was an Apex project?

24 THE WITNESS: I don't. I don't know.

1 MR. SHERMAN: So you don't know, okay.
2 How about Piatt County?

3 THE WITNESS: I don't know.

4 MR. SHERMAN: You don't know, okay. Why
5 were they not included?

6 THE WITNESS: I think a lot of time and
7 effort to do these -- these ones that we've already
8 done. So this is building up this report over the
9 last five or six years when I first started to get
10 into wind. So I -- it -- did not have -- necessarily
11 have the time to study all of them. But we feel like
12 this is a good cross section for the state of
13 Illinois, and these particular projects had a lot of
14 data to look at.

15 MR. SHERMAN: The -- again, back to the
16 non-participant, do you know if any of the studies
17 were done with sales of good neighbor agreements? I
18 know you said arm's length, that would be irrelevant,
19 but how about a good neighbor agreement, somebody that
20 is being paid, for lack of a better term, from Apex or
21 any other group?

22 THE WITNESS: I don't know. We
23 investigate the information surrounding each sale. We
24 look at the MLS data and we attempt to verify

1 information about those sales with the brokers
2 involved and sometimes the sellers. We don't always
3 know and people aren't' always going to tell us
4 whether that isn't -- and a lot of a that information
5 would not be public record. So that would be
6 difficult for me to know.

7 MR. SHERMAN: Okay. Do you know of any
8 situations, has there been any circumstance where a
9 wind turbine project group has purchased land,
10 residences, property?

11 THE WITNESS: I don't know.

12 MR. SHERMAN: Then my last question, I
13 didn't quite hear your answer to Ms. Taylor. Who
14 funds these studies?

15 THE WITNESS: If you're an appraiser
16 you're typically paid by a specific client.

17 MR. SHERMAN: And who paid for your
18 study?

19 THE WITNESS: Apex Clean is my client.

20 MR. SHERMAN: Thank you.

21 MR. KAINS: Thank you, Mr. Sherman.

22 Are there any other questions from residents
23 of Coles and Douglas Counties?

24 Ms. Winslow. Could you please state your

1 name for the court reporter.

2 MS. WINSLOW: Connie Winslow, Coles
3 County.

4 MR. KAINS: Go right ahead.

5 MS. WINSLOW: I don't know if you're the
6 proper person to ask, but I was wanting to know more
7 about the home sale values in Vermilion County in the
8 summer of 2014 Apex built a wind farm in 2014 in May
9 before the wind farms were built there was a home that
10 sold for 295,000 -- 295,000, and I believe Apex
11 purchased it from the Eyrich family --

12 MR. KAINS: Ma'am, what's your question?

13 MS. WINSLOW: I was wanting to know more
14 about that, if that was true.

15 MS. ANTONIOLLI: And I'm just going to
16 object because it's outside the scope of his testimony
17 and the report that we provided for our application.

18 MR. KAINS: Yes. It's outside the scope
19 of the direct examination. It's also probably outside
20 the scope of his knowledge, but I'm going to have him
21 answer. I'm going to overrule your objection.

22 Do you know anything about the purchase of
23 any homes by Apex in Vermilion County?

24 THE WITNESS: I do not, I'm sorry.

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1 MS. WINSLOW: Who would know that or who
2 would I ask later?

3 MR. KAINS: I don't know, ma'am.
4 Perhaps -- perhaps someone in Vermilion County would
5 know.

6 MS. WINSLOW: If Apex purchased it
7 wouldn't they be able to respond?

8 MR. KAINS: Well, this gentleman is
9 employed by an accounting firm.

10 MS. WINSLOW: I meant who in the future
11 expert witnesses who would I ask that question to?

12 MR. KAINS: I -- Mr. Hess, do you have
13 any suggestions?

14 MR. HESS: Mr. Kains, I can try to track
15 it down, although it's summer of 2014, 11 years ago,
16 none of us Coles Wind Team would have been employed by
17 Apex in 2014. So I'm not sure I can get somebody with
18 personal knowledge, but I don't mind seeing what I can
19 find out. But I -- if she's asking who will be here,
20 I don't think anyone from the Coles Wind Team would
21 have been involved in whatever happened 11 years ago
22 in Vermilion County.

23 MS. WINSLOW: Why I was wondering is
24 because the value of the home, according to what I was

1 reading, Apex had paid 295,000 --

2 MR. KAINS: Ms. Winslow --

3 MS. WINSLOW: -- for it and it dropped
4 down to 60 percent less when they --

5 MR. KAINS: Ms. Winslow, you need to ask
6 a question of the witness. He doesn't know. There's
7 nobody here who knows. Mr. Hess has volunteered.
8 Mr. Hess is counsel from Apex, corporate legal
9 counsel.

10 MR. HESS: Yes, sir.

11 MR. KAINS: Okay. Some of these are
12 private attorneys, some of them are employed by Apex.
13 So if anybody can find this out it would probably be
14 Mr. Hess. So if you could locate any information --

15 MR. HESS: Yes, sir.

16 MR. KAINS: -- or in the alternative,
17 Ms. Winslow, you can discuss this during your
18 testimony. Okay. But right now it's time for
19 questions of Mr. Lines.

20 So do you have anything further of him?

21 MS. WINSLOW: That was all.

22 MR. KAINS: Okay. Very good. Thank
23 you, Ms. Winslow.

24 All right. Any other questions from

1 residents of Coles or Douglas Counties?

2 All right. Now, questions from folks outside
3 Coles or Douglas Counties. Yes, Mr. Hartke.

4 And, Mr. Hartke, you weren't here the other
5 night, but in an effort to move the hearing along I am
6 limiting the amount of time for cross-examination
7 basically extending the amount of time afforded Coles
8 and Douglas County residents to one hour for their
9 testimony and for cross-examination of each witness,
10 and nonresidents have 15 minutes. So you have 15
11 minutes to cross examine the witness.

12 MR. HARTKE: Okay. Here we go. I am
13 Ted Hartke from Sidney, Illinois. In the Top Crop
14 Wind Farm how tall were those turbines? Top Crop.

15 THE WITNESS: 328 feet tall.

16 MR. HARTKE: Why is it even reasonable
17 to compare a 320 some foot tall turbine on Top Crop
18 Projects, this is the one you -- was the one
19 presentation you made compared to the 650 or so height
20 turbines? How is that even relevant with the
21 comparison?

22 THE WITNESS: So just as a proxy, I
23 still might include an office building sale of a four
24 story office building when I'm looking at an eight

1 story office building. They are of the same exact
2 use. Yes, one's a bit taller than the other one, but
3 that particular development also had a lot of data to
4 look at and data over time, so I thought it was
5 relevant.

6 MR. HARTKE: So if a turbine that's half
7 as tall has the setback of let's say one and a half
8 times the height don't you think that the height is a
9 massive difference and the effect of the people's land
10 because of the multiplier that they -- they have
11 setback rules based on height, and don't you think
12 there would be a comparable difference for the
13 property value of the house next to a 600 footer
14 compared to a 300 footer?

15 THE WITNESS: No.

16 MS. ANTONIOLLI: Mr. Hearing Officer,
17 I'm going to object to the repetitious nature of this
18 line of questioning. I know your hearing officer
19 rules say we're going to stick to testimony that's not
20 repetitious and questions that are not repetitious.

21 MR. KAINS: Well, it hasn't been
22 repetitious yet. But what was the answer to the
23 question, Mr. Lines?

24 THE WITNESS: No.

1 MR. KAINS: Okay. We're going stick to
2 things that are relevant, however.

3 MR. HARTKE: Okay. When you guys talked
4 about the tax assessors that haven't reported any
5 people complaining about their property value going
6 down. If I was in a wind farm and the wind turbines
7 were built around my house, do you think it would be
8 good or smart for the person trying to sell their
9 house to go the tax assessor and say, hey, I need
10 my -- I got a problem my -- my property value went
11 down, do you think that a person would go to their
12 assessor and try to get their assessment lowered and
13 then potentially lose more value in the sale of their
14 home after their assessment went down? Doesn't that
15 sound like a self-defeating problem? Because the
16 homeowner would be the only person that loses out.
17 Why would -- why would the report of the tax
18 assessor's office make any of this stuff sound good?
19 That would -- don't you think that people calling the
20 tax assessor to complain would be hurt very badly to
21 make such a complaint?

22 MR. KAINS: Okay. I believe there's
23 three questions so far. One is would anybody go to
24 the tax assessor to challenge their assessment? Do

1 you have any idea how to respond to that?

2 THE WITNESS: People challenge their
3 assessments all the time for a variety of reasons. So
4 I think your hypothetical assumes that everybody's
5 going to sell their house who's living next to a wind
6 farm, I don't know that that's the case based on your
7 hypothetical. So, no, I think people challenge their
8 assessments for a variety of reasons. And I don't
9 also think that your assessment level is directly tied
10 to what your home sells for.

11 MR. HARTKE: Okay. So if your
12 assessment level isn't tied to what your home sells
13 for why is the assessment levels even part of property
14 value presentation that's got nothing to do with the
15 sales?

16 THE WITNESS: You're saying that your
17 assessment -- if your assessment is lowered before
18 your sell your house, then now you're going to have a
19 lower sales price. I think that's what I heard from
20 you. Is that true?

21 MR. HARTKE: If you're asking me a
22 question I'd be glad to answer it, but --

23 THE WITNESS: I'm just clarifying.

24 MR. KAINS: Let's try to find out what

1 the question is. Can you restate it, please.

2 MR. HARTKE: The question is, if you're
3 going to sell your house why would you dream of going
4 to the assessors and asking to lower your assessment?
5 That's going to show up on your -- on information that
6 people look up --

7 MR. KAINS: Okay. Let's answer that
8 question.

9 THE WITNESS: Well, I think people go to
10 the assessor to get their assessment reduced so they
11 could pay less taxes. But that doesn't have anything
12 to do with what you might sell your house for.

13 MR. HARTKE: Don't realtors when --
14 people when they ask for a -- how much they're going
15 to price their house for when it's time to sell it,
16 isn't the tax assessment part of the strategy to
17 advertise the price your house should be?

18 THE WITNESS: I'm not a real estate
19 broker, so I couldn't tell you. But I see homes in
20 Illinois sell for more or less than their assessed
21 value.

22 MR. HARTKE: Okay. Do you think the
23 assessed value is an indicator of what a house is
24 selling for or what it's -- it's worth?

1 THE WITNESS: Not necessarily.

2 MR. HARTKE: Then why is it in this
3 presentation that you went to all these tax assessors
4 saying that there's been no people complain, but it
5 has nothing to do with it?

6 THE WITNESS: So those are two different
7 things. So one is an assessment for the levy which is
8 important, that's how taxes get paid, and these are
9 individuals who are constantly doing appraisals and
10 regarding the value of homes in and around and outside
11 of the wind projects all over the state of Illinois.
12 So they're individuals in the market place who have an
13 understanding of transactions that were occurring and
14 track them and trend them, and assessors are
15 consistently charged in the state of Illinois with
16 regarding different kinds of projects and how they
17 might impact values. That is not necessarily tied
18 specifically to what you might sell your house for if
19 you're hypothetically selling your house because you
20 now have a wind turbine next to you.

21 MR. HARTKE: All right. So let's say
22 it's time to sell the house and you have a house
23 that's surrounded by turbines compared to a perfectly
24 same exact house that's not surrounded by turbines,

1 two different settings, do you think the number of
2 people who want to live in a wind farm would be more
3 limited like with -- would that limit the potential
4 buyers of your home if it's in the wind farm?

5 THE WITNESS: So the information that we
6 pulled suggests that marketing time for homes that
7 sell next to wind turbines is similar to that of
8 control sale data.

9 MR. HARTKE: Okay. I'm going to wrap
10 this up. It sounds like I'm probably running out of
11 time.

12 If -- I want to say this in the right way.
13 If you're going to -- I'm going to hold my question
14 until -- I don't think this assessor is going to --
15 this appraiser is going to be able to answer my next
16 question. Thank you for your time this evening.

17 MR. KAINS: Thank you, Mr. Hartke.

18 Any other questions from folks outside of the
19 counties?

20 Mr. Cronkhite.

21 MR. CRONKHITE: Arthur Cronkhite. What
22 questions do you ask when you interview people and so
23 forth in the area?

24 THE WITNESS: Just general questions to

1 brokers or general questions --

2 MR. CRONKHITE: Well, you said -- you
3 made a statement early on that in your interviews you
4 ask specific questions. What are some of those
5 questions?

6 THE WITNESS: Oh, so we're verifying the
7 information that we're pulling from the MLS and public
8 records. So we're verifying sizes of homes, verifying
9 acreage, verifying that the buyers and sellers were
10 unrelated, that it wasn't a short sale or a
11 foreclosure. So that meets the definition of market
12 value. We will often ask the market participants, you
13 know, are they aware, were the buyers aware of the
14 wind turbines and did you -- do you think that that
15 played a role in the price that was paid.

16 MR. CRONKHITE: Okay. You talked about
17 this company, this Long and Lang or whatever it was.

18 THE WITNESS: Not a company. So two
19 academic individuals, they're professors.

20 MR. CRONKHITE: Okay. Are they paid by
21 the company in any way?

22 THE WITNESS: Oh, God no. So those two
23 individuals were doing it with the University of Rhode
24 Island, it's an academic study.

1 MR. CRONKHITE: Okay. All right. All
2 right. Do you think any of the people sitting here
3 live within the wind turbines?

4 THE WITNESS: I have no idea, sir.

5 MR. CRONKHITE: Okay. Turbines have no
6 impact on farmlands, you made that statement. I know
7 over in Indiana there's a wind turbine structure that
8 is just leaking all over the fields.

9 MR. KAINS: Mr. Cronkhite.

10 MR. CRONKHITE: I'm sorry.

11 MR. KAINS: Question.

12 MR. CRONKHITE: Okay. Question.

13 MR. KAINS: You can ask him if he knows
14 about it.

15 MR. CRONKHITE: Yes. Do you know about
16 a wind turbine farm over in Indiana?

17 THE WITNESS: I don't. But I'll tell
18 you one question I often get is like what does cause
19 an impact.

20 MR. CRONKHITE: Do what?

21 THE WITNESS: What causes an impact,
22 right. So if -- if property values, adjacent property
23 values aren't injured by the fact that they're viewing
24 or looking at, you know, a wind turbine then what

1 does. It's when actual things, you know, come into
2 your -- come into your -- your particular land area,
3 right. So if you're next to a big highway now and
4 you've got trucks that are traveling by you and the
5 ground shakes and that shakes your house, right, that
6 is a -- that's an impact and people are likely not to
7 want to be in that situation. But I think what you're
8 talking about may be like a very specialized
9 circumstance. You have a situation where something
10 may have gone wrong with that particular machine,
11 that's not necessarily representative of every machine
12 that's out there, and I'm sure that there's insurance
13 and cleanup to cover that. So I don't know that what
14 you're saying is true of every piece of farmland
15 that's next to every wind turbine.

16 MR. CRONKHITE: No. But these do leak.
17 I mean, you can stand and look at them, they have oil
18 that runs down blades of every one of them.

19 Okay. How many studies have you been
20 involved with here in the state of Illinois?

21 THE WITNESS: Again, I've done eight
22 that are contained within my report and are part of
23 application.

24 MR. CRONKHITE: Okay. You talked about

1 the group that did the study, you know, that were
2 academics and so on and so forth. You said something
3 about the small two mile impact. How far out do they
4 go out and study these wind farms?

5 THE WITNESS: Usually the academic study
6 is something a little bit different. I think
7 generally speaking they looked at differences of
8 homes, first like in a half mile, then one mile, then
9 two miles, then three miles and then they typically
10 would jump from three to ten miles. One of the
11 studies went out ten kilometers which is many, many
12 miles. So they range.

13 MR. CRONKHITE: Okay. And you said
14 something about three miles is the closest?

15 THE WITNESS: For us our control sales
16 are no closer than three miles away.

17 MR. CRONKHITE: Okay. All right.
18 And -- that's it for now.

19 MR. KAINS: Okay. Thank you,
20 Mr. Cronkhite.

21 Any other questions from anyone for Mr. Lines
22 regarding property values? Yes, sir. Remind me
23 again.

24 MR. SHAW: Clint Shaw.

1 MR. KAINS: Mr Clint Shaw.

2 MR. SHAW: S-H-A-W. I got a question
3 for you --

4 MR. KAINS: And you're from Coles?

5 MR. SHAW: Yes, I am.

6 MR. KAINS: Yes, sir. Go right ahead.

7 MR. SHAW: With the declination of
8 population here in Charleston you were talking about
9 with your surveys and then you bringing turbines in,
10 so we have more property in the future along with the
11 less sales and then having the turbines, is there any
12 sort of effect that you know of or that you studies
13 to -- I don't know, I guess forecast that?

14 THE WITNESS: Again, you've got an
15 amazing amount of investment that's coming into the
16 community by virtue of what's being constructed, and
17 that investment will play out within your school
18 systems and your civic government which could lead to
19 improvements that draw people to the area so.

20 MR. SHAW: Which -- which could lead
21 to -- lead to drawing people into the community? I
22 mean --

23 THE WITNESS: It's possible.

24 MR. SHAW: I've been here for a long

1 time. I've seen the declination of Eastern. We had
2 12,000 students when I went to school here. There's,
3 what, 8,400 at Eastern now. I'm pretty hard pressed
4 to see how turbines are going to be an attraction.

5 THE WITNESS: If I could grow 600 foot
6 Tony Romo's is going to put them all over the county I
7 would. I think we're going to have --

8 MR. KAINS: No. No, Mr. Lines, no. Go
9 ahead with another question, Mr. Shaw.

10 MR. SHAW: So you said something a
11 little bit ago about five or six years ago, was
12 this -- did you start doing the same for this project
13 five or six years ago?

14 THE WITNESS: No. I started doing more
15 wind farms about five or six years ago, which is when
16 I started looking at a lot more data for wind farms.

17 MR. SHAW: Okay. Gotcha. I think
18 that's good enough for now.

19 MR. KAINS: Very good. Thank you,
20 Mr. Shaw.

21 Any other questions for the public?
22 Mr. Hartke, I'm going to limit you to one more and
23 Mr. Smith one more, just one more to clarify,
24 Mr. Hartke. My general rule is once you have a bite

1 at the apple you've got to wait until the next. But I
2 allowed Ms. Clark so I'm going to allow Mr. Hartke and
3 Mr. Smith. Go ahead, sir.

4 MR. HARTKE: I had two questions. I
5 would like to ask two.

6 MR. KAINS: Okay.

7 MR. HARTKE: Okay. You talked about the
8 semi trucks driving by and that the ground shakes,
9 that has like an effect. If you -- if the ground
10 shakes from the wind turbine don't you think that
11 would cause a negative problem with your house?

12 THE WITNESS: I think that's why they
13 located all the homes so far away from them.

14 MR. HARTKE: Okay. But if the ground
15 shakes it could have a problem?

16 THE WITNESS: Again, my understanding is
17 that the reason for the setback is to make sure that
18 there aren't any non-participating owners that would
19 be close enough to feel anything.

20 MR. HARTKE: Okay. That's all I got.
21 Thank you.

22 MR. KAINS: Thank you, Mr. Hartke.
23 Mr. Smith, you get your second bite at the apple.

24 MR. SMITH: I'll be just a quick

1 question.

2 MR. KAINS: Yes, sir. Go right ahead.

3 MR. SMITH: Have you ever been in the
4 St. Louis Arch?

5 THE WITNESS: Yes, sir.

6 MR. SMITH: Well, these wind turbines
7 are going to be probably 25 feet taller than that. So
8 that's what gives you your height there.

9 MR. KAINS: Thank you, Mr. Smith.

10 Any other questions for Mr. Lines from the
11 public?

12 (No response.)

13 MR. KAINS: All right. Thank you,
14 folks.

15 All right. Questions for Mr. Lines from
16 Coles County staff and consultants, first,
17 Mr. Lockhart.

18 MR. LOCKHART: No.

19 MR. KAINS: Mr. Keyt.

20 MR. KEYT: I just have a very brief few
21 question.

22 **CROSS-EXAMINATION,**

23 **QUESTIONS BY MR. ANDREW J. KEYT:**

24 Q. In your delineation between urban and

1 rural, how do you make the delineation?

2 A. So two of the studies use 250,000 people
3 and county as the delineation between urban and rural.

4 Q. Understood. In terms of the proximity
5 of wind turbines to non-participating residences or
6 properties, if I'm understanding what you're telling
7 us, is the studies that have been looked at,
8 particularly the older studies because the turbines
9 were lower power they needed more turbines and
10 therefore there were more turbines nearby those
11 residences. Is what I'm understanding what your
12 testimony is, correct?

13 A. That's correct.

14 Q. Conversely, as the turbines increased in
15 height there were fewer turbines, but the trade off is
16 the turbines are taller?

17 A. That's correct.

18 Q. Okay. In terms of the factor that is
19 within the Coles County Ordinance, Factor B states
20 that the WECS project will not be injurious to the
21 uses and enjoyment of other property to be in the
22 vicinity for the purposes already permitted. Nor
23 substantially diminish the impaired property values of
24 the surrounding properties.

1 What is your opinion as to the impact that
2 this wind farm, proposed wind farm would have on
3 property values surrounding the particular area?

4 A. I don't think that they will be
5 substantially diminished in any way.

6 Q. In terms of the question of people
7 appealing their taxes, as you probably understand it,
8 you tell me if I'm -- your understanding comports with
9 mine. People typically are appealing their taxes to
10 lower their tax rate because they believe that their
11 home value is not as high as what the assessor has
12 assessed the home value at?

13 A. Yes.

14 Q. Am I understanding that correctly? My
15 understanding of the information that you provided is
16 that from what either your conversations or
17 conversations your staff had there were no tax
18 assessors that relayed to you in any way that there
19 had been appeals of property taxes based on the
20 lowering of home value near or in proximity to a wind
21 farm?

22 A. Just to -- all the assessors we spoke
23 with said that they did not -- that not only did no
24 one come forward after a wind farm was developed to

1 say this wind farm is here and so now you're
2 appraising my house too high because my -- because
3 these wind turbines are impacting negatively my house
4 value. But neither did the assessors lower them
5 because they found a specific trend that would insight
6 them to lower for all of the homes in that area.

7 Q. And in terms of the question on whether
8 the property values will be substantially diminished
9 or impaired by property values, it's not based on
10 whether or not the number of studies that might be out
11 there one way or the other? In other words, there may
12 be some studies that show that there's a negative
13 impact. It's whether or not there is evidence to
14 suggest that in this particular project is going to
15 substantially impair property values or surrounding
16 properties. Am I understanding that correctly?

17 A. I agree with that.

18 Q. Okay.

19 MR. KEYT: That's all the questions I
20 have. Thank you.

21 MR. KAINS: Thank you, Mr. Keyt.
22 Redirect examination, Ms. Antoniolli.

23 MS. ANTONIOLLI: No, thank you.

24 MR. KAINS: Okay. Very good. Final

1 questions for the witness come from members of the
2 Planning and Development Committee.

3 (No response.)

4 MR. KAINS: All right. Very good.
5 Thank you, Mr. Lines. You may step down.

6 THE WITNESS: Thank you.

7 (Witness excused.)

8 MR. KAINS: All right. Before you call
9 your next witness we're going to take a break. It's
10 7:41. Let's come back at 7:55, 7:55 p.m. The
11 Planning and Development Committee is recessed till
12 7:55. Thank you.

13 (A recess was taken at 7:41 p.m.)

14 (Resume at 7:55 p.m.)

15 MR. KAINS: All right. We're back on
16 the record.

17 Ms. Lode, if you could call your next
18 witness.

19 MS. LODE: We're going call Jacob
20 Runner.

21 MR. KAINS: All right.

22 J A C O B R U N N E R,

23 was called as a witness on behalf of the Applicant
24 and, having been first duly sworn, testified as

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1 follows:

2 MR. KAINS: Okay. Have a seat.
3 Counsel, your witness.

4 MS. LODE: Thank you.

5 **DIRECT EXAMINATION,**

6 **QUESTIONS BY MS. SARAH L. LODE:**

7 Q. Can you please state and spell your name
8 for the record.

9 A. Yes, it's Jacob Runner, J-A-C-O-B,
10 R-U-N-N-E-R.

11 Q. Thank you. And can you please tell us a
12 little bit about your experience and background.

13 A. Sure. I'm a practice leader for EDR,
14 Environmental Design and Research. It's an
15 architecture, engineering and consulting company based
16 in Syracuse, New York. I'm the practice leader
17 specifically for the GIS group. So I'm in charge of
18 overseeing and managing all the geospatial aspects of
19 the firm.

20 MR. KAINS: Mr Runner, could you just
21 raise your voice a little bit.

22 THE WITNESS: Oh, sure. Rarely asked
23 that. So I'm responsible for the oversight and
24 management of all the geospatial related items for

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1 projects in the firm. I -- specific to that
2 conducting and overseeing somewhat spatial analyses
3 such as shadow flicker. The reason I'm here tonight.
4 So I'm -- I over the last ten years conducted shadow
5 flicker analyses for dozens of projects across the
6 country. I've served as an expert witness in a
7 handful of those cases in both New York and Illinois,
8 and specifically for three projects that I've provided
9 as an expert witness and testimony here in Illinois.

10 MS. LODGE: Great. Thank you,
11 Mr. Runner.

12 Mr. Hearing Officer, I'd like to introduce
13 Jacob Runner as an expert on the matter of shadow
14 flicker.

15 MR. KAINS: Let's go through educational
16 background.

17 THE WITNESS: Oh, yes. I have a
18 bachelor's of science in environmental information and
19 mapping from the State University of New York College
20 of Environmental Science and Forestry.

21 MR. KAINS: Mr. Keyt, do you have any
22 additional questions for Mr. Runner with respect to
23 his qualifications?

24 MR. KEYT: Sure.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

EXAMINATION,

QUESTIONS BY MR. ANDREW J. KEYT:

Q. Have you provided any testimony in relation to shadow flicker in cases in Illinois?

A. Yes, three cases in Illinois.

Q. When did you first start doing shadow flicker analysis?

A. Approximately only this time in 2015.

Q. What was the first project you testified on, do you know?

A. I testified in New York. I would be providing written testimony for the Cassadaga Wind Project and that was in, I think, 2018.

Q. Is there anybody that is conducting studies on your behalf at your firm and then you are reviewing and signing off on it, or are you conducting the study?

A. Yes. I have another coworker that we conduct studies in conjunction, but specifically for this project I conducted all the work analysis and reports.

Q. Do you have a copy of your formal

1 education to discuss how you perform shadow flicker
2 analysis?

3 A. Yes. So shadow flicker analyses are a
4 bit niche. They're not something that's necessarily
5 taught in school. But my background was specific to
6 geospatial analyses, modeling complex spatial
7 analysis, that sort of stuff. Mostly in relation to
8 environmental features, anomalies over time, but the
9 basic, you know, fundamental tools, technology,
10 methodologies, those aspects are all part of that
11 formal training and schooling.

12 Q. Have you ever been excluded from
13 testifying?

14 A. I have not.

15 MR. KEYT: That's all the questions I
16 have.

17 MR. KAINS: Ms. Lode, do you have a CV
18 for Mr. Runner?

19 MS. LODE: We do not, but we're happy to
20 provide one.

21 MR. KAINS: Okay. That's all right.
22 Mr. Runner, did you testify at a public hearing a year
23 or two ago in Piatt County?

24 THE WITNESS: Yes, sir, in front of you.

1 MR. KAINS: Okay. At that time,
2 Ms. Antonioli, did you call him as an expert witness
3 at the one in Piatt?

4 MS. ANTONIOLLI: Yes.

5 MR. KAINS: Okay. I'm remembering now.

6 THE WITNESS: Sorry.

7 MR. KAINS: I do so many of these it's
8 hard to remember if you've seen somebody and where
9 you've seen them.

10 And how many times have you testified in a
11 public hearing setting such as this, whether it's
12 Illinois, New York or somewhere else?

13 THE WITNESS: Specific to shadow
14 flicker?

15 MR. KAINS: Yes, sir.

16 THE WITNESS: Probably be my a fifth
17 time.

18 MR. KAINS: Okay. I'm going to find
19 that Mr. Runner is qualified to testify as an expert
20 witness with respect to the issue of shadow flicker
21 and will be provided unlimited testimony.

22 Go right ahead with your questions, Ms. Lode.

23 MS. LODE: May I approach the witness
24 with the exhibits -- or of the application?

1 MR. KAINS: I'm sorry?

2 MS. LODE: May I approach the witness
3 with a copy of the application.

4 MR. KAINS: Yes, you may.

5 **QUESTIONS BY MS. LODE:**

6 Q. Mr. Runner, I'm showing you what's been
7 marked as Appendix D-8, it's entitled Shadow Flicker
8 Report. Do you recognize this?

9 A. I do.

10 Q. And did you draft or oversee the
11 drafting of this report?

12 A. I conducted analyses, drafted the
13 report.

14 Q. And you did that by yourself?

15 A. I did.

16 Q. Thank you. So I'm going to walk you
17 through your report for a second here. Do you agree
18 that on page 1 of your report there is a brief project
19 overview and then a discussion including a primer on
20 what shadow flicker is?

21 A. Yes.

22 Q. Can you please provide for the county
23 and public a general summary of that shadow flicker
24 primer.

1 A. Yes. So, I mean, in general the project
2 that we evaluated was 62 wind turbines and 2 turbine
3 models. Shadow flicker refers to the moving shadows
4 of an operating wind turbine, cast of the times of day
5 when the sun's lowering in the horizon, and when that
6 turbine rotor is between the sun and a residence, and
7 specifically in this case receptor, residence means
8 residences and occupied community buildings.

9 Q. And can you give us an example of
10 something we might be familiar with that would appear
11 somewhere to shadow flicker?

12 A. Yes. So a similar situation would be,
13 you know, let's say in the morning when the sun is
14 shining through a window and a tractor or a truck
15 drives by your house and that light in the room dims
16 for a moment and then brightens back up, that's a
17 similar phenomenon we're talking about here.

18 Q. Thank you. And on page 2 of your report
19 which is page 428 of 698, for the record, you describe
20 the method of the shadow flicker analysis and modeling
21 you conducted prior to writing the report, correct?

22 A. Yes.

23 Q. Can you describe that methodology?

24 A. Sure. So the first step in the process

1 is to, you know, acquire the input data for the
2 modeling. So for this project the 62 wind turbines
3 and with that we -- we need to make modeling
4 dimensions of the turbines. We also have the receptor
5 data, so residences and occupied community buildings,
6 and then the wind direction frequency. So that's kind
7 of over the course of the year, the average directions
8 that the wind is blowing in. That data is typically
9 provided by the Applicant. And then we also collect
10 other data sources, such as elevation data that comes
11 from the United States geological survey and then we
12 also use sunshine frequency data which comes from the
13 National Oceanic and Atmospheric Administration or
14 NOAA. So we take that data, we -- there's some minor
15 processing data right formats, we plug it into the
16 model which is the -- that has the mathematical
17 listings for us and then that produces the results.
18 We take those results and then compile them and have
19 them in the report.

20 Q. And what modeling software do you use?

21 A. So we use WindPRO which is a globally
22 recognized software that's utilized for modeling wind
23 projects, and specifically inside of that there's a
24 module that's designed built for modeling shadow

1 flicker.

2 Q. And can you describe for us a little bit
3 further the input variables, just the assumptions that
4 the model uses to make sure that's a conservative
5 modeling of the shadow flicker.

6 A. Yes. So there's four of the primary
7 conservative metrics that's built in the modeling,
8 four applied in the modeling. So the first one being
9 that all 62 turbine locations were modeled where
10 ultimately 51 turbine locations will be built. So
11 what that means is that for some locations of the
12 project area the shadow flicker numbers will
13 ultimately be less than modeling due to -- just purely
14 due to the fact that there won't be turbines in those
15 areas or potentially contributing shadow flicker to
16 areas.

17 The second one which is pretty important is
18 that the model assumes that the wind turbine flickers
19 are always turning, which while that would be
20 advantageous, there's the reality that they're not
21 always turning for various reasons.

22 The third is that the model assumes that the
23 receptor location is a glass box. So that -- what
24 that means is that there's visibility from that single

1 point, which would be 360 degrees horizontally and 180
2 degrees vertically. So it can see everywhere. So
3 regardless if there's windows on that side of the
4 house or not, the model assumes that there's complete
5 visibility.

6 And then the last one that's worth kind of
7 mentioning and discussing is that the model also
8 doesn't take into account any existing vegetation or
9 buildings that are adjacent to the structure. So, you
10 know, dense vegetation close to the house for wind
11 breaks or outbuildings that are close to the house
12 that would limit visibility in the morning or evening
13 of those sun rays aren't taken into account in
14 modeling. So all that factors add a fair amount of
15 conservative to the modeling.

16 Q. And you used this modeling factor with
17 those functions for both turbine models in this case?

18 A. Yes, that's correct.

19 Q. Moving to page 3 of your report you
20 indicate the shadow flicker threshold for this
21 project. What is that threshold?

22 A. So the county ordinance sets the shadow
23 flicker threshold to be 30 hours per year for
24 non-participating residences or community occupied

1 buildings, occupied community buildings, sorry.

2 Q. And in your experience how does that
3 threshold compare to other projects, other
4 municipalities and jurisdictions?

5 A. Yes, so that's a fairly consistent
6 threshold across the U.S. and other jurisdictions
7 including Illinois.

8 Q. So following the information regarding
9 the threshold, the report summarizes the results of
10 your modeling. Can you please summarize those for us.

11 A. Yes. So I think the most important
12 result is that there's no non-participating residences
13 nor occupied community buildings under either turbine
14 scenario, the GE or Vestas that are over 30 hours per
15 year.

16 MS. LODE: Nothing further from me.

17 MR. KAINS: All right. Very good.
18 Thank you. Questions for Mr. Runner regarding his
19 testimony first from members of the Committee.

20 MR. WATTS: I have a couple if I may.

21 MR. KAINS: If you could hit the
22 microphone there, Chairman. Thank you.

23 MR. WATTS: You used some data provided
24 by the clients in putting together the studies?

1 THE WITNESS: Yes.

2 MR. WATTS: Has there ever been a case
3 in which you were -- any of the data that was provided
4 to you in making any studies like this?

5 THE WITNESS: No. It's pretty straight
6 forward data. You know, the turbine locations are --
7 you know, it could only come from the client, right.
8 The wind direction frequency is meteorological data
9 that they're collecting for production reasons or
10 other matters, right, on site, and then the receptor
11 data is sometimes prepared by the client because
12 they're in the area, they're verifying, you know, the
13 structures are the right types of structures because
14 they're needed for setbacks, sound studies, the shadow
15 flicker studies, sometimes other consultants prepare
16 them as well. So that's, you know, kind of the only
17 one. Can be a bit variable whether those provided by
18 the applicant or, you know, somebody else.

19 MR. WATTS: Okay. All right. And has
20 there been occasion you needed to go back and do
21 actual studies to post-construction to see how
22 accurate the modeling was concerning shadow flicker?

23 THE WITNESS: Not due to, you know, any
24 sort of serious issues. I had a project in Ohio that

1 as a -- in that state, it's a state citing process so
2 it's done on a state level, there was a condition in
3 that permit that required the modeling to be conducted
4 the following years of construction using realtime,
5 the actual data from the operational turbine. So we
6 put in the exact times when they were on and off, and
7 in that case, all non-participating receptors were
8 still under the 30 hour threshold, that was also
9 established in that case.

10 MR. WATTS: Actual correlation between
11 model?

12 THE WITNESS: Yes.

13 MR. WATTS: All right. Thank you.

14 MR. KAINS: Thank you for your
15 questions, Mr. Chairman.

16 Anybody else? Mr. Freezeland.

17 MR. FREEZELAND: 30 hours a year to me
18 seems low in general just speaking, but I'm thinking
19 then so what you're saying when that's being
20 calculated it's only because the sun's going to be in
21 a specific level for a limited amount of time to where
22 that blade would cross and then have the ability to
23 enter your window, correct.

24 THE WITNESS: Yes.

1 MR. FREEZELAND: I mean, that's kind of
2 basically dumbing it down.

3 THE WITNESS: Yes, so the first part of
4 that, right, the 30 hours generally represents less
5 than 1 percent data light hours in the year. The
6 second part of that is that, you know, in the -- you
7 know, in the mornings and the evenings, you know, when
8 the sun's lower on the horizon and has potential to
9 cast longer shadows, that's when you get that effect.
10 And then you also -- the turbine has to be in their
11 correct orientation, right, so it has to be semi
12 perpendicular, let's say, to the structure in order to
13 cast a shadow into it, you know, it's running parallel
14 and then it's not going to have a rotating, moving
15 shadow in that direction.

16 MR. FREEZELAND: Okay. So, yeah, so the
17 sun is not static. So you're not going to be
18 constantly getting barred by these?

19 THE WITNESS: Yes. So the model runs on
20 one minute increments throughout the year. So it
21 tells -- that's what I meant about the math, I take
22 the math piece out of it, for me otherwise I'd still
23 be staring at spreadsheets, correct, trying to figure
24 trigonometry and all this stuff. So what it does is

1 it looks like the exact position of the sun and the
2 exact position of the receptor and then puts that --
3 you know, that knows where the turbine is and then it
4 calculates is there a potential for shadow flicker to
5 happen mathematically, you know, and then it
6 aggravates those for a month and then applies those
7 sunshine reduction frequencies or the wind direction
8 frequency, so typically in a month, you know, say
9 January is only sunny 40 percent of the time, so a
10 gross average over the month, you know, is produced.

11 MR. FREEZELAND: So 30 hours a year
12 then, you said that was mostly a standard across the
13 board, is pretty average, 30 is the high water mark.
14 What realistically do you think after doing the study
15 would it be? What would be -- would it be two hours,
16 five hours or would it be 29 and a half hours, or does
17 vary for each location?

18 THE WITNESS: It varies that. I think
19 just mainly because of the location of where the
20 receptor is compared to the turbine. So if you're due
21 now north or due south of the turbine, you won't get
22 any shadow flicker, right, because the sun -- the sun
23 being north of us, right, or directly south because
24 there would be some other problems, but, you know, as

1 you move further away and change those angles, right,
2 so if you're farther away from the turbines then your
3 potential for shadow flicker and those other, you
4 know, kind of items play more, right, because there's
5 more items that are likely to obstruct the shadow from
6 casting that far, be broken up. As you're closer to
7 the turbine then those values probably change a
8 little.

9 MR. FREEZELAND: Thank you.

10 MR. KAINS: Thank you for your
11 questions, Mr. Freezeland.

12 Any other questions from the Committee?

13 From the County Board? Mr. Shook.

14 MR. SHOOK: So you're telling us that
15 you're a shadow expert? Just shorten it, yeah. And
16 you went to school on this?

17 THE WITNESS: Well, I went to school for
18 environmental information mapping, so geospatial
19 analyses and this is one way to apply those skills.

20 MR. SHOOK: I don't got anymore.

21 MR. KAINS: Thank you, Mr. Shook. Any
22 other questions from members of units of local
23 government, including school districts?

24 (No response.)

1 MR. KAINS: Very good. Questions from
2 members of the public, first questions from Coles
3 and/or Douglas County residents based upon his
4 testimony. Ms. Taylor. Go right ahead.

5 MS. TAYLOR: Okay. Could you just
6 explain why would there be a need for shadow flicker
7 study.

8 THE WITNESS: Yes. I mean, there's a
9 couple reasons why and, you know, there's an
10 ordinance, right, that requires a threshold. I think
11 that's the primary one. So, you know, that verifies
12 that the project is in compliance with the ordinance
13 okay.

14 MS. TAYLOR: Okay. Are there any
15 negative impacts from shadow flicker.

16 THE WITNESS: Yes, I mean, there is, you
17 know, the factor of, you know, that dimming effect
18 occurring over the course of a year.

19 MS. TAYLOR: The dimming effect, can you
20 help us with that.

21 THE WITNESS: Yes, so I was kind of
22 using that as an example at the beginning so that, you
23 know, picture, you know, sun's coming in from a
24 window, right, and, you know, a truck or an object

1 moves past that sunlight and it dims the room, right,
2 and then it brightens back up. So that's what shadow
3 flicker is that dimming of the light in the room and
4 then coming back on.

5 MS. TAYLOR: Okay. So besides the
6 inconvenience factor, are there health factors.

7 THE WITNESS: Not that I'm aware of, no.

8 MS. TAYLOR: So you -- there are -- are
9 you aware of any studies that state negative health
10 impacts from shadow flicker?

11 THE WITNESS: I am not.

12 MS. TAYLOR: Okay. Are you aware of any
13 studies that involve shadow flicker and health whether
14 negative?

15 THE WITNESS: I'm not a health expert.

16 MS. TAYLOR: Right. You said you're the
17 shadow flicker expert. I just wonder are there any
18 studies that we can reference?

19 THE WITNESS: I believe there's a study
20 of health Canada that discusses shadow flicker.

21 MS. TAYLOR: Health Canada?

22 THE WITNESS: Yes.

23 MS. TAYLOR: Okay.

24 THE WITNESS: But, again, it studies a

1 lot of factors associated with wind projects, but it's
2 not -- again, it's not discussing the health impact
3 it's more talking about the inconvenience aspect of
4 it, and people's reaction to that.

5 MS. TAYLOR: Okay. I would think it
6 would move past inconvenience if it was done by the
7 health.

8 THE WITNESS: Yes, I think that's kind
9 of the point, right, is that, you know, if it a wasn't
10 true, you know, health concern there would be ample
11 studies, right. Researchers love to research
12 problems.

13 MS. TAYLOR: And so there's only one
14 study?

15 THE WITNESS: Like I said, you know,
16 that's the more significant peer reviewed study that
17 discusses shadow flicker.

18 MS. TAYLOR: Do you know what the study
19 stated?

20 THE WITNESS: Not particularly. Mostly
21 because it was relating to, you know, kind of the --
22 the inconvenience, the noise factor and discussing
23 multiple aspects of that. But, you know, I -- my
24 research, my focus is much more on the technical, you

1 know, analytic aspect of it and not so much on the,
2 you know, inconvenience, you know, side of things.

3 MS. TAYLOR: Would you be able to
4 provide the -- all of us, the exact study or where we
5 can find the name of it?

6 THE WITNESS: Yes, I'm sure we could.

7 MS. TAYLOR: Okay.

8 THE WITNESS: You know, identify that.

9 MS. TAYLOR: Okay. Thank you, sir.

10 MR. KAINS: Thank you, Ms. Taylor.

11 Mr. Hess, are you familiar with the Health
12 Canada, or, Ms. Antonioli, whoever's grabbing the
13 microphone?

14 MS. ANTONIOLLI: No, but we can find it.

15 MR. KAINS: Okay.

16 MS. ANTONIOLLI: We can ask Mr. Runner
17 for it.

18 MR. KAINS: We're giving you quite bit
19 of homework, Mr. Hess. You're going to try to find
20 information regarding Apex's purchase of a home and
21 now we have a Health Canada study.

22 MR. HESS: Yes, sir.

23 MR. KAINS: I am -- I'm not familiar
24 with it. I've heard about it, because I sit here and

1 listen to testimony at hearings all over the state and
2 I have heard about it. So I know there is something
3 that exists. I don't know how it relates shadow
4 flicker, however.

5 All right. Any other questions from -- okay.
6 Ms. Clark and then the gentleman in the back corner.
7 Okay. And Mr. Borgman too.

8 All right. Go ahead, Ms. Clark, with
9 your questions for Mr. Runner.

10 MS. CLARK: Well, the question I have is
11 kind of what they were talking -- she was talking
12 about. You said there wasn't any like surveys on the
13 health issues because -- isn't -- doesn't the light
14 flickering -- is there nothing shown where it triggers
15 like your seizures for photo sensitivity?

16 THE WITNESS: No. The rate at which,
17 you know, the dimming effect is occurring is quite
18 slow. It's not operating the same hertz level that
19 occurs with epilepsy. That's about the extent of my
20 knowledge on that aspect.

21 MS. CLARK: Okay. Okay. I just read
22 differently. Then you said -- so you said something
23 about not doing another survey, but if once these are
24 put in and there's, say, you have more -- a person has

1 more than 30 hours a year in shadow flicker, do you
2 guys come back and do a survey because you had
3 complaints?

4 THE WITNESS: So I'll break that down
5 because there's kind of two questions in there for
6 you. So the first part, you know, like I said, all
7 those conservative metrics, right, that we evaluate is
8 error included in the modeling, right, you know,
9 those -- with those included still show the numbers,
10 the model numbers below 30 hours per year. So there's
11 a high degree of confidence that following
12 construction, you know, only 51 turbines will be built
13 so some of the receptors will have little to no shadow
14 flicker in comparison or a reduced amount. The
15 turbines aren't always turning, right. And there's --
16 most people have some sort of vegetation or other
17 factors around their house, not all, right, but, you
18 know, so that leads to a high confidence, you know,
19 that with all those conservative metrics, the wind in
20 place that there wouldn't be, you know, shadow flicker
21 above, you know, the ordinance level the 30 hours.

22 On the complaint policy I do believe there is
23 per public management for complaints from the project
24 and then those are typically addressed, you know,

1 based on what the complaint is and the process through
2 that. I'm typically not involved or called back to
3 evaluate operating projects.

4 MS. CLARK: Okay. That would be up to
5 Apex.

6 THE WITNESS: Yes.

7 MS. CLARK: Okay.

8 THE WITNESS: But I believe if there
9 were substantial complaints, right, I would probably
10 be getting called a lot more to address them.

11 MS. CLARK: Okay. All right. That's
12 all I have.

13 MR. KAINS: Very good. Thank you,
14 Ms. Clark.

15 I forget who I said was next, whether it was
16 Mr. Borgman or the gentleman in the corner.

17 And, sir, are you a Coles or Douglas County
18 resident?

19 MR. HENDRIX: Douglas County.

20 MR. KAINS: Very good. Sir, could you
21 please state your name for the record.

22 MR. HENDRIX: My name is James Hendrix,
23 H-E-N-D-R-I-X.

24 MR. KAINS: And what town are you from,

1 Mr. Hendrix?

2 MR. HENDRIX: I am from technically
3 Hindsboro.

4 MR. KAINS: All right. Go right ahead
5 with your questions for Mr. Runner.

6 MR. HENDRIX: On your analysis, was it
7 only factored in on Coles County homes that borders
8 south of 1900, or were the Douglas County homes on the
9 north side of Coles County 1900 taken into
10 consideration on the shadow flicker?

11 THE WITNESS: So the receptor file that
12 Apex provided me went out to one mile from all
13 turbines in all directions. So that -- I'm just
14 looking at figures 3 and 4 -- well, the 2, 3 and 4 of
15 the shadow flicker report and I see the dotted
16 Douglas, Coles line and there's receptors north of
17 that. So I can confidently say that they were
18 included.

19 MR. HENDRIX: Okay. That's my only
20 question.

21 MR. KAINS: All right. Very good.
22 Thank you, Mr. Hendrix.

23 All right. Mr. Borgman. Go right ahead with
24 your questions for Mr. Runner, please.

1 MR. BORGMAN: When you're talking about
2 receptors, are the receptors, are they physical
3 receptors, do you place around residences and areas of
4 the proposed wind project, or is this all just digital
5 modeling.

6 THE WITNESS: Yes, so the receptors
7 themselves, right, are actual residences and occupied
8 community buildings within a mile and that's all
9 residences and occupied community buildings.

10 MR. BORGMAN: So are these actual
11 electronic sensors that like you simulate a shadow
12 being cast on it, or how -- I don't know how that
13 works.

14 THE WITNESS: Yes, I mean, that's --
15 that's one way to think about it, right. So that the
16 modeling needs a point to model from, right. It needs
17 to know if in this -- in this spot, right, this X, Y
18 coordinate, you know, where am I on the earth, where
19 is the sun in this minute, you know, it needs a point
20 to go from. So in that idea of thinking about it as
21 a -- I think a weird way to think about it, but a
22 little bit syfy is a glass cube floating a meter off
23 the ground, you put it on some bricks, right, so it
24 can, you know, see in all directions, and then that is

1 just, you know, it's a model so it's floating in a, I
2 guess a digital space, right, above, you know, where a
3 residence is or occupied community building.

4 MR. BORGMAN: This is trigonometry and
5 mathematics. It's not a physical sensor that --

6 THE WITNESS: No, it's just trig and
7 mathematics and --

8 MR. KAINS: If I could interject. Is a
9 receptor another name for a residence or occupied
10 community building?

11 THE WITNESS: Yes. That's kind of a
12 term to use to cover both of those items.

13 MR. KAINS: But there's no scientific
14 measuring thing? It's just receptor is the name of
15 the residence, right?

16 THE WITNESS: Yes. So I can understand
17 the confusion now with using the term receptor, right.
18 So I'll stick to saying residences and occupied
19 community building. It's no longer a valid point.

20 MR. BORGMAN: I was just wondering. I
21 never saw anybody come and put a receptor on my house.

22 THE WITNESS: Yes. No. No. They're
23 not -- it's all just mathematical equations. It's not
24 based on -- you know, it's based on the real world in

1 the sense of it knows where it is, right, and we
2 put -- we use elevation data, which is in this area a
3 little less than a factor as it's relatively flat,
4 so -- but, you know, so it has a D factor or a three
5 dimensional factor in that sense as well.

6 MR. BORGMAN: Okay. And is Apex going
7 to call like health experts in to talk about the
8 effects of shadow flicker, or are you expert for that?

9 MR. KAINS: Mr. Hess, can you respond?

10 MR. HESS: I can answer that he's been
11 called to show compliance with the ordinance
12 requirement. We do not have a health expert who's
13 then going to talk about anything beyond that.

14 MR. KAINS: Okay. So Mr. Hess said that
15 he is talking about his field is compliance with the
16 shadow flicker requirements of the ordinance, and they
17 do not have a health expert on the docket to call. So
18 that's answer to the question.

19 MR. BORGMAN: Okay. So is he -- who are
20 we going to ask health questions of?

21 MR. KAINS: They don't have an expert
22 for that.

23 MR. BORGMAN: Okay. Well, we were
24 talking about the Canadian report, I don't know if I

1 have the Canadian report you're talking about, but I
2 have a couple pages here for the Nag Nahobous Trent
3 University Environmental Research Resource studies in
4 Peterborough Ontario. And it says, people who lived
5 near wind turbines complain of symptoms that include
6 some combination of the following: Difficulty
7 sleeping --

8 MR. KAINS: Mr. Borgman.

9 MR. BORGMAN: Yes.

10 MR. KAINS: Can we have you read that
11 during your testimony.

12 MR. BORGMAN: Okay. But no one's going
13 to answer it. I'm just going to be reading it and
14 there's no rebuttal.

15 MR. KAINS: Yes. Right.

16 MR. BORGMAN: I mean, I want to hear
17 what somebody has to say about the sicknesses that
18 could be involved in the wind farm.

19 MR. KAINS: This witness does not know
20 the answer to whatever question you might pose with
21 respect to a Canadian health report.

22 MR. BORGMAN: Okay. But he was talking
23 about it.

24 MR. KAINS: But I will allow you -- I

1 will allow to discuss that during your testimony.

2 MR. BORGMAN: Okay. That and lots of
3 other things.

4 MR. KAINS: Oh, absolutely. Yes, sir.
5 Okay. Thank you, Mr. Borgman.

6 All right. Yes, sir. Are you opposed or
7 neutral on the issue?

8 MR. HOLLONBECK: You're asking me
9 whether I'm opposed or neutral?

10 MR. KAINS: Yes, sir.

11 MR. HOLLONBECK: Well, I haven't had all
12 the facts presented to me yet.

13 MR. KAINS: Then we'll call you neutral.
14 How's that. Okay. And if you could please state your
15 name for the court reporter.

16 MR. HOLLONBECK: Richard Hollonbeck,
17 it's Hollonbeck, H-O-L-L-O-N-B-E-C-K.

18 MR. KAINS: And where are you from?

19 MR. HOLLONBECK: Mattoon.

20 MR. KAINS: All right. Very good,
21 Mr. Hollonbeck. Go ahead with your question for
22 Mr. Runner.

23 MR. HOLLONBECK: Well, if we're not
24 going to be able to ask -- I'm sorry, I had a stroke.

1 MR. KAINS: It's okay, sir.

2 MR. HOLLONBECK: If we're not going to
3 be able to ask health questions how are we going to
4 get answers about health? About -- I assumed maybe
5 safety could answer questions, but we -- we need -- we
6 need somebody to answer our questions about shadow
7 flicker and the lights and the turbine's rotors going
8 around and around and making noise, and people are,
9 not all, but they -- some people live on farms that
10 were close to turbines and they're being ran off
11 because of the noise and the thump, thump, thump and
12 swish, swish, swish. We need somebody to answer our
13 questions about health.

14 MR. KAINS: Okay. Mr. Hollonbeck, thank
15 you. Right now they don't have anybody as of yet, and
16 I don't know if they can get someone. But I think the
17 point has been made, counsel.

18 MR. HOLLONBECK: Thank you,
19 Mr. Hollonbeck.

20 Okay. Are there any other questions -- oh,
21 yes. We have not heard from Mr. Sherman on this
22 witness. So come on up, Mr. Sherman.

23 MR. SHERMAN: Tom Sherman, northern
24 Coles County. Most of my questions are right off of

1 your appendix starting with page 2. You said that the
2 198 receptors that are actually places, houses,
3 buildings, correct.

4 THE WITNESS: Correct. So residences
5 and occupied community buildings.

6 MR. SHERMAN: And those were provided by
7 Apex?

8 THE WITNESS: Yes.

9 MR. SHERMAN: Did you go out and
10 yourself verify those spots?

11 THE WITNESS: Not all 192, but I did
12 drive through the project area and went around and,
13 you know, I had a map up and they generally
14 correlated.

15 MR. SHERMAN: How many did you see?

16 THE WITNESS: I can't say with any
17 certainty. I wasn't counting.

18 MR. SHERMAN: And you said there were
19 no -- on the next page, page 3, the threshold, 30
20 hours, correct, is the number?

21 THE WITNESS: That's correct.

22 MR. SHERMAN: And there are no
23 non-participating residences?

24 THE WITNESS: Correct.

1 MR. SHERMAN: Okay. On page 5, the last
2 paragraph in your conclusions it says for those two
3 residences modeled over 30 hours per year, those
4 landowners have signed shadow flicker mitigation
5 waivers recorded with the county. Why are those two
6 impacted?

7 THE WITNESS: Sure. So I'll refer back
8 to the top of page 4, table 2. So there's 2
9 participating residences that are over the 30 hours,
10 however, since -- for a couple reasons. One, since
11 they are participating they're not subject to the
12 county ordinance. So the county ordinance is to
13 non-participating residences and occupied community
14 buildings. Second, those two have also signed a
15 waiver which is another provision of the WECS
16 ordinance allowing people to sign a waiver. So that
17 sentence, right, the second sentence starting with for
18 those two residences relates to for those two
19 participating residences.

20 MR. SHERMAN: Okay. So what sets them
21 apart, are they closer to the wind turbines or why are
22 those two impacted and nothing else is?

23 THE WITNESS: So part of it is is that
24 exactly. Their proximity to the turbines puts that

1 threshold in higher and as has been discussed here
2 before, part of the citing metrics for the project,
3 right, is to get those non-participating residences
4 and occupied community buildings to make sure that
5 they're cited under that 30 hour per year threshold.
6 So therefore that's part of the kind of the due
7 diligence that Apex does on this project.

8 MR. SHERMAN: Okay. And so your entire
9 study then on shadow flicker is based on
10 inconvenience?

11 THE WITNESS: It's based on the
12 requirement of the WECS ordinance for the 30 hours per
13 year and showing compliance for that.

14 MR. SHERMAN: And nothing about health?

15 THE WITNESS: That's correct.

16 MR. SHERMAN: Is the safety expert going
17 to be speaking about this?

18 MR. KAINS: Do you know?

19 THE WITNESS: I don't know.

20 MR. SHERMAN: Does anybody know?

21 MR. KAINS: Do you have a safety expert,
22 Mr. Hess?

23 MR. HESS: Yes, sir. And he's going to
24 discuss safety not shadow flicker.

1 MR. KAINS: Okay.

2 MR. SHERMAN: Is there any
3 post-construction studies that you do?

4 THE WITNESS: Like I mentioned, I
5 answered the one question, right, it's not a -- it's
6 not a requirement that I've seen other places. But,
7 you know, I have done a post-construction study based
8 on operating, you know, metrics or what the exact on
9 and off times for turbines were regardless of, you
10 know, the turbine's was on, right, and it has
11 potential for shadow flicker, and under that study
12 that we did it showed compliance with the state's, you
13 know, permit, or the permit for the project from the
14 state in that condition.

15 MR. SHERMAN: I'm going to refer you in
16 your application to figure -- your one, two -- figure
17 three and figure four in your application, the maps,
18 to me they look like heat maps, some of its red, some
19 of its orange, some of its yellow and there's black
20 dots all over. The black dots are the sensor or the
21 buildings or the whatever we're calling them.

22 THE WITNESS: Yes, residences and
23 occupied community buildings.

24 MR. SHERMAN: And the more red it is the

1 more hours it is? Can you explain that part to me,
2 that map.

3 THE WITNESS: Yes. Yes. So, again,
4 the -- so it is -- it's the frequency essentially
5 diagram, one way to think about it. So the darker in
6 color, the higher, you know, the potential shadow
7 flicker hours.

8 MR. SHERMAN: Okay. So -- and what's
9 the difference between -- or maybe there is -- the
10 difference is, the difference between the two maps is
11 one's the Vestas model and the other's the GE model;
12 is that correct?

13 THE WITNESS: No, sir.

14 MR. SHERMAN: What's the difference the
15 between those two?

16 THE WITNESS: Sure. So that each
17 turbine has a slightly different -- you know, the --
18 these two models have a different rotor diameter so
19 the size of the rotor --

20 MR. SHERMAN: You mean width of the
21 blade or both?

22 THE WITNESS: Both, right. So when you
23 think about it as a disk, right, potential that disk
24 to block the sun is different and then those disks are

1 set at different heights. So we need to model those
2 both independently because those two factors like
3 anything in a model you change the metric, you know,
4 it varies the model. So we run each of those
5 specifically so that way we can have an accurate --

6 MR. SHERMAN: So, again, looking at your
7 map, and pick either one, Vestas, GE or even the one
8 doesn't have the red on it, but I'm looking at either
9 the Vestas or GE, and it doesn't matter to me which
10 one it is, since your entire study is based on
11 inconvenience, what's going to happen if I'm driving
12 down the road and I see this, like he was talking
13 about, what's my shadow flicker while I'm in my car?

14 THE WITNESS: Yes. So I do get this
15 question a lot, and it's, you know, as drivers, right,
16 we're accustom to all sorts of distractions that occur
17 while we're on the road, right. A very similar
18 scenario is, you know, driving along the road as the,
19 you know, the sun is setting and it's being broken up
20 by the trees, right, you know, that's the same sort
21 of, you know, that light, you know, being bright,
22 being dark, being bright, being dark, right, or, you
23 know, passing vehicles and the glare of vehicles
24 coming off the roads, right, we're accustom to as

1 drivers safely navigating all those various hazards.
2 So, you know, as you're moving down the road, right,
3 the rotation of those shadows on the road, I've been
4 through them myself, you know, driving through wind
5 projects, if there's a one, I think it's 44 in Canada,
6 that connection between Michigan and New York, there's
7 multiple projects there, you know, that kind of effect
8 happens all the time. It was interesting to me
9 because I knew something about what was happening,
10 but, you know, that was about the extent of it.

11 MR. SHERMAN: Does the speed of the wind
12 change the shadow flicker?

13 THE WITNESS: So the model is based on a
14 potential to occur. So it's either in the modeling
15 aspect occurring or not occurring. So should the
16 wheel has some affect, right --

17 MR. SHERMAN: Well, let me ask it a
18 different way. If the wind's blowing -- and I don't
19 know what you say it's turning now. Let's say it's
20 blowing between five miles an hour in one scenario and
21 20 miles an hour in another scenario, which one would
22 have more shadow flicker, the five mile an hour wind,
23 the 20 mile an hour wind and -- that's one question.
24 And then after that what's your study based on?

1 THE WITNESS: So the answer is the same.
2 It would have the standard amount of shadow flicker.
3 The potential for occurrence of shadow flicker or not.

4 MR. SHERMAN: Okay. Are the people that
5 are involved in any of these areas going to need
6 insurance, homeowners insurance, health insurance to
7 change because of now we've got shadow flicker?

8 THE WITNESS: I'm not aware of -- I
9 don't think I can answer that question.

10 MR. SHERMAN: I guess I would -- again,
11 I ask -- I'm hoping and take this as a question, I
12 guess. I'm hoping that the safety person addresses
13 the health concerns as you can see this is a big, big,
14 big issue. So I guess my question, form it into a
15 question, will this be addressed by the safety person,
16 and that's my last question.

17 MR. KAINS: Do you know the answer to
18 that?

19 THE WITNESS: I believe that's been
20 asked and answered.

21 MR. KAINS: Okay. You don't know?

22 THE WITNESS: I don't know. And I
23 believe Mr. Hess said that, you know, he will be
24 talking about safety and --

1 MR. HESS: We'll have Jason Conley here
2 to discuss safety. He's not going to discuss shadow
3 flicker.

4 MR. KAINS: He's not going to discuss
5 shadow flicker. Is he going to discuss health issues?

6 MR. HESS: He is our safety expert,
7 Mr. Kains.

8 MR. KAINS: Safety, okay.

9 MR. SHERMAN: So will anyone address
10 health issues?

11 MR. KAINS: Apparently not. Okay. Any
12 other questions from -- yes, Mr. Shaw and then
13 Mr. Yoder will be next.

14 MS. SHAW: Clint Shaw, Coles County. So
15 you said you have a bachelor's degree, correct.

16 THE WITNESS: Yes.

17 MS. SHAW: Okay. Are there any Ph.D.
18 programs for shadow flicker or anything like that?

19 THE WITNESS: As I also described shadow
20 flicker is a niche, you know, tool. It's not
21 something that I -- I do every day, all day, right,
22 it's part of the -- part of my job and part of my, you
23 know, kind of technical skill set as a profession in
24 geospatial realm, but, you know, there's -- there's

1 not enough demand to be doing shadow flicker 24/7 all
2 week and have a Ph.D. program in it.

3 MS. SHAW: Gotcha. Is there any sort of
4 other degree like in civil engineering or anything
5 that would qualify for that type of thing?

6 THE WITNESS: I don't really think so.
7 I mean, it's -- it's a very basic sense, I mean, it's
8 a mathematical program and it's, you know, maybe
9 designing the intricacies of the model itself and fine
10 tuning and updating it, potentially some sort of
11 really intense computer mathematic, but utilizing
12 software and understanding its inputs and outputs, you
13 know, that is, you know, for those in the geospatial
14 field with a background in, you know, GIS and other,
15 you know, kind of computer related program and along,
16 you know, mathematics degrees or, you know, classes
17 and stuff it's pretty understandable to follow.

18 MS. SHAW: Okay. I got one other
19 question. Are either one of two families that are
20 being effected by the shadow flicker, do they own the
21 farm that is going to have a turbine on it?

22 THE WITNESS: I don't have any knowledge
23 of the landowners or any specificity of them. You
24 know, my study was focused on, you know, the modeling

1 and conducting that.

2 MS. SHAW: Gotcha. Is there anybody
3 that can answer that?

4 MR. MOORE: What was the specific
5 question?

6 MR. KAINS: Why don't you guys take that
7 up after we're done.

8 MS. SHAW: Yes. Absolutely. Thank you.

9 MR. KAINS: Yes. Yes. Get with
10 Mr. Moore.

11 MS. SHAW: Perfect. Thank you.

12 MR. KAINS: Thank you, Mr. Shaw.

13 MS. SHAW: Appreciate it.

14 MR. KAINS: All right. Somebody else
15 have a question? Oh, yes, Mr. Yoder, yes, sir.

16 MR. YODER: Question, does shadow
17 flicker happen while we're outside from these
18 turbines?

19 THE WITNESS: So the phenomenon effect,
20 dimming and brightening effect happens -- you need
21 some sort of structure to be inside. So shadows pass
22 us outdoors all the time, right. A plane going over,
23 you know, a vehicle driving down the road casting a
24 shadow early in the morning, late at night, right,

1 those sort of factors of shadows passing over things
2 are -- they happen in a natural environment all the
3 time every day, right. The shadow flicker, what we're
4 talking about occurs inside a building where you have
5 an opening that can constrict that light.

6 MR. YODER: Okay. I was going to ask,
7 most of us enjoy our evenings or even our mornings
8 outside and with that if there's shadow flicker while
9 we're outside I think that would be noticeable and so
10 my question leading up to that is why is it
11 specifically restricted to the dwelling or the
12 residential building instead of the edge of the
13 property?

14 THE WITNESS: Yes. So the ordinance,
15 the county ordinance specifically states, you know,
16 valuation of shadow flicker at the non-participating
17 residences and occupied community buildings.

18 MR. YODER: No further questions.

19 MR. KAINS: Thank you, Mr. Yoder.

20 Any other questions from folks from Coles or
21 Douglas Counties?

22 (No response.)

23 MR. KAINS: Questions from folks from
24 other counties, Mr. Cronkhite.

1 MR. CRONKHITE: How do chemtrails effect
2 the quality of shadow flicker.

3 MR. KAINS: How does what?

4 MR. CRONKHITE: How do chemtrails, the
5 stuff we see in the sky every day that spread out and
6 cover the sun.

7 THE WITNESS: I mean, it's the intensity
8 of sunlight back that's lighting a turbine, right, so
9 if that turbine casts a shadow then there's the
10 potential for shadow flicker to occur.

11 MR. CRONKHITE: Okay. How long have you
12 been doing this monitoring?

13 THE WITNESS: I've been conducting
14 shadow flicker modeling for the last ten years.

15 MR. CRONKHITE: The last ten years,
16 okay. Have you noticed a difference in the sunlight
17 that you've been getting from these chemtrails?

18 THE WITNESS: So the -- the modeling is
19 based off of the potential, it doesn't have to do
20 anything with the sky conditions per se, right.
21 Whether it's, you know, slightly hazy or if there's a
22 chemtrail from planes or whatever, you know, the
23 modeling is -- knows exactly when the sun is going to
24 rise and when the sun is going to set and exactly in

1 the sky is every minute of every day. I mean, we've
2 been modeling that for -- in some way or form, right,
3 for thousands of years, it's humans, so we know
4 exactly where the sun is on a every given day and a
5 given time.

6 MR. CRONKHITE: Have you noticed a
7 difference in the shadow flickers from the last ten
8 years?

9 THE WITNESS: Modeling is modeling, the
10 results are the same.

11 MR. CRONKHITE: So you've not noticed
12 any difference then?

13 THE WITNESS: If you could be more
14 precise in what aspect that would be helpful, because
15 it's a very broad question. It's very difficult.

16 MR. CRONKHITE: Okay. I'll let that one
17 go. How many times a year do you do testifying like
18 this?

19 THE WITNESS: Specific to shadow
20 flicker?

21 MR. CRONKHITE: Yes.

22 THE WITNESS: It's fairly infrequent.
23 Maybe once a year at most. It varies from where
24 projects are in development and that sort of thing.

1 So I don't really have any regular frequency to attest
2 to.

3 MR. CRONKHITE: All right. Thank you.

4 MR. KAINS: Thank you, Mr. Cronkhite.
5 Any other questions from anybody in the public who are
6 opposed to or neutral on this issue?

7 Ms. Winslow.

8 MS. WINSLOW: Connie Winslow. Regarding
9 the 30 times a year, what do you do if people feel
10 that it's been more than that? Do they go to a person
11 to complain about it.

12 THE WITNESS: Yes. So to clarify, 30
13 hours per year. And, yes, I think, as we discussed
14 earlier, there would be, you know, typically some
15 complaint process, there's an O&M building, there's
16 other metrics to get ahold of Apex, and then they, you
17 know, evaluate those complaints, they have a typical
18 complaint process.

19 MS. WINSLOW: Have there been studies of
20 shadow flickering of any kind in the yard?

21 THE WITNESS: Like I said, the
22 phenomenon effect, flickering effect, that dimming
23 effect is based on being inside of a structure of it,
24 the shadow passing over you isn't the same phenomenon

1 that we're discussing. We're talking about, you know,
2 the dimming of light indoors or inside a structure
3 where there's something constricting that light.

4 MS. WINSLOW: But you haven't heard of
5 any studies in the yard or outside?

6 THE WITNESS: I don't believe --

7 MS. WINSLOW: Not pertaining to this,
8 but just in general?

9 THE WITNESS: No. But I think that may
10 be somebody really can add to this. Might help people
11 understand is that, you know, the hours reported at
12 the receptor, right, that that's occurring to that --
13 sorry, residence and occupied community building is
14 that occurring to that point, and then, you know,
15 close to your residence, right, or your occupied
16 community building. The shadow flicker amount, right,
17 is the concern that, you know, the shadow's passing
18 over you in the yard would be similar to that
19 frequency, right, because that frequency is based
20 on -- as the maps that are showing in figure 3 and 4,
21 right, that kind of potential for shadow flicker to
22 occur, right, is that. Does that help?

23 MS. WINSLOW: Yes. And in regard to
24 inside your home, would you compare the shadow

1 flickering to being similar as somebody taking a light
2 switch and continually turning it on and off?

3 THE WITNESS: I think it would be more
4 like a dimmer rather than, you know, an on and off.

5 MS. WINSLOW: So turning the dial of the
6 dimmer on and off?

7 THE WITNESS: Yes.

8 MS. WINSLOW: So generally it does not
9 occur every day?

10 THE WITNESS: So it will vary and occur
11 on, you know, simultaneous days. There's a lot of
12 environmental factors that go into that. It generally
13 occurs in similar times of the year. So typically
14 either in the summer or you have kind of the outer
15 patterns which is it occurring in the winter and it's
16 really based on where you're located in comparison to
17 a turbine or turbines and the sunrise and sunset
18 location and the kind of northern and southern poles
19 of the, you know, fall and spring equinoxes, when sun
20 is in a different locations.

21 MS. WINSLOW: When it occurs how many
22 minutes a day generally would you experience the
23 flickering?

24 THE WITNESS: Yes. So that will vary,

1 like I said, based on all those factors. So, you
2 know, typically it will ramp up to some more days, you
3 know, minutes in a day and then kind of ween back down
4 as the sun kind of travels, you know, north and south
5 throughout the year, right, and then across the
6 horizon. But that can also be broken up by if it's
7 not windy enough that day and turbines aren't spinning
8 or there's other factors that are causing the turbines
9 to not be spinning or if it's cloudy, right. So it's
10 hard to say on any given day exactly, you know, what
11 will happen in that day with the turbines are turning
12 or if it's cloudy or not or the winds in the right
13 direction. That's why the model aggregates those
14 potentials. It's pretty well known in models and
15 examined over the, you know, years of what the wind
16 direction is and what the sunshine potential is in a
17 model.

18 MS. WINSLOW: So you couldn't generalize
19 saying it on a perfect day for flickering that it
20 would be it anywhere from one minute to 20 minutes?

21 THE WITNESS: Not in this case, no. We
22 didn't do that. And specifically because the county
23 ordinance requires the valuation of the project over
24 the course of the year.

1 MS. WINSLOW: That's all my questions.

2 MR. KAINS: Thank you, Ms. Winslow. Any
3 other questions from members of the public who are
4 opposed or neutral on this application?

5 (No response.)

6 MR. KAINS: All right. Very good. Time
7 now for questions from Coles County staff and
8 consultants, Mr. Lockhart.

9 MR. LOCKHART: No.

10 MR. KAINS: No. Mr. Keyt.

11 MR. KEYT: I have a few.

12 **CROSS-EXAMINATION,**

13 **QUESTIONS BY MR. ANDREW J. KEYT:**

14 Q. So, Mr. Runner, are you familiar with
15 the states siting statute from January of 2023?

16 A. Vaguely. I don't have it memorized.

17 Q. Understood. But in the sense of you
18 referred to the ordinance requires certain things.
19 Example, 30 hours of shadow flicker that it's measured
20 from either occupied community buildings or
21 non-participating residences. And you referred back
22 to the ordinance. Are you aware that the state
23 statute essentially mandates those requirements to the
24 county to include them within the ordinance?

1 A. Again, vaguely.

2 Q. It's okay if you don't. I'm just
3 asking.

4 A. Yes. Like I said, at a high level I'm
5 kind of aware of that, but particularly I look at what
6 the ordinances are in a community, you know.

7 Q. Understood. In the sense of the
8 ordinance and I'll just for the record reflect to you
9 that the ordinance definitions and the ordinance
10 standards come from what the state statute has
11 mandated that the county do. But, for example, the
12 state statute defines what the non-participating
13 residence to mean a residence that is located on
14 non-participating property that is existing and
15 occupied and on the date and the application for
16 permits develop a WECS project is filed with the
17 county. Are you aware of that provision which is
18 mandated by the State statute?

19 A. As you restated it to me, yes.

20 Q. And then another definition that's
21 within the ordinance which is mandated by the state
22 statute relates to occupied community buildings which
23 means any one or more of the following buildings as
24 existing and occupied on the date of the applications

1 for the permits and developed the WECS project was
2 filed with the County, school, places of worship
3 daycare facility, public library or community center.
4 Are you aware of mandate from the state?

5 A. As you state it, yes.

6 Q. And in terms of what is required or what
7 is listed in the ordinance then, those are ordinance
8 requirements that come from the state's mandates to
9 the county as opposed to the county just depending on
10 what those requirements would be; is that fair?

11 A. That is fair. I think it's worth noting
12 that those are consistent across the country and we
13 see those in both other states, understandably there's
14 a conflict there, but also, you know, in other
15 communities that aren't mandated by state status
16 similar threshold.

17 Q. And in the ordinance there's another
18 provision that's mandated by the state which refers to
19 the 30 hour requirement that the modeling has to show
20 that the project will not impact occupied community
21 buildings or non-participating residences greater than
22 30 hours of shadow flicker, I'm paraphrasing that, but
23 that's essentially another mandate that the state gave
24 to the county in which the county then had to include

1 within the ordinance just by a requirement of the
2 statute; is that fair?

3 A. Yes.

4 Q. How in selecting the receptor sites,
5 what was the methodology of selecting the receptor
6 sites, if you know, and I understand that that may
7 have come from the company itself, but in terms of
8 whether you have knowledge of it, can you tell us how
9 receptor sites were selected?

10 A. In this case I don't have knowledge of
11 that.

12 Q. How far out -- it looks like -- if I'm
13 understanding your modeling correctly, it goes out
14 about 1,500 meters, but in terms of distance for us,
15 how does that relate back to what is the distance out
16 from the project footprint that the modeling is
17 performed?

18 A. Yes. So the modeling is performed out
19 to 10 rotor diameters or in this case for the Vestas
20 that's 1,620 meters. It's -- you're going to make me
21 do an equation on the stand, but, you know, I think
22 1.6 kilometers is pretty close to a mile. I think
23 it's just shy.

24 Q. And in terms of the monitoring then --

1 or, I'm sorry, the modeling that's done, your
2 information you then put into the modeling system then
3 takes the turbine models heights, the rotor diameter
4 and then you input where the receptor sites or
5 occupied community buildings or non-participating
6 residences are within the model itself, and then the
7 model runs and gives you what those numbers are?

8 A. That's correct.

9 Q. Do you do any calculations yourself or
10 is it based solely on what the software tells you?

11 A. I have faith in what the software tells
12 me.

13 Q. In terms of the weather data how far
14 back does the weather data go?

15 A. So specifically for this project the
16 weather data was from the closest long term NOAA
17 weather station which I have that in attachment A here
18 which was in Springfield, Illinois. I believe that
19 data was through 2018. I think that's the latest
20 release of it. Each station had a some variability
21 when they reported sunshine data, but they're
22 typically 20-plus year long runs, but it varies
23 between sizes. I don't have that one.

24 Q. How far back is that? I understand it's

1 2013, but how far back does data go?

2 A. It's 20 to 30 years typically is the
3 range they're -- you know, but I can't say with
4 certainty for the Springfield, Illinois site. But
5 they're -- the intention of the dataset from NOAA is
6 the comparative climatic data, so it's intended to be
7 a long-term average for the site.

8 Q. In terms of the individual years of data
9 that you have, is it taking the data from all of those
10 years and then aggravating them into the average
11 amount sunlight, or does it take highs and lows of the
12 sunlight? Just tell me how that data then --

13 A. Yes, I don't -- I don't know exactly how
14 they aggravate their data.

15 Q. So let me point you then -- you take the
16 receptor sites, pick them out -- or based on the
17 information provided to you there's one receptor site,
18 receptor 00036 that had predicted 27 hours 25 minutes
19 of shadow flicker for the Vestas turbine and 26 hours
20 10 minutes for the GE turbine. I guess my question
21 is, let's say a particularly sunny year sometime,
22 okay, we have, how would we the county or you the
23 developer verify that that particular receptor stayed
24 under 30 hours?

1 A. So that's where some of the other
2 conservative metrics come in. The fact that the model
3 assumes that the turbines are always turning. I don't
4 know exactly what the -- you know, percentage is of
5 daytime average is, but they're typically not a
6 hundred percent, so when you add those other
7 conservative metrics. Also not sure what the
8 conditions are around that specific, you know,
9 residence. If there's any outbuildings or other
10 structures that might, you know, block sunrays early
11 in the morning or late in the evenings so that's --
12 all those other kind of conservative metrics that are
13 built into our modeling kind of help outweigh the
14 potential of that threshold being triggered given --
15 you know, one -- or particularly a windy year, you
16 know, versus, you know, a particularly calm year, you
17 know, all those factors kind of, you know, have a
18 potential play against each other.

19 Q. In terms of your modeling, does the
20 modeling take into account other structures or trees,
21 for example, that might interfere with that receptor
22 site?

23 A. No.

24 Q. Okay. So the modeling then takes in --

1 from the modeling perspective it looks at it from the
2 perspective of there's no obstacles between the
3 turbines themselves and the receptor site?

4 A. Yes. The best way to kind of picture it
5 is a bare roof scenario where you have the topography
6 itself, but nothing on top of it. And that's for each
7 individual receptor. So, you know, if we have 190
8 receptors in there, it doesn't use another receptor to
9 block visibility, it takes each one as itself.

10 Q. Does the modeling take into account the
11 elevation change?

12 A. Yes. That's the topography factor. So
13 it knows, you know, that we use the same surface for
14 pulling elevations of turbines and the same surface
15 for pulling of the elevation of the receptor. So, you
16 know, that factor of elevation is accounted for.

17 Q. And in the modeling that was provided in
18 the application it looks like there's 4 turbines that
19 are approximately 25 hours -- or not 4 turbines, but 4
20 receptor sites that are approximately about 25 hours
21 or greater. Is there a way to monitor those receptor
22 sites during the actual operation such that there can
23 be confirmation to the county that they're staying
24 under the 30 hour limit?

1 A. Yes. I mean, I think one approach would
2 be to evaluate realtime from the year at those
3 locations. So I think it's -- like I said, working in
4 the other way to give a description. For other
5 projects trying to get receptors below a 30 hour
6 threshold and moving turbines and adding structures
7 and all those factors, it takes a lot to move it, the
8 needle, by hours or minutes even. I mean, minutes you
9 can get there, but moving the needle by hours takes
10 quite a bit of effort. So that kind of gives that a
11 additional level of confidence that if something that
12 25 hours or 27 hours is pretty unlikely that it will
13 get over 30 hours.

14 Q. But in terms of giving comfort to the
15 county, is there a methodology to do that?

16 A. Yes.

17 Q. Okay. In terms of the actual structure
18 to house what I'm understanding from what you're
19 saying is that you assume that the house is
20 essentially a glass cube and that's one of the
21 conservative aspects of what the modeling is from; is
22 that cube?

23 A. Yes.

24 Q. But at the same time, you may not take

1 into account that there may be -- in a real structure
2 of the house there may be a side that is a glass side
3 of the house?

4 A. Sure. But, you know, not scenario,
5 right, that potential for shadow flicker to happen is
6 modeled the same, you know, whether it's a single, you
7 know, window or a large window, but the potential for
8 that to occur is there.

9 Q. In terms of the monitoring, that could
10 occur, right, for these various receptor sites that
11 might be 25 hours or more, it is there a methodology
12 as how that's done? Is it a system on the turbine
13 itself, or is it something you have to go those
14 non-participating residences or occupied community
15 buildings and request permission to put monitoring
16 systems on there?

17 A. I mean, that is a very kind of intrusive
18 approach that I believe potentially could be deployed,
19 though I haven't seen that deployed before personally.
20 The kind of more simplistic approach in a way is to
21 just run operational data of that receptor in those
22 associated turbines is a relatively easy way to say,
23 okay, if the turbine was on and off this time through
24 the year this was the wind frequency for this turbine

1 this year and here are the realtime results for those
2 receptors. But, again, there's also the factor of
3 some of these turbines won't get built, right, and I
4 don't know exactly, you know, the 25 hour ones here,
5 if they're associating primary or an alternator or
6 what that scenario is, but.

7 Q. I understand what you're saying. But
8 there's a way that Apex could give us the information
9 such that we the county can assure that they're
10 staying under the requirement; is that fair?

11 A. Yes.

12 Q. Okay.

13 MR. KEYT: Okay. Sir, I think that's
14 all the questions I have. Thank you.

15 THE WITNESS: Thank you, Mr. Keyt.
16 Redirect examination, Ms. Lode, any other questions?

17 MS. LODE: No.

18 MR. KAINS: Okay. Very good. Final
19 questions come from members of the Planning &
20 Development Committee.

21 (No response.)

22 MR. KAINS: All right. Thank you,
23 Mr. Runner. You may step down.

24 THE WITNESS: Thank you.

1 MR. KAINS: All right. There was very
2 important question raised by Ms. Winslow and I want
3 Mr. Moore to address it with respect to who do they
4 talk to if they think they're getting too much shadow
5 flicker. Is there a number? Is there -- who do --
6 let's say this thing gets built, Mr. Moore. Let's say
7 this gets built and somebody thinks they're having too
8 much shadow flicker. Their first course is to call
9 Apex right?

10 MR. MOORE: Correct.

11 MR. KAINS: Then what happens? Who --
12 they call -- is their number going to be a number
13 available -- is there going to be a number available?

14 MR. MOORE: There will be a whole
15 complaint resolution process.

16 MR. KAINS: A complaint resolution
17 process.

18 MR. MOORE: For any complaint, whether
19 it's related to shadow flicker or someone driving down
20 the road during construction or any other feature.

21 MR. KAINS: So they can contact Apex to
22 begin a complaint --

23 MR. MOORE: Yes.

24 MR. KAINS: -- to go through the

1 resolution process?

2 MR. MOORE: Correct.

3 MR. KAINS: And I imagine they could
4 also contact their County Board member?

5 MR. MOORE: Yes. And we will be
6 required to also follow-up with -- to the County Board
7 from the results of any complaints that come in with
8 both the complaint and the resolution process.

9 MR. KAINS: Okay. Ms. Winslow, did you
10 catch that?

11 MS. WINSLOW: Yes.

12 MR. KAINS: Okay. Good. All right.

13 MR. KEYT: If I can also.

14 MR. KAINS: Yes.

15 MR. KEYT: Along the same thing, there's
16 a requirement in the ordinance that there's a
17 complaint resolution procedure that we develop which
18 sometimes comes to fruition if it is approved, but
19 there's a whole complaint resolution process that
20 Mr. Moore can talk about, but essentially there is a
21 process for that that would be developed and then
22 utilized in the event that somebody believes they're
23 over on any issue, sound, setback, shadow flicker,
24 something else, that is then going to be used.

1 MR. KAINS: Okay. Thank you, Mr. Keyt.
2 All right. It's a little after 9:00. Tomorrow night,
3 who do you have.

4 MS. ANTONIOLLI: We have an expert on
5 sound, on safety and decommissioning.

6 MR. KAINS: Sound, safety and
7 decommissioning. And then?

8 MS. ANTONIOLLI: We do have an expert on
9 construction as well available if we get that far.

10 MR. HESS: Those are our final four
11 witnesses, Mr. Kains.

12 MR. KAINS: Okay. I was going to ask
13 that. So you have sound, safety, decommissioning --

14 MR. HESS: Construction.

15 MS. ANTONIOLLI: Construction.

16 MR. KAINS: And construction. So those
17 will be your last four witnesses.

18 MR. HESS: Yes, sir.

19 MR. KAINS: Will you be calling
20 witnesses who are in support of the project or will
21 they be going on their own.

22 MR. HESS: I believe they will be going
23 on their own, Mr. Kains because of your instruction of
24 the outset that we're not allowed to question people

1 that are same side. We've been coordinating. I have
2 an idea of how many, but I know where you're going
3 with this --

4 MR. KAINS: That's where I'm going.

5 MR. HESS: -- I was not planning on
6 asking them questions.

7 MR. KAINS: Right. That's where I'm
8 going. How many of those folks do you think you have,
9 folks who are in support who are willing to testify?

10 MR. HESS: I believe most of the
11 supporters we've talked to are, in the interest of
12 time, are just waiting to do public comment. So at
13 this point we're less than five that would like to
14 testify. We're meeting with them tomorrow. I can
15 give you a firm number tomorrow.

16 MR. KAINS: I'm just trying to get a
17 roadmap for everybody where we're going with this.

18 MR. HESS: I think most people are just
19 going to submit public comment.

20 MR. KAINS: So you have four witnesses
21 that are either Apex employees or Apex consultants,
22 okay. So at the rate we've been going, folks, we've
23 been doing two witnesses a night, and that's okay.
24 This is important. So could we could potentially --

1 you could potentially be done with your case
2 Wednesday.

3 MR. HESS: That's right. And of our
4 four witnesses at least two of them are quite brief.
5 So I could see a scenario where if we get two or three
6 done tomorrow then we are done half way through
7 Wednesday and so then we're presenting the testimony
8 of supporters who would like to testify Wednesday.

9 MR. KAINS: So that could happen
10 Wednesday or Thursday.

11 MR. HESS: Yes, sir.

12 MR. KAINS: And then we're going to have
13 a number of people who are going to speak in
14 opposition, and I'm not even going to ask for hands
15 yet. But -- and then there have been several folks
16 who have indicated they're still neutral on the issue.

17 Do you have any questions for anybody,
18 Mr. Chairman, anybody on the Committee? Mr. Shook.

19 MR. SHOOK: Lot of folks have a question
20 about the health. We need to find out something about
21 the health. If we could get some answers on it for --
22 I don't know, for sight or for anything like that,
23 because some people are concerned about the health
24 question. So I think we need to get an answer on

1 that, sir.

2 MR. HESS: Thank you, Mr. Shook. I will
3 try my best. I have some ideas on how we might be
4 able to address some of those concerns. We do not
5 have a medical doctor here to testify. But I will see
6 what I can do. I hear you Mr. Shook.

7 MR. SHOOK: Okay.

8 MR. KAINS: All right. Because that has
9 been concern raised by several members of the public
10 and also a County Board Member, and I'm sure there's
11 other folks who are interested in hearing somebody on
12 that issue.

13 All right. So tomorrow you will continue --
14 the Applicant will continue its case with its
15 witnesses. We're getting close. We're scheduled to
16 meet tomorrow, Wednesday and Thursday. So the
17 Planning and Development Committee of the Coles County
18 Board will be in recess until 6:00 p.m., tomorrow
19 April 15, 2025, in this very courtroom in this
20 courthouse, the Coles County Courthouse in Charleston,
21 Illinois. The Committee is in recess until tomorrow
22 at 6:00. Thank you.

23 (Cause adjourned.)

24 WHICH WERE ALL THE PROCEEDINGS MADE OF RECORD IN THIS

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CAUSE ON SAID DAY.

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

C E R T I F I C A T E

I, Jamie S. Atkinson, Official Court Reporter
in and for the County of Vermilion, State of Illinois,
do hereby certify that the foregoing to be a true and
accurate transcript of the proceedings had in the
before-entitled cause on said day.

Dated this 27th day of May, 2024.

Jamie S. Atkinson, CSR
Official Court Reporter
License No. 084-004156

Jamie S. Atkinson, CSR
Court Reporter
Vermilion County

\$	190 ^[1] - 145:7 1900 ^[4] - 10:7, 10:16, 113:8, 113:9 192 ^[1] - 120:11 193 ^[1] - 30:21 1970's ^[1] - 50:2 198 ^[1] - 120:2	145:20, 146:12, 147:11, 148:4 250,000 ^[1] - 86:2 26 ^[1] - 143:19 27 ^[3] - 23:2, 143:18, 146:12 27th ^[1] - 156:9 28,000 ^[1] - 26:23 29 ^[1] - 104:16 295,000 ^[3] - 68:10, 70:1	58:21	10:5, 23:2, 33:9, 33:15, 33:18, 34:1, 57:24 90 ^[1] - 59:23 9:00 ^[1] - 151:2		
'			5	A		
'70s ^[1] - 27:10	2		5 ^[2] - 58:22, 121:1 50 ^[2] - 15:4, 35:24 500,000 ^[1] - 18:12 51 ^[4] - 50:18, 58:6, 98:10, 111:12 52 ^[3] - 42:1, 50:15, 50:16 54,000 ^[1] - 35:24 540 ^[1] - 60:13 55 ^[2] - 10:8, 11:3 57 ^[1] - 11:1			
0	2 ^[9] - 10:15, 50:2, 50:22, 96:2, 96:18, 113:14, 120:1, 121:8 2.06 ^[1] - 30:20 20 ^[12] - 3:6, 7:19, 12:13, 44:16, 49:3, 50:4, 53:19, 59:17, 126:21, 126:23, 137:20, 143:2 20-plus ^[1] - 142:22 2001 ^[1] - 17:8 2002 ^[1] - 26:10 2003 ^[1] - 22:6 2007 ^[3] - 7:2, 13:24, 14:10 2009 ^[4] - 22:2, 22:10, 26:23, 48:12 2010 ^[3] - 26:24, 36:1, 48:12 2011 ^[4] - 15:12, 22:12, 22:14, 48:12 2012 ^[3] - 14:1, 19:22, 48:12 2013 ^[2] - 23:1, 143:1 2014 ^[4] - 68:8, 69:15, 69:17 2015 ^[1] - 92:10 2017 ^[2] - 19:5, 40:2 2018 ^[2] - 92:15, 142:19 2019 ^[3] - 17:8, 27:7, 30:13 2021 ^[1] - 30:15 2022 ^[1] - 27:8 2023 ^[4] - 16:21, 17:11, 47:21, 138:15 2024 ^[3] - 18:11, 36:2, 156:9 2025 ^[2] - 1:11, 154:19 21 ^[6] - 30:18, 57:2, 57:5, 57:9, 57:15, 57:21 217 ^[1] - 1:22 22 ^[2] - 7:3, 29:21 22902 ^[1] - 2:13 233 ^[2] - 2:5, 2:8 24/7 ^[1] - 129:1 25 ^[8] - 14:23, 85:7, 143:18, 145:19,	3	3 ^[8] - 21:3, 50:2, 57:22, 99:19, 113:14, 120:19, 135:20 3,300 ^[2] - 21:5, 22:16 30 ^[29] - 6:21, 42:9, 44:16, 48:20, 99:23, 100:14, 102:8, 102:17, 103:4, 104:11, 104:13, 111:1, 111:10, 111:21, 120:19, 121:3, 121:9, 122:5, 122:12, 134:9, 134:12, 138:19, 140:19, 140:22, 143:2, 143:24, 145:24, 146:5, 146:13 300 ^[4] - 2:18, 18:13, 26:24, 72:14 320 ^[1] - 71:17 328 ^[4] - 58:2, 58:4, 71:15 342 ^[1] - 29:21 35 ^[1] - 30:20 350 ^[1] - 18:12 360 ^[1] - 99:1 37 ^[1] - 61:16	6	6 ^[1] - 3:5 6.1 ^[3] - 51:22, 51:23, 51:24 60 ^[2] - 48:22, 70:4 600 ^[5] - 58:9, 58:11, 58:22, 72:13, 83:5 60606 ^[2] - 2:6, 2:9 61601 ^[1] - 2:19 62 ^[5] - 29:19, 61:15, 96:2, 97:2, 98:9 640 ^[1] - 58:23 644 ^[2] - 60:6, 60:19 650 ^[1] - 71:19 69 ^[1] - 29:17 698 ^[1] - 96:19 6:00 ^[2] - 154:18, 154:22 6:30 ^[1] - 1:12	ability ^[1] - 102:22 able ^[10] - 10:4, 27:1, 28:6, 42:4, 69:7, 77:15, 109:3, 118:24, 119:3, 154:4 absolutely ^[6] - 10:12, 11:13, 49:9, 57:15, 118:4, 130:8 academic ^[16] - 11:17, 15:11, 20:3, 21:18, 32:17, 39:21, 39:23, 43:19, 47:10, 49:1, 53:16, 60:21, 64:2, 78:19, 78:24, 81:5 academics ^[6] - 12:13, 12:14, 15:7, 41:7, 52:10, 81:2 accessory ^[1] - 50:5 according ^[1] - 69:24 account ^[5] - 99:8, 99:13, 144:20, 145:10, 147:1 accounted ^[1] - 145:16 accounting ^[3] - 6:20, 45:4, 69:9 accurate ^[4] - 53:20, 101:22, 125:5, 156:7 accustom ^[2] - 125:16, 125:24 acquire ^[1] - 97:1 acre ^[2] - 27:10, 50:1 acreage ^[3] - 49:18, 51:1, 78:9 acres ^[5] - 26:23, 49:14, 50:4, 50:11 ACTION ^[1] - 1:5 activities ^[1] - 47:15 activity ^[1] - 65:2 actual ^[11] - 15:16, 55:14, 80:1, 101:21, 102:5, 102:10, 114:7, 114:10, 145:22, 146:17 add ^[3] - 99:14, 135:10, 144:6 addendum ^[2] - 11:23, 33:24 adding ^[1] - 146:6 additional ^[3] - 62:6, 91:22, 146:11
1	1 ^[3] - 63:9, 95:18, 103:5 1,300 ^[2] - 22:15, 25:9 1,400 ^[2] - 27:16, 39:15 1,500 ^[2] - 27:9, 141:14 1,532 ^[2] - 49:23, 49:24 1,600 ^[1] - 27:15 1,620 ^[1] - 141:20 1,800 ^[1] - 27:9 1,848 ^[2] - 49:24 1.1 ^[1] - 25:7 1.12 ^[2] - 18:19, 63:6 1.2 ^[1] - 51:24 1.6 ^[1] - 141:22 10 ^[5] - 27:17, 39:14, 42:19, 141:19, 143:20 108 ^[2] - 33:14, 33:20 11 ^[4] - 27:18, 39:14, 69:15, 69:21 12 ^[3] - 26:8, 26:11 12,000 ^[1] - 83:2 120 ^[1] - 2:12 1200 ^[2] - 10:14, 10:17 1320 ^[1] - 46:4 138 ^[1] - 3:9 14 ^[2] - 1:11, 21:17 15 ^[8] - 24:8, 42:19, 49:3, 50:4, 56:19, 71:10, 154:19 16 ^[1] - 24:9 17 ^[1] - 56:3 18 ^[4] - 26:8, 26:11, 56:4, 56:6 180 ^[1] - 99:1 19 ^[10] - 56:8, 56:11, 56:13, 56:16, 57:2, 57:6, 57:13, 63:11, 63:13, 63:18		4	7		
		4 ^[16] - 17:2, 21:3, 56:11, 56:13, 56:16, 56:18, 57:2, 57:9, 57:13, 113:14, 121:8, 135:20, 145:18, 145:19 40 ^[2] - 48:21, 104:9 426 ^[1] - 58:3 428 ^[1] - 96:19 44 ^[1] - 126:5 45 ^[1] - 11:4 45,000 ^[1] - 36:1 453 ^[1] - 58:4 47 ^[1] - 29:1 488 ^[3] - 58:5, 58:12, 143:18, 145:19,	6 ^[1] - 3:5 6.1 ^[3] - 51:22, 51:23, 51:24 60 ^[2] - 48:22, 70:4 600 ^[5] - 58:9, 58:11, 58:22, 72:13, 83:5 60606 ^[2] - 2:6, 2:9 61601 ^[1] - 2:19 62 ^[5] - 29:19, 61:15, 96:2, 97:2, 98:9 640 ^[1] - 58:23 644 ^[2] - 60:6, 60:19 650 ^[1] - 71:19 69 ^[1] - 29:17 698 ^[1] - 96:19 6:00 ^[2] - 154:18, 154:22 6:30 ^[1] - 1:12			
			8			
			8,400 ^[1] - 83:3 80 ^[3] - 14:23, 15:4, 48:23 806-6297 ^[1] - 1:22 85 ^[1] - 3:5 89 ^[1] - 3:9			
			9			
			9 ^[9] - 10:2, 10:4, CSR			

address [6] - 9:3, 13:16, 112:10, 128:9, 149:3, 154:4
addressed [2] - 111:24, 127:15
addresses [1] - 127:12
adjacent [7] - 7:21, 12:10, 24:2, 32:23, 32:24, 79:22, 99:9
Adjacent [1] - 9:12
adjourned [1] - 154:23
adjust [1] - 28:6
adjusted [1] - 28:8
adjustment [1] - 28:4
adjustments [1] - 15:2
Administration [1] - 97:13
advantageous [1] - 98:20
advertise [1] - 75:17
aerial [1] - 27:2
aerials [1] - 34:19
affect [3] - 38:1, 38:2, 126:16
affected [2] - 22:8, 46:2
afforded [2] - 8:19, 71:7
afterwards [2] - 42:19, 42:20
Agency's [1] - 28:4
ages [2] - 26:15, 28:1
aggravate [1] - 143:14
aggravates [1] - 104:6
aggravating [1] - 143:10
aggregates [1] - 137:13
ago [8] - 51:6, 69:15, 69:21, 83:11, 83:13, 83:15, 93:23
agree [3] - 62:23, 88:17, 95:17
agreement [2] - 61:17, 66:19
agreements [3] - 63:23, 63:24, 66:17
agricultural [1] - 62:21
ahead [19] - 6:7, 11:5, 21:12, 37:21, 39:5, 45:21, 53:6, 54:23, 68:4, 82:6, 83:9, 84:3, 85:2, 94:22, 106:4, 110:8,

113:4, 113:23, 118:21
ahold [1] - 134:16
akeyt@heyloyster.com [1] - 2:19
Alex [1] - 2:17
ALL [1] - 154:24
allegiance [2] - 4:7, 4:8
Allen [1] - 2:18
allow [3] - 84:2, 117:24, 118:1
allowed [2] - 84:2, 151:24
allowing [1] - 121:16
almost [6] - 29:20, 31:16, 35:24, 36:10, 42:9, 59:19
alternative [1] - 70:16
alternator [1] - 148:5
amazing [1] - 82:15
amount [16] - 16:15, 17:9, 17:24, 42:24, 43:24, 50:24, 59:24, 71:6, 71:7, 82:15, 99:14, 102:21, 111:14, 127:2, 135:16, 143:11
ample [2] - 5:4, 108:10
Amy [1] - 2:4
AMY [1] - 6:10
amy.antonioilli@afslaw.com [1] - 2:6
analyses [7] - 13:1, 91:2, 91:5, 93:3, 93:6, 95:12, 105:19
analysis [12] - 22:17, 32:16, 36:9, 50:6, 63:17, 63:18, 92:9, 92:22, 93:2, 93:7, 96:20, 113:6
Analysts [1] - 7:14
analytic [1] - 109:1
analyze [1] - 27:1
analyzed [1] - 11:24
AND [2] - 1:5, 1:14
Anderson [1] - 32:9
Andrew [3] - 2:16, 6:13, 6:18
ANDREW [4] - 3:3, 85:23, 92:4, 138:13
angles [1] - 105:1
announced [1] - 34:15
anomalies [1] - 93:8
answer [21] - 33:2, 51:21, 58:18, 67:13, 68:21, 72:22, 74:22, 75:7, 77:15, 116:10

116:18, 117:13, 117:20, 119:5, 119:6, 119:12, 127:1, 127:9, 127:17, 130:3, 153:24
answered [2] - 123:5, 127:20
answers [2] - 119:4, 153:21
Antoniolli [11] - 2:4, 3:5, 3:6, 5:16, 6:7, 11:5, 33:4, 35:7, 88:22, 94:2, 109:12
ANTONIOILLI [25] - 5:17, 5:24, 6:8, 6:10, 8:6, 8:23, 9:1, 9:8, 9:9, 9:21, 9:22, 10:22, 11:6, 11:7, 33:6, 35:4, 68:15, 72:16, 88:23, 94:4, 109:14, 109:16, 151:4, 151:8, 151:15
apart [1] - 121:21
Apex [27] - 2:11, 2:12, 52:7, 52:14, 65:22, 65:23, 66:20, 67:19, 68:8, 68:10, 68:23, 69:6, 69:17, 70:1, 70:8, 70:12, 112:5, 113:12, 116:6, 120:7, 122:7, 134:16, 148:8, 149:9, 149:21, 152:21
Apex's [1] - 109:20
apologize [1] - 63:22
appealing [2] - 87:7, 87:9
appeals [1] - 87:19
appear [1] - 96:10
APPEARANCES [1] - 2:2
appendix [2] - 57:22, 120:1
Appendix [5] - 9:11, 9:19, 33:11, 56:3, 95:7
apple [3] - 52:21, 84:1, 84:23
applicant [1] - 101:18
Applicant [6] - 5:3, 5:5, 6:3, 89:23, 97:9, 154:14
APPLICANT [1] - 2:3
application [15] - 4:5, 5:1, 5:10, 5:12, 9:6, 57:8, 68:17, 80:23, 94:24, 95:3, 123:16, 123:17, 138:4, 139:15, 145:18
applications [1] - 139:24

applied [1] - 98:8
applies [1] - 104:6
apply [1] - 105:19
appraisal [1] - 42:13
Appraisal [1] - 7:4
appraisals [1] - 76:9
appraiser [5] - 7:1, 13:19, 48:21, 67:15, 77:15
Appraiser [1] - 7:16
appraisers [10] - 12:16, 13:18, 14:14, 15:6, 15:7, 20:8, 21:18, 42:12, 44:2, 52:4
appraising [1] - 88:2
appreciate [2] - 22:22, 130:13
appreciated [2] - 54:8, 54:11
appreciation [2] - 31:2, 54:6
approach [6] - 9:5, 94:23, 95:2, 146:1, 147:18, 147:20
approved [1] - 150:18
April [2] - 1:11, 154:19
Arch [1] - 85:4
architecture [1] - 90:15
Arcola [1] - 41:23
area [45] - 10:14, 11:24, 12:2, 12:3, 13:10, 17:13, 26:13, 27:5, 27:20, 27:21, 28:14, 28:23, 29:11, 29:17, 29:19, 29:21, 34:11, 34:14, 34:24, 35:2, 40:9, 40:13, 40:23, 41:2, 43:14, 43:17, 44:3, 45:24, 46:9, 46:11, 59:18, 61:12, 61:18, 64:11, 64:12, 77:23, 80:2, 82:19, 87:3, 88:6, 98:12, 101:12, 116:2, 120:12
areas [12] - 17:6, 23:24, 26:15, 31:4, 43:21, 63:8, 65:4, 98:15, 98:16, 114:3, 127:5
aren't [1] - 67:3
ArentFox [2] - 2:5, 2:8
argue [2] - 53:17, 58:17
arm's [4] - 25:14, CSR

26:17, 46:7, 66:18
Arthur [1] - 77:21
aspect [5] - 108:3, 109:1, 110:20, 126:15, 133:14
aspects [4] - 90:18, 93:10, 108:23, 146:21
assessed [3] - 75:20, 75:23, 87:12
assessment [12] - 73:12, 73:14, 73:24, 74:9, 74:12, 74:13, 74:17, 75:4, 75:10, 75:16, 76:7
Assessments [1] - 31:22
assessments [2] - 74:3, 74:8
Assessor [2] - 31:7, 32:6
assessor [8] - 31:17, 73:9, 73:12, 73:20, 73:24, 75:10, 77:14, 87:11
assessor's [1] - 73:18
Assessor's [1] - 32:9
Assessors [1] - 11:21
assessors [8] - 32:21, 73:4, 75:4, 76:3, 76:14, 87:18, 87:22, 88:4
Associate [1] - 2:11
associated [3] - 8:16, 108:1, 147:22
associating [1] - 148:5
association [2] - 7:8, 7:11
assume [3] - 5:23, 8:21, 146:19
assumed [1] - 119:4
assumes [5] - 74:4, 98:18, 98:22, 99:4, 144:3
assumptions [1] - 98:3
assure [1] - 148:9
Atkinson [4] - 1:20, 1:21, 156:4, 156:16
Atmospheric [1] - 97:13
attachment [1] - 142:17
attempt [1] - 66:24
attempted [1] - 64:16
attention [1] - 24:11
attest [1] - 134:1
attorneys [2] - 7:9,

70:12
attraction [1] - 83:4
attributed [1] - 32:24
audience [1] - 58:15
aughts [1] - 51:12
available [5] - 21:21,
 59:8, 149:13, 151:9
average [7] - 48:19,
 97:7, 104:10, 104:13,
 143:7, 143:10, 144:5
averaged [1] - 24:8
avoiding [1] - 27:22
aware [11] - 40:6,
 78:13, 107:7, 107:9,
 107:12, 127:8,
 138:22, 139:5,
 139:17, 140:4

B

B-O-R-G-M-A-N [1] -
 54:22
bachelor's [2] -
 91:18, 128:15
background [5] -
 6:15, 90:12, 91:16,
 93:5, 129:14
bad [1] - 48:17
badly [1] - 73:20
bank [1] - 25:17
bank-owned [1] -
 25:17
bare [1] - 145:5
barred [1] - 103:18
base [1] - 62:14
based [37] - 14:10,
 30:22, 32:16, 32:18,
 33:7, 34:23, 35:2,
 36:14, 42:13, 42:16,
 56:2, 61:12, 62:15,
 63:17, 65:4, 72:11,
 74:6, 87:19, 88:9,
 90:15, 106:3, 112:1,
 115:24, 122:9,
 122:11, 123:7,
 125:10, 126:13,
 126:24, 132:19,
 134:23, 135:19,
 136:16, 137:1,
 142:10, 143:16
basic [3] - 38:8, 93:9,
 129:7
bath [1] - 27:8
bathrooms [2] -
 28:1, 29:13
baths [1] - 50:3
bedroom [1] - 27:8
bedrooms [2] -
 27:24, 50:2
beds [1] - 29:12

before-entitled [1] -
 156:8
begin [2] - 48:18,
 149:22
beginning [3] -
 33:22, 48:9, 106:22
behalf [4] - 5:20, 6:3,
 89:23, 92:17
believes [1] - 150:22
Bell [2] - 23:21,
 24:14
below [2] - 111:10,
 146:5
Berkeley [2] - 12:14,
 17:13
best [3] - 55:12,
 145:4, 154:3
better [2] - 54:11,
 66:20
between [27] - 10:16,
 17:8, 18:20, 18:21,
 23:11, 24:17, 25:15,
 27:9, 29:18, 30:19,
 31:19, 41:21, 59:22,
 60:5, 63:7, 65:1,
 85:24, 86:3, 96:6,
 102:10, 124:9,
 124:10, 124:15,
 126:6, 126:20,
 142:23, 145:2
beyond [2] - 25:8,
 116:13
big [4] - 80:3,
 127:13, 127:14
bigger [2] - 56:5,
 56:6
bit [22] - 6:15, 13:8,
 15:17, 18:4, 18:23,
 18:24, 23:18, 26:22,
 28:3, 40:4, 55:4, 72:2,
 81:6, 83:11, 90:12,
 90:21, 93:4, 98:2,
 101:17, 109:18,
 114:22, 146:10
bite [3] - 52:21,
 83:24, 84:23
black [2] - 123:19,
 123:20
blade [2] - 102:22,
 124:21
blades [1] - 80:18
block [3] - 124:24,
 144:10, 145:9
blowing [3] - 97:8,
 126:18, 126:20
blue [1] - 28:14
Blvd [1] - 2:18
Board [7] - 19:23,
 35:14, 105:13, 150:4,
 150:6, 154:10, 154:18,

board [1] - 104:13
boarders [1] - 113:7
Borgman [10] -
 52:22, 52:24, 54:18,
 54:21, 55:22, 110:7,
 112:16, 113:23,
 117:8, 118:5
BORGMAN [15] -
 54:21, 55:1, 55:20,
 114:1, 114:10, 115:4,
 115:20, 116:6,
 116:19, 116:23,
 117:9, 117:12,
 117:16, 117:22, 118:2
bottom [2] - 27:6,
 59:20
bought [2] - 44:20,
 46:4
boundaries [2] -
 10:10, 10:20
boundary [1] - 10:4
bounded [2] - 10:7,
 10:14
box [2] - 21:21,
 98:23
bracket [1] - 29:10
break [2] - 89:9,
 111:4
breaks [1] - 99:11
bricks [1] - 114:23
Bridget [1] - 31:21
brief [4] - 52:22,
 85:20, 95:18, 153:4
bright [2] - 125:21,
 125:22
Bright [5] - 30:10,
 30:12, 50:21, 54:7,
 60:12
brightening [1] -
 130:20
brightens [2] -
 96:16, 107:2
bring [1] - 43:17
bringing [1] - 82:9
broad [1] - 133:15
broken [3] - 105:6,
 125:19, 137:6
broker [2] - 55:18,
 75:19
brokers [5] - 7:9,
 32:14, 32:21, 67:1,
 78:1
Brunner [2] - 17:11,
 20:21
building [15] - 59:19,
 59:22, 59:23, 66:8,
 71:23, 71:24, 72:1,
 115:3, 115:10,
 115:19, 131:4,
 131:12, 134:15,

135:13, 135:16
buildings [22] - 50:5,
 96:8, 97:5, 99:9,
 100:1, 100:13, 114:8,
 114:9, 120:3, 120:5,
 121:14, 122:4,
 123:21, 123:23,
 131:17, 138:20,
 139:22, 139:23,
 140:21, 142:5, 147:15
built [25] - 17:8, 18:7,
 19:3, 19:4, 25:21,
 27:10, 29:12, 31:20,
 32:12, 40:2, 42:19,
 43:23, 47:3, 50:2,
 68:8, 68:9, 73:7,
 97:24, 98:7, 98:10,
 111:12, 144:13,
 148:3, 149:6, 149:7
bunch [2] - 12:12,
 43:17
Bureau [1] - 32:10
butchered [1] -
 47:24
buy [1] - 38:5
buyers [5] - 25:23,
 64:7, 77:4, 78:9,
 78:13
buying [1] - 38:10
BY [11] - 3:4, 6:10,
 9:9, 9:22, 11:7, 33:6,
 85:23, 90:6, 92:4,
 95:5, 138:13

C

calculated [1] -
 102:20
calculates [1] -
 104:4
calculations [1] -
 142:9
calm [1] - 144:16
Camp [1] - 30:6
Canada [7] - 13:19,
 14:4, 107:20, 107:21,
 109:12, 109:21, 126:5
Canadian [4] - 19:22,
 116:24, 117:1, 117:21
Cape [1] - 16:24
car [1] - 125:13
Carter [2] - 22:12,
 43:20
Carter's [1] - 22:16
case [15] - 9:20,
 19:21, 53:17, 54:2,
 74:6, 96:7, 99:17,
 101:2, 102:7, 102:9,
 137:21, 141:10,
 141:19, 153:1, 154:14
 CSR

cases [3] - 91:7,
 92:6, 92:7
Cassadaga [1] -
 92:14
cast [4] - 96:4, 103:9,
 103:13, 114:12
casting [2] - 105:6,
 130:23
casts [1] - 132:9
catch [1] - 150:10
CAUSE [1] - 155:1
causes [1] - 79:21
causing [1] - 137:8
Cayuga [1] - 31:10
census [2] - 36:1,
 36:9
Center [2] - 30:8,
 30:9
center [1] - 140:3
central [1] - 41:22
cents [1] - 29:1
certain [2] - 17:24,
 138:18
certainty [2] -
 120:17, 143:4
certified [1] - 6:24
Certified [1] - 7:16
certify [1] - 156:6
Chairman [5] - 1:15,
 4:20, 4:23, 100:22,
 102:15
chairman [1] -
 153:18
challenge [3] -
 73:24, 74:2, 74:7
change [6] - 105:1,
 105:7, 125:3, 126:12,
 127:7, 145:11
changed [1] - 59:16
changes [2] - 32:7,
 32:11
changing [1] - 34:20
characteristics [3] -
 15:3, 29:4, 29:9
charge [1] - 90:17
charged [1] - 76:15
Charleston [4] -
 40:24, 41:24, 82:8,
 154:20
Charlottesville [1] -
 2:13
chart [1] - 49:13
charts [1] - 59:1
chemtrail [1] -
 132:22
chemtrails [3] -
 132:1, 132:4, 132:17
Chicago [2] - 2:6, 2:9
Chief [1] - 31:21
choice [2] - 42:2,

44:18
Christine [1] - 32:9
circumstance [3] - 29:24, 67:8, 80:9
circumstances [6] - 14:24, 18:22, 18:23, 22:21, 48:8, 48:18
cited [1] - 122:5
citing [2] - 102:1, 122:2
civic [1] - 82:18
civil [1] - 129:4
clarification [1] - 33:7
clarify [3] - 21:11, 83:23, 134:12
clarifying [1] - 74:23
Clark [12] - 36:24, 37:2, 37:19, 38:16, 52:20, 52:24, 53:4, 54:17, 84:2, 110:6, 110:8, 112:14
CLARK [16] - 37:1, 37:4, 37:12, 37:19, 37:22, 38:14, 53:2, 53:5, 53:7, 53:21, 54:15, 110:10, 110:21, 112:4, 112:7, 112:11
Clarkson [1] - 15:13
classes [1] - 129:16
Clayton [1] - 4:11
Clean [2] - 52:14, 67:19
cleanup [1] - 80:13
client [6] - 52:5, 52:15, 67:16, 67:19, 101:7, 101:11
clients [1] - 100:24
climatic [1] - 143:6
Clint [3] - 81:24, 82:1, 128:14
close [12] - 25:4, 27:21, 27:22, 40:24, 57:23, 84:19, 99:10, 99:11, 119:10, 135:15, 141:22, 154:15
closely [1] - 50:17
closer [6] - 16:1, 16:4, 24:7, 81:16, 105:6, 121:21
closest [3] - 29:7, 81:14, 142:16
cloudy [2] - 137:9, 137:12
coast [2] - 18:14
Code [1] - 16:24
CohnReznick [2] - 6:19, 45:2

Coles [44] - 4:3, 4:5, 5:1, 5:20, 10:6, 11:2, 34:8, 35:9, 35:19, 35:20, 35:23, 36:21, 37:7, 37:19, 39:2, 43:1, 43:8, 43:10, 45:11, 45:16, 52:20, 56:1, 67:23, 68:2, 69:16, 69:20, 71:1, 71:3, 71:7, 82:4, 85:16, 86:19, 106:2, 112:17, 113:7, 113:9, 113:16, 119:24, 128:14, 131:20, 138:7, 154:17, 154:20
coles [1] - 60:6
COLES [3] - 1:1, 1:7, 2:15
collect [1] - 97:9
collecting [1] - 101:9
College [1] - 91:19
color [1] - 124:6
column [2] - 19:17, 21:15
combination [1] - 117:6
comfort [1] - 146:14
coming [5] - 34:17, 82:15, 106:23, 107:4, 125:24
comment [2] - 152:12, 152:19
COMMITTEE [2] - 1:3, 1:14
Committee [10] - 4:4, 35:9, 89:2, 89:11, 100:19, 105:12, 148:20, 153:18, 154:17, 154:21
commonality [1] - 44:4
communities [5] - 18:8, 22:3, 38:13, 40:17, 140:15
community [29] - 19:8, 26:3, 41:5, 82:16, 82:21, 96:8, 97:5, 99:24, 100:1, 100:13, 114:8, 114:9, 115:3, 115:10, 115:19, 120:5, 121:13, 122:4, 123:23, 131:17, 135:13, 135:16, 138:20, 139:6, 139:22, 140:3, 140:20, 142:5, 147:14
companies [1] - 45:5
company [11] - 36:7, 44:19, 44:21, 45:2,

45:5, 52:7, 78:17, 78:18, 78:21, 90:15, 141:7
comparable [4] - 28:1, 49:17, 58:22, 72:12
comparative [1] - 143:6
compare [8] - 14:8, 49:17, 50:10, 50:17, 51:10, 71:17, 100:3, 135:24
compared [7] - 24:5, 30:21, 54:9, 71:19, 72:14, 76:23, 104:20
comparing [1] - 46:16
comparison [4] - 60:18, 71:21, 111:14, 136:16
compensation [2] - 61:18, 61:23
compile [1] - 97:18
compiled [1] - 36:6
complain [4] - 73:20, 76:4, 117:5, 134:11
complaining [1] - 73:5
complaint [12] - 73:21, 111:22, 112:1, 134:15, 134:18, 149:15, 149:16, 149:18, 149:22, 150:8, 150:17, 150:19
complaints [6] - 32:11, 111:3, 111:23, 112:9, 134:17, 150:7
complete [1] - 99:4
completed [2] - 26:23, 30:15
completely [2] - 17:23, 18:6
complex [1] - 93:6
compliance [5] - 106:12, 116:11, 116:15, 122:13, 123:12
comports [1] - 87:8
computer [2] - 129:11, 129:15
concentrate [1] - 12:17
concern [4] - 31:13, 108:10, 135:17, 154:9
concerned [1] - 153:23
concerning [1] - 101:22
concerns [2] - 127:13, 154:4,

concluded [1] - 18:19
conclusion [5] - 15:4, 15:15, 15:23, 17:17, 19:1
conclusions [6] - 12:22, 12:24, 13:4, 13:14, 22:17, 121:2
condition [3] - 24:16, 102:2, 123:14
conditions [4] - 26:13, 28:7, 132:20, 144:8
conduct [2] - 59:12, 92:21
CONDUCTED [1] - 3:4
conducted [7] - 31:6, 32:21, 91:4, 92:22, 95:12, 96:21, 102:3
conducting [5] - 91:2, 92:16, 92:18, 130:1, 132:13
confidence [3] - 111:11, 111:18, 146:11
confidently [1] - 113:17
confirmation [2] - 55:17, 145:23
conflict [1] - 140:14
confusion [1] - 115:17
conjunction [1] - 92:21
Conley [1] - 128:1
connection [1] - 126:6
Connie [2] - 68:2, 134:8
conservative [9] - 98:4, 98:7, 99:15, 111:7, 111:19, 144:2, 144:7, 144:12, 146:21
considerable [1] - 15:2
consideration [2] - 34:21, 113:10
consistency [1] - 22:7
consistent [18] - 16:6, 24:16, 24:23, 26:12, 29:3, 30:23, 31:16, 32:22, 40:22, 49:1, 49:4, 50:5, 50:19, 50:23, 57:13, 57:14, 100:5, 140:12
consistently [1] - 76:15
constantly [2] - 76:9, CSR

103:18
constitute [1] - 26:6
constrict [1] - 131:5
constricting [1] - 135:3
construct [1] - 53:12
constructed [1] - 82:16
construction [28] - 23:8, 25:10, 25:12, 26:7, 26:15, 35:2, 46:19, 47:6, 47:9, 47:15, 53:10, 53:11, 64:13, 64:15, 64:20, 64:23, 101:21, 102:4, 111:12, 123:3, 123:7, 149:20, 151:9, 151:14, 151:15, 151:16
consultants [4] - 85:16, 101:15, 138:8, 152:21
consulting [1] - 90:15
Consulting [1] - 9:12
contact [2] - 149:21, 150:4
contain [1] - 21:22
contained [1] - 80:22
continually [1] - 136:2
continue [3] - 4:3, 154:13, 154:14
continued [1] - 62:14
contracts [1] - 61:21
contributing [1] - 98:15
control [25] - 14:5, 14:7, 18:20, 24:5, 24:12, 26:1, 26:11, 26:16, 27:19, 27:20, 28:2, 28:12, 28:15, 28:23, 29:9, 29:19, 29:20, 30:19, 30:21, 54:8, 63:7, 64:10, 64:12, 77:8, 81:15
controlled [1] - 24:8
conversations [2] - 87:16, 87:17
conversely [1] - 86:14
coordinate [1] - 114:18
coordinating [1] - 152:1
copy [3] - 9:23, 92:24, 95:3
corner [3] - 61:8, 110:6, 112:16
corporate [1] - 70:8

correct ^[34] - 10:10, 19:20, 20:9, 21:8, 33:12, 33:21, 33:24, 34:2, 35:21, 43:8, 46:24, 51:17, 56:8, 56:11, 56:12, 86:12, 86:13, 86:17, 96:21, 99:18, 102:23, 103:11, 103:23, 120:3, 120:4, 120:20, 120:21, 120:24, 122:15, 124:12, 128:15, 142:8, 149:10, 150:2
corrected ^[1] - 11:1
correction ^[1] - 10:23
correctly ^[4] - 50:12, 87:14, 88:16, 141:13
correlated ^[2] - 44:3, 120:14
correlation ^[1] - 102:10
Council ^[1] - 7:14
councilor ^[1] - 7:7
counsel ^[5] - 5:13, 70:8, 70:9, 90:3, 119:17
Counsel ^[1] - 2:11
count ^[1] - 55:10
counties ^[6] - 15:21, 23:2, 23:3, 44:8, 77:19, 131:24
Counties ^[10] - 26:22, 30:5, 30:6, 30:7, 30:10, 36:21, 67:23, 71:1, 71:3, 131:21
counting ^[1] - 120:17
country ^[3] - 6:24, 91:6, 140:12
COUNTY ^[2] - 1:1, 2:15
County ^[75] - 4:3, 4:6, 5:20, 10:7, 10:14, 10:15, 10:16, 10:17, 11:2, 11:20, 22:4, 22:5, 22:13, 22:14, 22:18, 25:6, 30:9, 30:11, 30:15, 31:7, 31:9, 31:18, 31:23, 32:1, 32:6, 32:10, 35:9, 35:14, 35:19, 35:20, 35:23, 37:20, 39:3, 43:1, 43:8, 43:10, 45:11, 50:21, 50:22, 56:1, 60:6, 65:11, 65:12, 65:14, 65:17, 65:19, 65:21, 65:22, 66:2, 68:3,

68:7, 68:23, 69:4, 69:22, 71:8, 85:16, 86:19, 93:23, 105:13, 106:3, 112:17, 112:19, 113:7, 113:8, 113:9, 119:24, 128:14, 138:7, 140:2, 150:4, 150:6, 154:10, 154:17, 154:20, 156:5
county ^[28] - 22:16, 32:3, 34:18, 36:10, 41:21, 54:9, 54:12, 83:6, 86:3, 95:22, 99:22, 121:5, 121:12, 131:15, 137:22, 138:24, 139:11, 139:17, 140:9, 140:24, 143:22, 145:23, 146:15, 148:9
county's ^[1] - 19:6
couple ^[14] - 9:3, 13:20, 15:14, 21:19, 21:23, 27:1, 53:16, 53:18, 54:1, 55:6, 100:20, 106:9, 117:2, 121:10
course ^[4] - 97:7, 106:18, 137:24, 149:8
court ^[9] - 37:11, 37:15, 37:18, 38:23, 41:13, 45:14, 54:20, 68:1, 118:15
Court ^[3] - 1:20, 156:4, 156:16
courthouse ^[1] - 154:20
Courthouse ^[1] - 154:20
courtroom ^[1] - 154:19
cover ^[5] - 6:22, 11:14, 80:13, 115:12, 132:6
covered ^[4] - 18:12, 18:13, 40:20, 60:22
covering ^[1] - 16:20
covers ^[2] - 17:9, 26:22
coworker ^[1] - 92:20
Cox ^[2] - 1:15, 4:13
COX ^[1] - 4:14
Creek ^[1] - 30:5
criteria ^[1] - 64:11
critiques ^[1] - 14:20
Cronkhite ^[6] - 77:20, 77:21, 79:9, 81:20, 131:24, 134:4
CRONKHITE ^[23] - 77:21, 78:2, 78:16, 78:20, 79:1, 79:5,

79:10, 79:12, 79:15, 79:20, 80:16, 80:24, 81:13, 81:17, 132:1, 132:4, 132:11, 132:15, 133:6, 133:11, 133:16, 133:21, 134:3
Crop ^[6] - 26:20, 28:20, 30:3, 71:13, 71:14, 71:17
crops ^[1] - 62:19
CROSS ^[2] - 85:22, 138:12
cross ^[6] - 25:23, 66:12, 71:6, 71:9, 71:11, 102:22
cross-examination ^[2] - 71:6, 71:9
CROSS-EXAMINATION ^[2] - 85:22, 138:12
cross-reference ^[1] - 25:23
CSR ^[1] - 156:16
cube ^[3] - 114:22, 146:20, 146:22
current ^[1] - 31:19
CV ^[1] - 93:17

D

D-8 ^[1] - 95:7
damaged ^[2] - 14:23, 48:22
Damages ^[1] - 23:21
dark ^[2] - 125:22
darker ^[1] - 124:5
Darrell ^[1] - 1:15
data ^[66] - 14:5, 14:7, 15:16, 16:6, 16:15, 17:16, 18:4, 18:16, 18:19, 18:20, 18:21, 19:11, 21:22, 23:15, 24:8, 24:17, 25:24, 27:19, 30:22, 39:22, 40:4, 40:6, 43:6, 54:3, 54:8, 54:13, 59:7, 59:11, 59:14, 64:23, 66:14, 66:24, 72:3, 72:4, 77:8, 83:16, 97:1, 97:5, 97:8, 97:10, 97:12, 97:14, 97:15, 100:23, 101:3, 101:6, 101:8, 101:11, 102:5, 103:5, 116:2, 142:13, 142:14, 142:16, 142:19, 142:21, 143:1, 143:6, 143:8, 143:9, 143:12, 143:14, 147:21

dataset ^[1] - 143:5
date ^[5] - 16:1, 28:3, 28:10, 139:15, 139:24
Dated ^[1] - 156:9
dates ^[2] - 16:4, 28:2
DAY ^[1] - 155:1
daycare ^[1] - 140:3
days ^[7] - 29:18, 29:19, 29:21, 136:11, 137:2
daytime ^[1] - 144:5
deal ^[1] - 16:14
debunked ^[1] - 15:7
decent ^[1] - 13:10
deciding ^[1] - 42:3
Decker ^[1] - 46:4
declination ^[2] - 82:7, 83:1
decommissioned ^[1] - 65:5
decommissioning ^[3] - 151:5, 151:7, 151:13
decrease ^[2] - 55:6, 61:6
defeating ^[1] - 73:15
defines ^[1] - 139:12
definitely ^[2] - 24:19, 49:3
definition ^[2] - 78:11, 139:20
definitions ^[1] - 139:9
degree ^[3] - 111:11, 128:15, 129:4
degrees ^[3] - 99:1, 99:2, 129:16
DeKalb ^[3] - 23:4, 30:8, 31:22
delineation ^[3] - 85:24, 86:1, 86:3
demand ^[1] - 129:1
demographic ^[1] - 43:12
demographics ^[3] - 12:1, 34:16, 40:21
dense ^[1] - 99:10
Department ^[1] - 12:15
department ^[2] - 6:21, 17:14
deployed ^[2] - 147:18, 147:19
Deputy ^[1] - 31:22
describe ^[3] - 96:19, 96:23, 98:2
described ^[1] - 128:19
describes ^[3] - 11:17, 11:18, 11:19

description ^[5] - 10:3, 33:8, 33:16, 33:17, 146:4
Design ^[1] - 90:14
design ^[4] - 30:16, 34:24, 50:18, 59:16
designation ^[1] - 7:5
designed ^[3] - 12:4, 59:15, 97:24
designing ^[1] - 129:9
designs ^[1] - 39:19
desired ^[1] - 29:16
determination ^[1] - 34:23
determine ^[1] - 12:23
detrimental ^[2] - 24:15, 30:23
develop ^[3] - 42:15, 139:16, 150:17
developed ^[10] - 27:4, 30:13, 31:3, 32:8, 48:11, 51:12, 59:8, 87:24, 140:1, 150:21
developer ^[1] - 143:23
developers ^[1] - 25:21
Development ^[6] - 4:4, 35:9, 89:2, 89:11, 148:20, 154:17
development ^[5] - 31:3, 34:20, 48:14, 72:3, 133:24
DEVELOPMENT ^[2] - 1:3, 1:14
diagram ^[1] - 124:5
dial ^[1] - 136:5
diameter ^[2] - 124:18, 142:3
diameters ^[1] - 141:19
difference ^[20] - 18:20, 24:17, 24:24, 31:19, 32:4, 41:20, 47:13, 54:5, 59:22, 60:5, 63:7, 72:9, 72:12, 124:9, 124:10, 124:14, 132:16, 133:7, 133:12
differences ^[2] - 65:1, 81:7
different ^[23] - 12:12, 13:1, 13:2, 16:21, 21:17, 22:3, 28:3, 29:7, 32:18, 48:8, 60:4, 61:23, 62:17, 76:6, 76:16, 77:1, 81:6, 124:17, 124:18, 124:24, 125:1,

Jamie S. Atkinson,

Court Reporter
Vermilion County

126:18, 136:20
differently [1] - 110:22
difficult [3] - 59:21, 67:6, 133:15
difficulty [1] - 117:6
digital [2] - 114:4, 115:2
diligence [1] - 122:7
dimensional [1] - 116:5
dimensions [1] - 97:4
diminish [2] - 57:1, 86:23
diminished [3] - 19:1, 87:5, 88:8
diminishes [2] - 20:18, 20:19
dimmer [2] - 136:4, 136:6
dimming [7] - 106:17, 106:19, 107:3, 110:17, 130:20, 134:22, 135:2
dims [2] - 96:15, 107:1
dire [1] - 8:10
DIRECT [2] - 6:9, 90:5
direct [2] - 8:21, 68:19
direction [6] - 97:6, 101:8, 103:15, 104:7, 137:13, 137:16
directions [3] - 97:7, 113:13, 114:24
directly [3] - 65:13, 74:9, 104:23
disagree [1] - 62:23
disagreements [1] - 18:2
discount [1] - 48:20
discounts [1] - 48:20
discuss [9] - 13:16, 70:17, 93:1, 118:1, 122:24, 128:2, 128:4, 128:5
discussed [2] - 122:1, 134:13
discusses [2] - 107:20, 108:17
discussing [4] - 99:7, 108:2, 108:22, 135:1
discussion [1] - 95:19
DISCUSSION [1] - 1:5
disk [2] - 124:23

disks [1] - 124:24
distance [6] - 22:9, 27:13, 27:22, 28:20, 141:14, 141:15
distinction [1] - 18:9
distractions [1] - 125:16
distressed [2] - 25:16, 26:18
districts [2] - 35:15, 105:23
docket [1] - 116:17
doctor [1] - 154:5
documentation [1] - 31:13
Don [1] - 45:6
done [46] - 5:6, 7:18, 11:18, 12:12, 12:13, 12:16, 14:17, 15:12, 16:19, 16:20, 17:15, 17:16, 18:11, 21:7, 21:19, 22:11, 24:21, 26:20, 36:15, 46:16, 47:9, 50:6, 52:4, 54:4, 54:5, 54:6, 54:13, 57:6, 59:2, 60:11, 62:10, 62:11, 64:5, 64:20, 66:8, 66:17, 80:21, 102:2, 108:6, 123:7, 130:7, 142:1, 147:12, 153:1, 153:6
Dong [4] - 16:19, 21:1, 47:19, 65:1
dots [3] - 28:15, 123:20
dotted [1] - 113:15
Doty [1] - 4:15
doubt [1] - 40:18
Douglas [17] - 36:21, 37:7, 45:11, 65:11, 65:12, 65:14, 65:21, 67:23, 71:1, 71:3, 71:8, 106:3, 112:17, 112:19, 113:8, 113:16, 131:21
down [24] - 14:2, 31:15, 36:2, 36:5, 41:6, 49:7, 53:12, 53:13, 61:9, 69:15, 70:4, 73:6, 73:11, 73:14, 80:18, 89:5, 103:2, 111:4, 125:12, 126:2, 130:23, 137:3, 148:23, 149:19
downturns [1] - 48:7
dozens [1] - 91:5
Dr [1] - 24:14
draft [1] - 95:10
drafted [1] - 95:12
drafting [1] - 95:11

draw [1] - 82:19
drawing [1] - 82:21
drawn [1] - 41:2
dream [1] - 75:3
dries [1] - 48:17
Drive [2] - 2:5, 2:8
drive [2] - 34:7, 120:12
driven [1] - 13:9
drivers [2] - 125:15, 126:1
drives [1] - 96:15
driving [6] - 84:8, 125:11, 125:18, 126:4, 130:23, 149:19
dropped [2] - 48:12, 70:3
drove [1] - 34:9
due [6] - 98:13, 98:14, 101:23, 104:20, 104:21, 122:6
duly [2] - 6:4, 89:24
dumbing [1] - 103:2
during [10] - 14:3, 25:11, 64:15, 64:20, 64:23, 70:17, 117:11, 118:1, 145:22, 149:20
dwelling [1] - 131:11
dynamics [1] - 47:23

E

E-3 [4] - 9:11, 9:19, 33:11, 56:3
early [3] - 78:3, 130:24, 144:10
earth [1] - 114:18
east [2] - 10:8, 10:15
East [3] - 10:15, 10:16, 10:17
Eastern [3] - 16:23, 83:1, 83:3
easy [1] - 147:22
economic [1] - 43:13
edge [1] - 131:12
EDR [1] - 90:13
education [1] - 93:1
educational [1] - 91:15
effect [21] - 15:19, 15:21, 15:22, 18:3, 19:9, 63:1, 63:5, 72:9, 82:12, 84:9, 103:9, 106:17, 106:19, 110:17, 126:7, 130:19, 130:20, 132:1, 134:22, 134:23
effected [1] - 129:20
effects [3] - 17:18, 19:1, 116:8

effort [4] - 25:19, 66:7, 71:5, 146:10
egregious [1] - 48:13
eight [3] - 13:2, 71:24, 80:21
either [12] - 22:8, 23:7, 53:22, 87:16, 100:13, 125:7, 125:8, 126:14, 129:19, 136:14, 138:20, 152:21
electronic [1] - 114:11
elevation [5] - 97:10, 116:2, 145:11, 145:15, 145:16
elevations [1] - 145:14
elevator [1] - 60:6
employed [3] - 69:9, 69:16, 70:12
employees [1] - 152:21
end [1] - 28:9
Energy [3] - 12:16, 30:8, 30:9
energy [2] - 4:24, 47:22
engineer [1] - 51:15
engineering [2] - 90:15, 129:4
England [1] - 47:22
enjoy [1] - 131:7
enjoyment [2] - 56:23, 86:21
enter [1] - 102:23
entire [4] - 18:15, 54:9, 122:8, 125:10
entitled [2] - 95:7, 156:8
environment [2] - 60:3, 131:2
Environmental [3] - 90:14, 91:20, 117:3
environmental [5] - 17:14, 91:18, 93:8, 105:18, 136:12
epilepsy [1] - 110:19
equal [2] - 57:16, 57:17
equation [1] - 141:21
equations [1] - 115:23
equinoxes [1] - 136:19
erected [3] - 16:5, 46:23, 64:18
error [1] - 111:8
especially [2] - 43:18, 60:21

Esri [2] - 36:7, 36:13
essentially [7] - 33:1, 63:7, 124:4, 138:23, 140:23, 146:20, 150:20
established [2] - 41:4, 102:9
estate [17] - 6:20, 6:22, 7:1, 7:2, 7:6, 7:8, 7:10, 12:1, 18:18, 36:8, 36:10, 43:22, 44:2, 45:5, 48:7, 55:4, 75:18
Estate [4] - 7:12, 7:16, 9:11, 23:21
estimate [1] - 36:1
etc [1] - 21:1
evaluate [4] - 111:7, 112:3, 134:17, 146:2
evaluated [2] - 30:17, 96:2
evening [3] - 4:23, 77:16, 99:12
evenings [3] - 103:7, 131:7, 144:11
event [1] - 150:22
everywhere [1] - 99:2
evidence [4] - 5:2, 23:7, 47:14, 88:13
exact [7] - 72:1, 76:24, 102:6, 104:1, 104:2, 109:4, 123:8
exactly [11] - 18:17, 41:7, 60:1, 121:24, 132:23, 132:24, 133:4, 137:10, 143:13, 144:4, 148:4
examination [5] - 68:19, 71:6, 71:9, 88:22, 148:16
EXAMINATION [6] - 3:4, 6:9, 85:22, 90:5, 92:3, 138:12
examine [1] - 71:11
examined [1] - 137:15
example [9] - 13:4, 26:19, 39:13, 48:8, 96:9, 106:22, 138:19, 139:11, 144:21
examples [1] - 42:17
excellent [1] - 20:2
exception [1] - 49:11
excess [1] - 58:9
excluded [1] - 93:12
excuse [2] - 18:12, 23:4
excused [1] - 89:7
exhaustively [1] -

29:22
exhibits [1] - 94:24
exist [1] - 46:17
existing [5] - 24:9,
 25:2, 99:8, 139:14,
 139:24
exists [1] - 110:3
experience [5] -
 6:15, 32:2, 90:12,
 100:2, 136:22
expert [23] - 8:7,
 8:13, 8:17, 8:19,
 51:15, 69:11, 91:6,
 91:9, 91:13, 94:2,
 94:19, 105:15,
 107:15, 107:17,
 116:8, 116:12,
 116:17, 116:21,
 122:16, 122:21,
 128:6, 151:4, 151:8
expertise [1] - 8:14
experts [1] - 116:7
explain [5] - 48:4,
 49:15, 52:1, 106:6,
 124:1
explained [1] - 49:14
extend [1] - 26:5
extending [1] - 71:7
extent [2] - 110:19,
 126:10
extracted [1] - 12:22
extremely [1] - 14:20
eyes [1] - 57:17
Eyrich [1] - 68:11

F

faced [1] - 44:17
FACILITATOR [1] -
 2:21
facilities [2] - 22:8,
 22:9
facility [1] - 140:3
fact [8] - 40:19, 41:7,
 42:21, 45:5, 60:1,
 79:23, 98:14, 144:2
factor [11] - 86:18,
 99:16, 106:17, 107:6,
 108:22, 116:3, 116:4,
 116:5, 145:12,
 145:16, 148:2
Factor [1] - 86:19
factored [1] - 113:7
factors [11] - 99:14,
 107:6, 108:1, 111:17,
 125:2, 131:1, 136:12,
 137:1, 137:8, 144:17,
 146:7
facts [1] - 118:12
fair [5] - 99:14,

140:10, 140:11,
 141:2, 148:10
fairly [4] - 27:24,
 30:16, 100:5, 133:22
faith [1] - 142:11
fall [2] - 49:16,
 136:19
familiar [6] - 16:24,
 31:10, 96:10, 109:11,
 109:23, 138:14
families [1] - 129:19
family [1] - 68:11
far [11] - 27:14,
 28:19, 73:23, 81:3,
 84:13, 105:6, 141:12,
 142:13, 142:24,
 143:1, 151:9
Farm [12] - 26:20,
 28:20, 30:3, 30:4,
 30:7, 30:10, 30:11,
 31:10, 31:11, 50:21,
 50:22, 71:14
farm [36] - 17:21,
 19:6, 19:9, 22:5, 24:2,
 24:3, 24:9, 24:13,
 25:11, 26:8, 27:4,
 29:5, 30:14, 31:15,
 31:20, 32:3, 32:24,
 46:9, 46:10, 46:21,
 49:21, 54:11, 64:14,
 68:8, 73:6, 74:6, 77:2,
 77:4, 79:16, 87:2,
 87:21, 87:24, 88:1,
 117:18, 129:21
farmettes [1] - 50:4
farmland [14] - 61:4,
 61:5, 61:7, 61:9,
 61:10, 62:2, 62:3,
 62:7, 62:10, 62:12,
 62:14, 80:14
farmland's [1] -
 61:11
farmlands [1] - 79:6
farms [30] - 7:24, 8:4,
 11:22, 12:18, 13:2,
 13:14, 14:19, 15:14,
 15:16, 17:8, 17:16,
 17:17, 22:14, 22:18,
 24:10, 30:2, 30:18,
 32:8, 32:12, 34:5,
 38:8, 46:22, 50:20,
 59:15, 64:17, 68:9,
 81:4, 83:15, 83:16,
 119:9
faster [1] - 22:22
favor [1] - 29:7
feature [1] - 149:20
features [1] - 93:8
Federal [1] - 28:4
feet [21] - 21:5, 25:9,

27:9, 27:16, 39:16,
 49:23, 49:24, 58:2,
 58:3, 58:4, 58:5, 58:9,
 58:21, 58:23, 59:24,
 60:13, 60:19, 71:15,
 85:7
few [4] - 12:11,
 47:11, 85:20, 138:11
fewer [4] - 39:20,
 40:3, 50:24, 86:15
field [2] - 116:15,
 129:14
fields [1] - 79:8
fifth [1] - 94:16
figure [5] - 103:23,
 123:16, 123:17,
 135:20
figures [1] - 113:14
file [1] - 113:11
filed [2] - 139:16,
 140:2
final [3] - 88:24,
 148:18, 151:10
Finance [1] - 28:4
fine [2] - 39:23,
 129:9
finished [1] - 29:11
fire [1] - 49:8
firm [7] - 6:20, 45:4,
 69:9, 90:19, 91:1,
 92:17, 152:15
first [42] - 5:9, 6:4,
 6:16, 12:8, 13:18,
 13:23, 16:5, 16:17,
 17:20, 19:6, 19:8,
 19:21, 20:16, 21:24,
 22:5, 32:3, 33:14,
 33:17, 36:20, 37:10,
 45:23, 54:20, 55:24,
 56:2, 56:5, 63:11,
 64:3, 66:9, 81:8,
 85:16, 89:24, 92:8,
 92:11, 96:24, 98:8,
 100:19, 103:3, 106:2,
 111:6, 149:8
five [21] - 13:20,
 13:22, 13:23, 14:1,
 14:10, 17:19, 20:23,
 32:19, 53:10, 53:12,
 53:13, 58:1, 66:9,
 83:11, 83:13, 83:15,
 104:16, 126:20,
 126:22, 152:13
flat [1] - 116:3
flicker [77] - 91:3,
 91:5, 91:14, 92:6,
 92:9, 93:1, 93:3,
 94:14, 94:20, 95:20,
 95:23, 96:3, 96:11,
 96:20, 98:1, 98:5,

98:12, 98:15, 99:20,
 99:23, 101:15,
 101:22, 104:4,
 104:22, 105:3, 106:6,
 106:15, 107:3,
 107:10, 107:13,
 107:17, 107:20,
 108:17, 110:4, 111:1,
 111:14, 111:20,
 113:10, 113:15,
 116:8, 116:16, 119:7,
 121:4, 122:9, 122:24,
 123:11, 124:7,
 125:13, 126:12,
 126:22, 127:2, 127:3,
 127:7, 128:3, 128:5,
 128:18, 128:20,
 129:1, 129:20,
 130:17, 131:3, 131:8,
 131:16, 132:2,
 132:10, 132:14,
 133:20, 135:16,
 135:21, 138:19,
 140:22, 143:19,
 147:5, 149:5, 149:8,
 149:19, 150:23
Flicker [1] - 95:7
flickering [6] -
 110:14, 134:20,
 134:22, 136:1,
 136:23, 137:19
flickers [2] - 98:18,
 133:7
flip [2] - 33:13, 33:19
floating [2] - 114:22,
 115:1
focus [1] - 108:24
focused [1] - 129:24
folks [19] - 4:23, 5:4,
 5:9, 5:10, 5:11, 9:19,
 36:20, 58:16, 71:2,
 77:18, 85:14, 131:20,
 131:23, 152:8, 152:9,
 152:22, 153:15,
 153:19, 154:11
follow [3] - 61:2,
 129:17, 150:6
follow-up [1] - 150:6
following [6] - 9:20,
 100:8, 102:4, 111:11,
 117:6, 139:23
follows [2] - 6:5,
 90:1
foot [9] - 27:11,
 28:24, 29:1, 29:2,
 29:5, 29:6, 60:6,
 71:17, 83:5
footer [2] - 72:13,
 72:14
footprint [3] - 34:7,
 CSR

61:6, 141:16
FOR [3] - 1:5, 2:3,
 2:15
Ford [1] - 30:6
forecast [1] - 82:13
foreclosure [1] -
 78:11
foreclosures [1] -
 25:16
foregoing [1] - 156:6
Forestry [1] - 91:20
forget [1] - 112:15
form [2] - 127:14,
 133:2
format [2] - 92:24,
 93:11
formats [1] - 97:15
forth [2] - 77:23, 81:2
forward [3] - 14:9,
 87:24, 101:6
four [13] - 4:24,
 13:17, 16:21, 17:2,
 37:24, 71:23, 98:6,
 98:8, 123:17, 151:10,
 151:17, 152:20, 153:4
fourth [1] - 36:24
Frank [1] - 2:17
Freezeland [4] -
 1:16, 4:17, 102:16,
 105:11
FREEZELAND [6] -
 4:18, 102:17, 103:1,
 103:16, 104:11, 105:9
frequencies [1] -
 104:7
frequency [9] - 97:6,
 97:12, 101:8, 104:8,
 124:4, 134:1, 135:19,
 147:24
front [6] - 9:24,
 13:16, 20:1, 20:15,
 20:16, 93:24
fruiting [1] - 150:18
full [3] - 6:12, 7:4,
 59:12
functions [1] - 99:17
fundamental [1] -
 93:9
funded [3] - 44:6,
 52:11, 52:13
funds [2] - 52:2,
 67:14
future [3] - 62:12,
 69:10, 82:10

G

Garrett [1] - 2:12
GE [5] - 100:14,
 124:11, 125:7, 125:9,

143:20
general [12] - 7:1, 11:16, 27:20, 34:11, 43:13, 77:24, 78:1, 83:24, 95:23, 96:1, 102:18, 135:8
General [2] - 2:11, 7:16
generalize [1] - 137:18
generally [12] - 18:21, 24:3, 24:4, 25:8, 27:23, 34:12, 81:7, 103:4, 120:13, 136:8, 136:12, 136:22
generation [1] - 43:14
gentleman [10] - 5:23, 14:15, 22:11, 23:21, 37:6, 41:12, 43:20, 69:8, 110:6, 112:16
geological [1] - 97:11
geospatial [6] - 90:18, 90:24, 93:6, 105:18, 128:24, 129:13
GIS [2] - 90:17, 129:14
given [7] - 32:20, 40:6, 58:6, 133:4, 133:5, 137:10, 144:14
glad [1] - 74:22
glare [1] - 125:23
glass [4] - 98:23, 114:22, 146:20, 147:2
globally [1] - 97:21
God [1] - 78:22
gotcha [3] - 83:17, 129:3, 130:2
government [5] - 35:14, 36:17, 44:1, 82:18, 105:23
grabbing [1] - 109:12
grain [1] - 60:6
grateful [1] - 7:11
great [1] - 91:10
Great [3] - 14:3, 14:5, 48:9
greater [2] - 140:21, 145:21
gross [2] - 29:10, 104:10
ground [6] - 58:2, 80:5, 84:8, 84:9, 84:14, 114:23
group [15] - 13:1, 23:24, 24:1, 26:6,

26:9, 29:3, 29:10, 32:19, 49:21, 50:3, 53:18, 66:21, 67:9, 81:1, 90:17
groups [5] - 24:5, 24:22, 26:16, 27:1, 30:18
Grove [1] - 30:6
grow [1] - 83:5
growing [1] - 34:18
Grundy [1] - 26:21
guess [6] - 82:13, 115:2, 127:10, 127:12, 127:14, 143:20
Guo [3] - 18:13, 20:16, 63:2
guys [6] - 16:18, 44:19, 45:6, 73:3, 111:2, 130:6

H

H-E-N-D-R-I-X [1] - 112:23
H-O-L-O-N-B-E-C
-K [1] - 118:17
half [10] - 18:22, 23:9, 24:5, 34:11, 59:10, 72:6, 72:7, 81:8, 104:16, 153:6
Hamilton [1] - 2:18
Hancock [1] - 59:20
hand [1] - 52:22
handful [1] - 91:7
hands [1] - 153:14
happy [2] - 33:2, 93:19
hard [5] - 16:18, 28:11, 83:3, 94:8, 137:10
harm [1] - 31:23
Hartke [8] - 71:3, 71:4, 71:13, 77:17, 83:22, 83:24, 84:2, 84:22
HARTKE [16] - 71:12, 71:16, 72:6, 73:3, 74:11, 74:21, 75:2, 75:13, 75:22, 76:2, 76:21, 77:9, 84:4, 84:7, 84:14, 84:20
hazards [1] - 126:1
hazy [1] - 132:21
head [1] - 50:14
Headwaters [3] - 30:14, 50:22, 60:14
health [26] - 107:6, 107:9, 107:13,

107:15, 107:20, 107:21, 108:2, 108:7, 108:10, 110:13, 116:7, 116:12, 116:17, 116:20, 117:21, 119:3, 119:4, 119:13, 122:14, 127:6, 127:13, 128:5, 128:10, 153:20, 153:21, 153:23
Health [2] - 109:11, 109:21
hear [3] - 67:13, 117:16, 154:6
heard [6] - 13:8, 74:19, 109:24, 110:2, 119:21, 135:4
HEARING [1] - 2:21
hearing [11] - 4:24, 5:2, 8:14, 9:4, 71:5, 72:16, 72:18, 91:12, 93:22, 94:11, 154:11
hearings [3] - 8:3, 59:6, 110:1
heat [1] - 123:18
heavy [1] - 14:19
Hedonic [1] - 17:15
height [11] - 25:7, 58:3, 59:16, 60:5, 62:13, 71:19, 72:8, 72:11, 85:8, 86:15
heights [4] - 58:6, 59:1, 125:1, 142:3
Heintzelman [1] - 15:12
held [1] - 4:8
help [5] - 6:20, 106:20, 135:10, 135:22, 144:13
helpful [1] - 133:14
HENDRIX [5] - 112:19, 112:22, 113:2, 113:6, 113:19
Hendrix [3] - 112:22, 113:1, 113:22
Henry [1] - 32:6
hereby [1] - 156:6
hertz [1] - 110:18
HESS [18] - 69:14, 70:10, 70:15, 109:22, 116:10, 122:23, 128:1, 128:6, 151:10, 151:14, 151:18, 151:22, 152:5, 152:10, 152:18, 153:3, 153:11, 154:2
Hess [11] - 2:11, 69:12, 70:7, 70:8, 70:14, 109:11, 109:19, 116:9,

116:14, 122:22, 127:23
heterogeneity [1] - 47:23
Heyl [1] - 2:18
hide [1] - 15:8
high [6] - 87:11, 88:2, 104:13, 111:11, 111:18, 139:4
higher [3] - 18:23, 122:1, 124:6
highest [1] - 7:5
highs [1] - 143:11
highway [1] - 80:3
Hill [1] - 30:4
Hindsboro [1] - 113:3
hit [1] - 100:21
Hoen [9] - 17:10, 17:11, 18:12, 20:21, 22:1, 22:6, 23:1, 23:5, 64:22
hold [3] - 7:15, 53:3, 77:13
HOLLONBECK [7] - 118:8, 118:11, 118:16, 118:19, 118:23, 119:2, 119:18
Hollonbeck [5] - 118:16, 118:17, 118:21, 119:14, 119:19
home [43] - 7:21, 12:10, 15:1, 15:2, 18:12, 18:17, 19:4, 22:9, 23:7, 26:15, 27:24, 31:12, 31:19, 32:11, 34:10, 34:13, 34:15, 39:8, 39:10, 39:11, 40:21, 41:6, 42:20, 44:2, 44:16, 45:24, 46:2, 46:4, 46:16, 53:22, 54:10, 68:7, 68:9, 69:24, 73:14, 74:10, 74:12, 77:4, 87:11, 87:12, 87:20, 109:20, 135:24
homeowner [1] - 73:16
homeowners [1] - 127:6
homes [36] - 13:10, 13:20, 14:23, 18:14, 22:22, 23:10, 24:3, 24:6, 27:15, 31:3, 32:4, 34:10, 34:12, 35:1, 38:10, 38:11, 39:14, 40:9, 40:17, 42:17, 46:13, 46:22, 49:23, 54:7, 63:20,

63:22, 68:23, 75:19, 76:10, 77:6, 78:8, 81:8, 84:13, 88:6, 113:7, 113:8
homework [1] - 109:19
hoping [2] - 127:11, 127:12
horizon [3] - 96:5, 103:8, 137:6
horizontally [1] - 99:1
horrible [1] - 49:9
hour [14] - 8:19, 8:22, 11:3, 71:8, 102:8, 122:5, 126:20, 126:21, 126:22, 126:23, 140:19, 145:24, 146:5, 148:4
hours [33] - 99:23, 100:14, 102:17, 103:4, 103:5, 104:11, 104:15, 104:16, 111:1, 111:10, 111:21, 120:20, 121:3, 121:9, 122:12, 124:1, 124:7, 134:13, 135:11, 138:19, 140:22, 143:18, 143:19, 143:24, 145:19, 145:20, 146:8, 146:9, 146:12, 146:13, 147:11
house [40] - 6:23, 11:3, 28:5, 28:8, 38:5, 42:9, 42:10, 42:14, 44:19, 55:2, 61:5, 72:13, 73:7, 73:9, 74:5, 74:18, 75:3, 75:12, 75:15, 75:17, 75:23, 76:18, 76:19, 76:22, 76:24, 80:5, 84:11, 88:2, 88:3, 96:15, 99:4, 99:10, 99:11, 111:17, 115:21, 146:18, 146:19, 147:2, 147:3
houses [3] - 27:9, 44:20, 120:2
Housing [2] - 7:14, 28:4
humans [1] - 133:3
hundred [2] - 53:20, 144:6
hurt [1] - 73:20
hypothetical [2] - 74:4, 74:7
hypothetically [1] - 76:19

I i.e [1] - 23:9 I57 [2] - 10:13, 10:19 idea [4] - 74:1, 79:4, 114:20, 152:2 ideas [1] - 154:3 identical [1] - 29:20 identified [2] - 12:11, 26:2 identify [4] - 12:2, 23:24, 25:19, 109:8 identifying [1] - 26:16 ierulli [1] - 2:17 Il [1] - 30:14 IL [5] - 2:6, 2:9, 2:13, 2:19, 2:22 Illinois [33] - 7:2, 7:24, 12:19, 13:2, 21:23, 22:4, 22:6, 22:12, 23:3, 24:10, 30:12, 34:5, 34:6, 38:9, 38:12, 43:3, 43:19, 66:13, 71:13, 75:20, 76:11, 76:15, 80:20, 91:7, 91:9, 92:6, 92:7, 94:12, 100:7, 142:18, 143:4, 154:21, 156:5 imagine [1] - 150:3 immediate [1] - 56:23 immediately [2] - 24:2, 42:18 immune [1] - 14:4 impact [62] - 7:19, 7:21, 7:22, 7:23, 12:5, 13:14, 14:12, 17:3, 17:4, 18:7, 19:3, 19:5, 19:17, 19:18, 19:23, 20:3, 20:8, 20:14, 20:17, 20:22, 20:23, 21:3, 21:4, 21:15, 21:16, 22:20, 22:24, 23:6, 23:15, 31:2, 31:12, 32:17, 32:22, 33:10, 33:15, 33:22, 35:1, 40:1, 40:14, 47:1, 47:14, 50:7, 53:9, 56:11, 57:9, 57:16, 59:12, 62:19, 63:14, 63:18, 63:19, 76:17, 79:6, 79:19, 79:21, 80:6, 81:3, 87:1, 88:13, 108:2, 140:20 Impact [1] - 9:12 impacted [3] - 40:5, 121:6, 121:22	impacting [1] - 88:3 impacts [9] - 12:9, 14:4, 17:6, 30:23, 44:12, 47:21, 48:3, 106:15, 107:10 impair [2] - 57:1, 88:15 impaired [2] - 86:23, 88:9 importance [1] - 47:22 important [13] - 13:15, 18:8, 18:9, 19:7, 21:24, 26:14, 26:17, 76:8, 98:17, 100:11, 149:2, 152:24 improvements [1] - 82:19 IN [1] - 154:24 include [5] - 55:2, 71:23, 117:5, 138:24, 140:24 included [6] - 30:20, 33:11, 66:5, 111:8, 111:9, 113:18 includes [1] - 30:3 including [7] - 11:20, 22:3, 23:4, 35:14, 95:19, 100:7, 105:23 income [1] - 62:16 inconsistent [2] - 14:11, 18:4 inconvenience [7] - 107:6, 108:3, 108:6, 108:22, 109:2, 122:10, 125:11 increase [1] - 62:1 increased [2] - 51:14, 86:14 increasingly [1] - 59:17 increments [1] - 103:20 independently [1] - 125:2 index [1] - 28:5 Indiana [5] - 13:3, 30:15, 50:22, 79:7, 79:16 indicate [2] - 39:24, 99:20 indicated [2] - 22:21, 153:16 indicator [1] - 75:23 individual [3] - 15:3, 143:8, 145:7 individually [1] - 28:18 individuals [6] - 49:5, 49:11, 76:9,	76:12, 78:19, 78:23 indoors [1] - 135:2 industry [3] - 7:3, 7:10, 36:8 information [24] - 14:21, 15:9, 17:5, 19:11, 27:6, 41:3, 42:16, 43:12, 57:20, 66:23, 67:1, 67:4, 70:14, 75:5, 77:5, 78:7, 87:15, 91:18, 100:8, 105:18, 109:20, 142:2, 143:17, 148:8 infrequent [1] - 133:22 injured [1] - 79:23 injurious [2] - 56:22, 86:20 input [3] - 97:1, 98:3, 142:4 inputs [1] - 129:12 inside [6] - 97:23, 130:21, 131:4, 134:23, 135:2, 135:24 insight [1] - 88:5 insignificant [5] - 17:18, 19:9, 62:24, 63:5, 63:10 installation [1] - 19:7 instance [1] - 43:2 instead [1] - 131:12 Institute [2] - 7:5, 7:12 instruction [1] - 151:23 insurance [4] - 80:12, 127:6 intended [1] - 143:6 intense [1] - 129:11 intensity [1] - 132:7 intention [1] - 143:5 interest [1] - 152:11 interested [2] - 36:19, 154:11 interesting [2] - 39:21, 126:8 interfere [1] - 144:21 interject [1] - 115:8 internationally [2] - 7:7, 7:9 Interstate [2] - 10:8, 11:1 interstate [1] - 11:2 interview [2] - 31:7, 77:22 interviews [5] - 11:19, 13:7, 31:6, 32:20, 78:3 intricacies [1] -	129:9 introduce [2] - 8:6, 91:12 introduction [1] - 19:8 intrusive [1] - 147:17 investigate [1] - 66:23 investigation [1] - 34:23 investment [2] - 82:15, 82:17 invitation [1] - 7:8 involve [1] - 107:13 involved [7] - 7:10, 67:2, 69:21, 80:20, 112:2, 117:18, 127:5 IREM [1] - 7:13 Iroquois [1] - 30:5 irrelevant [1] - 66:18 Island [5] - 16:20, 17:2, 21:3, 47:21, 78:24 issue [11] - 8:7, 41:3, 49:5, 59:24, 94:20, 118:7, 127:14, 134:6, 150:23, 153:16, 154:12 issues [5] - 9:3, 101:24, 110:13, 128:5, 128:10 ITEMS [1] - 1:5 items [4] - 90:24, 105:4, 105:5, 115:12 itself [10] - 12:1, 13:17, 28:20, 62:4, 129:9, 141:7, 142:6, 145:6, 145:9, 147:13 J JACOB [2] - 3:8, 90:9 Jacob [3] - 89:19, 90:9, 91:13 James [1] - 112:22 Jamie [3] - 1:20, 156:4, 156:16 jamieatkinson5@gmail.com [1] - 1:22 January [2] - 104:9, 138:15 Jason [1] - 128:1 Jerald [1] - 2:11 gerald.hess@apexcleanenergycom [1] - 2:13 jerk [1] - 17:22 job [2] - 24:13, 128:22	jobs [2] - 43:16, 43:17 Johnson [1] - 31:18 join [2] - 4:6, 7:11 jump [1] - 81:10 jumping [1] - 49:7 June [1] - 30:15 jurisdictions [2] - 100:4, 100:6 justify [1] - 42:10 K Kains [7] - 2:22, 4:21, 9:5, 69:14, 128:7, 151:11, 151:23 KAINS [181] - 4:22, 5:19, 5:22, 6:1, 6:6, 8:9, 8:12, 8:24, 9:7, 9:19, 10:24, 19:13, 19:16, 19:21, 20:1, 20:6, 20:10, 20:13, 20:20, 20:24, 21:6, 21:9, 33:3, 35:6, 35:12, 35:17, 36:16, 36:19, 37:2, 37:5, 37:9, 37:14, 37:21, 38:16, 38:22, 39:2, 39:5, 41:11, 41:15, 42:4, 42:7, 45:1, 45:8, 45:13, 45:17, 45:21, 51:20, 51:23, 52:17, 53:3, 53:6, 54:17, 54:23, 55:21, 58:16, 67:21, 68:4, 68:12, 68:18, 69:3, 69:8, 69:12, 70:2, 70:5, 70:11, 70:16, 70:22, 72:21, 73:1, 73:22, 74:24, 75:7, 77:17, 79:9, 79:11, 79:13, 81:19, 82:1, 82:4, 82:6, 83:8, 83:19, 84:6, 84:22, 85:2, 85:9, 85:13, 85:19, 88:21, 88:24, 89:4, 89:8, 89:15, 89:21, 90:2, 90:20, 91:15, 91:21, 93:17, 93:21, 94:1, 94:5, 94:7, 94:15, 94:18, 95:1, 95:4, 100:17, 100:21, 102:14, 105:10, 105:21, 106:1, 109:10, 109:15, 109:18, 109:23, 112:13, 112:20, 112:24, 113:4, 113:21, 115:8, 115:13, 116:9,
---	--	---	--	---

116:14, 116:21, 117:8, 117:10, 117:15, 117:19, 117:24, 118:4, 118:10, 118:13, 118:18, 118:20, 119:1, 119:14, 122:18, 122:21, 123:1, 127:17, 127:21, 128:4, 128:8, 128:11, 130:6, 130:9, 130:12, 130:14, 131:19, 131:23, 132:3, 134:4, 138:2, 138:6, 138:10, 148:18, 148:22, 149:1, 149:11, 149:16, 149:21, 149:24, 150:3, 150:9, 150:12, 150:14, 151:1, 151:6, 151:12, 151:16, 151:19, 152:4, 152:7, 152:16, 152:20, 153:9, 153:12, 154:8 Kankakee [2] - 30:5, 30:6 Kelly [3] - 1:18, 30:5, 37:19 KEYT [13] - 5:21, 8:11, 85:20, 85:23, 88:19, 91:24, 92:4, 93:15, 138:11, 138:13, 148:13, 150:13, 150:15 Keyt [11] - 2:16, 3:5, 3:9, 5:19, 8:9, 85:19, 88:21, 91:21, 138:10, 148:15, 151:1 Kielisch [2] - 14:16, 20:7 kilometer [1] - 21:4 kilometers [2] - 81:11, 141:22 kind [36] - 11:16, 12:5, 13:5, 13:16, 14:21, 40:1, 55:13, 97:6, 99:6, 101:16, 103:1, 105:4, 106:21, 108:8, 108:21, 110:11, 111:5, 115:11, 122:6, 126:7, 128:23, 129:15, 134:20, 135:21, 136:14, 136:18, 137:3, 137:4, 139:5, 144:12, 144:13, 144:17, 145:4, 146:10, 147:17, 147:20	kinds [2] - 7:20, 76:16 Kirk [1] - 14:16 knee [1] - 17:22 knee-jerk [1] - 17:22 knowledge [9] - 64:21, 65:6, 65:8, 68:20, 69:18, 110:20, 129:22, 141:8, 141:10 known [3] - 36:7, 45:7, 137:14 knows [6] - 70:7, 79:13, 104:3, 116:1, 132:23, 145:13	82:20, 82:21 leader [2] - 90:13, 90:16 leading [1] - 131:10 leads [1] - 111:18 leak [1] - 80:16 leaking [1] - 79:8 lease [3] - 62:5, 62:6, 62:16 leasing [1] - 61:15 least [1] - 153:4 leave [2] - 44:8, 44:9 leaving [7] - 43:3, 43:8, 43:9, 43:15, 44:13, 44:16 Lee [8] - 22:4, 22:13, 22:14, 22:18, 23:4, 30:8, 32:1 Lee-DeKalb [1] - 30:8 left [1] - 43:1 legal [1] - 70:8 legitimate [1] - 24:15 length [4] - 25:14, 26:17, 46:7, 66:18 lengths [1] - 60:23 less [16] - 8:18, 8:22, 23:10, 40:4, 51:3, 59:10, 59:20, 61:16, 70:4, 75:11, 75:20, 82:11, 98:13, 103:4, 116:3, 152:13 level [9] - 38:8, 74:9, 74:12, 102:2, 102:21, 110:18, 111:21, 139:4, 146:11 levels [1] - 74:13 levy [1] - 76:7 Lexiconic [1] - 16:10 library [1] - 140:3 license [2] - 4:4, 7:16 License [2] - 1:21, 156:17 light [9] - 96:15, 103:5, 107:3, 110:13, 125:21, 131:5, 135:2, 135:3, 136:1 lighting [1] - 132:8 lights [1] - 119:7 likely [4] - 24:16, 25:4, 80:6, 105:5 limit [5] - 49:3, 77:3, 83:22, 99:12, 145:24 limited [3] - 8:14, 77:3, 102:21 limiting [1] - 71:6 line [2] - 72:18, 113:16 linear [4] - 21:5, 25:9, 39:16, 59:24	LINES [1] - 3:3 Lines [6] - 6:13, 6:18, 8:7, 11:8, 19:13, 83:8 lines [14] - 6:11, 8:12, 14:10, 33:3, 35:10, 35:13, 39:6, 51:20, 70:19, 72:23, 81:21, 85:10, 85:15, 89:5 list [8] - 7:17, 30:2, 50:20, 55:15, 56:10, 57:24, 58:22, 59:1 listed [4] - 28:15, 49:15, 56:8, 140:7 listen [1] - 110:1 listing [1] - 57:23 listings [1] - 97:17 lists [2] - 25:20, 50:9 literally [1] - 18:14 live [6] - 41:16, 41:18, 42:3, 77:2, 79:3, 119:9 lived [6] - 40:10, 41:22, 42:9, 44:15, 117:4 living [4] - 29:11, 41:21, 74:5 Livingston [3] - 23:5, 26:21, 31:9 LLC [2] - 1:7, 1:21 LLP [2] - 2:5, 2:8 local [7] - 14:15, 34:16, 35:14, 36:17, 44:1, 46:4, 105:22 locate [1] - 70:14 located [10] - 10:7, 13:11, 22:22, 24:2, 24:6, 29:4, 41:22, 84:13, 136:16, 139:13 location [4] - 98:23, 104:17, 104:19, 136:18 locations [7] - 40:20, 98:9, 98:10, 98:11, 101:6, 136:20, 146:3 LOCKHART [2] - 85:18, 138:9 Lockhart [3] - 1:18, 85:17, 138:8 Lode [6] - 2:7, 3:9, 89:17, 93:17, 94:22, 148:16 LODE [10] - 89:19, 90:4, 90:6, 91:10, 93:19, 94:23, 95:2, 95:5, 100:16, 148:17 Logan [1] - 30:10 long-term [1] - 143:7 look [20] - 15:1, 18:1, CSR	24:3, 25:3, 25:8, 25:14, 25:24, 26:10, 26:14, 27:11, 28:17, 29:23, 47:11, 66:14, 66:24, 72:4, 75:6, 80:17, 123:18, 139:5 looked [34] - 12:1, 13:9, 13:20, 13:22, 15:14, 15:24, 16:21, 16:22, 16:23, 17:8, 18:15, 22:2, 22:13, 22:15, 23:2, 28:22, 28:23, 29:2, 29:14, 30:13, 34:9, 34:10, 34:15, 34:16, 34:18, 46:6, 48:9, 48:11, 49:21, 49:22, 54:3, 81:7, 86:7 looking [14] - 25:1, 27:17, 44:17, 47:9, 51:4, 51:10, 54:7, 59:21, 71:24, 79:24, 83:16, 113:14, 125:6, 125:8 looks [5] - 65:1, 104:1, 141:12, 145:1, 145:18 lose [2] - 56:4, 73:13 loses [1] - 73:16 Louis [1] - 85:4 love [1] - 108:11 low [2] - 20:13, 102:18 lower [8] - 59:16, 74:19, 75:4, 86:9, 87:10, 88:4, 88:6, 103:8 lowered [2] - 73:12, 74:17 lowering [2] - 87:20, 96:5 lows [1] - 143:11
M				
ma'am [6] - 37:9, 38:20, 45:11, 45:13, 68:12, 69:3 machine [2] - 80:10, 80:11 MADE [1] - 154:24 MAI [2] - 7:3, 23:22 MAI's [2] - 21:19, 49:7 management [2] - 90:24, 111:23 Management [1] - 7:12 managing [1] - 90:18 mandate [2] - 140:4,				

140:23
mandated [5] - 139:11, 139:18, 139:21, 140:15, 140:18
mandates [2] - 138:23, 140:8
manner [1] - 12:5
map [4] - 28:11, 120:13, 124:2, 125:7
mapped [1] - 28:12
mapping [2] - 91:19, 105:18
maps [4] - 123:17, 123:18, 124:10, 135:20
mark [1] - 104:13
marked [1] - 95:7
market [16] - 11:20, 13:6, 24:17, 26:13, 28:7, 29:17, 29:19, 29:21, 31:1, 32:13, 48:7, 55:4, 55:9, 76:12, 78:11, 78:12
Market [1] - 7:14
marketing [3] - 29:14, 55:11, 77:6
marketplace [2] - 29:16, 29:23
Marshall [1] - 30:7
Mass [2] - 16:22, 16:23
Massachusetts [5] - 16:20, 16:22, 17:1, 17:7, 21:2
massive [1] - 72:9
math [2] - 103:21, 103:22
mathematic [1] - 129:11
mathematical [3] - 97:16, 115:23, 129:8
mathematically [1] - 104:5
mathematics [3] - 115:5, 115:7, 129:16
matter [2] - 91:13, 125:9
matters [4] - 5:16, 5:18, 8:17, 101:10
Mattoon [1] - 118:19
McCann [2] - 14:16, 20:7
McCullough [1] - 1:18
McLean [5] - 23:4, 23:5, 30:9, 30:11, 50:21
mean [29] - 35:23, 42:11, 43:7, 43:9,

44:7, 44:15, 44:23, 48:4, 50:16, 53:23, 61:11, 63:4, 80:17, 82:22, 96:1, 103:1, 106:8, 106:16, 114:14, 117:16, 124:20, 129:7, 132:7, 133:1, 139:13, 146:1, 146:8, 147:17
meaning [3] - 14:22, 23:13, 50:10
meaningful [1] - 26:6
means [7] - 7:4, 39:22, 41:6, 96:7, 98:11, 98:24, 139:23
meant [3] - 38:19, 69:10, 103:21
measurability [1] - 22:7
measurable [5] - 22:7, 24:16, 24:23, 57:13, 57:14
measure [2] - 27:13, 28:19
measured [1] - 138:19
measuring [1] - 115:14
meat [1] - 11:16
median [4] - 29:2, 29:5, 29:18, 30:19
medical [1] - 154:5
meet [1] - 154:16
meeting [3] - 4:3, 4:20, 152:14
meets [1] - 78:11
Meg [2] - 45:15, 45:19
MEG [1] - 45:19
megawatt [1] - 51:16
megawatts [3] - 26:24, 51:14, 51:23
member [5] - 7:4, 7:12, 7:13, 150:4
Member [1] - 154:10
members [10] - 35:13, 36:17, 36:20, 89:1, 100:19, 105:22, 106:2, 138:3, 148:19, 154:9
Members [2] - 19:23, 35:8
memorized [2] - 37:13, 138:16
mentioned [9] - 7:22, 13:7, 25:18, 32:18, 39:24, 47:12, 48:3, 64:24, 123:4
mentioning [1] - 99:7

merit [1] - 15:10
meteorological [1] - 101:8
meter [1] - 114:22
meters [2] - 141:14, 141:20
method [1] - 96:20
methodologies [1] - 93:10
methodology [9] - 11:14, 12:7, 14:24, 23:19, 23:20, 96:23, 141:5, 146:15, 147:11
metric [1] - 125:3
metrics [9] - 98:7, 111:7, 111:19, 122:2, 123:8, 134:16, 144:2, 144:7, 144:12
Michael [1] - 4:19
Michigan [1] - 126:6
microphone [2] - 100:22, 109:13
Midwest [1] - 14:15
Midwestern [1] - 20:8
might [27] - 7:20, 12:6, 12:24, 14:23, 16:18, 17:22, 18:2, 34:20, 39:18, 40:18, 43:9, 55:15, 56:4, 59:9, 62:16, 71:23, 75:12, 76:17, 76:18, 88:10, 96:10, 117:20, 135:10, 144:10, 144:21, 147:11, 154:3
Mike [2] - 1:15, 14:15
mile [20] - 18:22, 23:9, 23:10, 24:4, 27:16, 37:23, 38:10, 39:9, 39:12, 39:16, 81:3, 81:8, 113:12, 114:8, 126:22, 126:23, 141:22
miles [18] - 18:6, 18:21, 23:11, 24:7, 24:9, 26:4, 39:10, 41:23, 41:24, 81:9, 81:10, 81:12, 81:14, 81:16, 126:20, 126:21
million [1] - 18:14
mind [1] - 69:18
mine [1] - 87:9
minimize [1] - 12:5
minimum [1] - 27:16
Minonk [1] - 31:10
minor [4] - 19:9, 63:1, 63:5, 97:14
minute [4] - 103:20, 114:19, 133:1, 137:20
minutes [10] - 11:4,

71:10, 71:11, 136:22, 137:3, 137:20, 143:18, 143:20, 146:8
mitigation [1] - 121:4
mixed [7] - 15:17, 15:19, 16:9, 17:5, 18:4, 20:5, 20:6
MLS [2] - 66:24, 78:7
model [23] - 97:16, 98:4, 98:18, 98:22, 99:4, 99:7, 102:11, 103:19, 111:10, 114:16, 115:1, 124:11, 125:1, 125:3, 125:4, 126:13, 129:9, 137:13, 137:17, 142:6, 142:7, 144:2
modeled [3] - 98:9, 121:3, 147:6
modeling [42] - 93:6, 96:20, 97:2, 97:3, 97:20, 97:22, 97:24, 98:5, 98:7, 98:8, 98:13, 99:14, 99:15, 99:16, 100:10, 101:22, 102:3, 111:8, 114:5, 114:16, 126:14, 129:24, 132:14, 132:18, 132:23, 133:2, 133:9, 140:19, 141:13, 141:16, 141:18, 142:1, 142:2, 144:13, 144:19, 144:20, 144:24, 145:1, 145:10, 145:17, 146:21
models [5] - 96:3, 99:17, 124:18, 137:14, 142:3
modern [1] - 40:2
module [1] - 97:24
moment [1] - 96:16
momentum [1] - 43:22
money [3] - 48:17, 55:7
monitor [1] - 145:21
monitoring [4] - 132:12, 141:24, 147:9, 147:15
month [4] - 28:5, 104:6, 104:8, 104:10
months [3] - 26:8, 26:11
Moore [5] - 51:21, 130:10, 149:3, 149:6, 150:20
MOORE [8] - 51:22, 130:4, 149:10, CSR

149:14, 149:18, 149:23, 150:2, 150:5
Morgan [2] - 65:17, 65:22
morning [4] - 96:13, 99:12, 130:24, 144:11
mornings [2] - 103:7, 131:7
most [26] - 5:7, 11:16, 12:19, 12:20, 13:17, 16:13, 18:10, 26:14, 26:17, 32:2, 38:8, 39:21, 48:13, 48:20, 50:17, 50:19, 50:23, 51:5, 61:11, 100:11, 111:16, 119:24, 131:7, 133:23, 152:10, 152:18
mostly [3] - 93:7, 104:12, 108:20
mouth [1] - 60:16
move [4] - 71:5, 105:1, 108:6, 146:7
moves [1] - 107:1
moving [7] - 48:16, 96:3, 99:19, 103:14, 126:2, 146:6, 146:9
MR [403] - 4:2, 4:9, 4:13, 4:14, 4:15, 4:17, 4:18, 4:19, 4:22, 5:19, 5:21, 5:22, 6:1, 6:6, 8:9, 8:11, 8:12, 8:24, 9:7, 9:19, 10:24, 19:13, 19:16, 19:21, 19:24, 20:1, 20:6, 20:10, 20:13, 20:20, 20:24, 21:6, 21:9, 33:3, 35:6, 35:12, 35:16, 35:17, 35:18, 35:22, 36:4, 36:12, 36:15, 36:16, 36:19, 37:2, 37:5, 37:9, 37:14, 37:21, 38:16, 38:22, 39:2, 39:5, 41:11, 41:14, 41:15, 41:16, 41:20, 42:4, 42:6, 42:7, 42:8, 42:23, 43:7, 44:7, 44:23, 45:1, 45:8, 45:13, 45:17, 45:21, 51:20, 51:22, 51:23, 52:17, 53:3, 53:6, 54:17, 54:21, 54:23, 55:1, 55:20, 55:21, 55:24, 56:10, 56:13, 56:16, 56:20, 57:6, 57:8, 57:19, 58:10, 58:16, 58:21, 60:4, 60:9, 60:15, 60:24,

61:14, 61:22, 62:9,
62:22, 63:4, 63:9,
63:14, 63:20, 64:3,
64:8, 64:19, 65:3,
65:7, 65:9, 65:16,
65:19, 65:21, 66:1,
66:4, 66:15, 67:7,
67:12, 67:17, 67:20,
67:21, 68:4, 68:12,
68:18, 69:3, 69:8,
69:12, 69:14, 70:2,
70:5, 70:10, 70:11,
70:15, 70:16, 70:22,
71:12, 71:16, 72:6,
72:21, 73:1, 73:3,
73:22, 74:11, 74:21,
74:24, 75:2, 75:7,
75:13, 75:22, 76:2,
76:21, 77:9, 77:17,
77:21, 78:2, 78:16,
78:20, 79:1, 79:5,
79:9, 79:10, 79:11,
79:12, 79:13, 79:15,
79:20, 80:16, 80:24,
81:13, 81:17, 81:19,
81:24, 82:1, 82:2,
82:4, 82:5, 82:6, 82:7,
82:20, 82:24, 83:8,
83:10, 83:17, 83:19,
84:4, 84:6, 84:7,
84:14, 84:20, 84:22,
84:24, 85:2, 85:3,
85:6, 85:9, 85:13,
85:18, 85:19, 85:20,
85:23, 88:19, 88:21,
88:24, 89:4, 89:8,
89:15, 89:21, 90:2,
90:20, 91:15, 91:21,
91:24, 92:4, 93:15,
93:17, 93:21, 94:1,
94:5, 94:7, 94:15,
94:18, 95:1, 95:4,
100:17, 100:20,
100:21, 100:23,
101:2, 101:19,
102:10, 102:13,
102:14, 102:17,
103:1, 103:16,
104:11, 105:9,
105:10, 105:14,
105:20, 105:21,
106:1, 109:10,
109:15, 109:18,
109:22, 109:23,
112:13, 112:19,
112:20, 112:22,
112:24, 113:2, 113:4,
113:6, 113:19,
113:21, 114:1,
114:10, 115:4, 115:8,
115:13, 115:20,

116:6, 116:9, 116:10,
116:14, 116:19,
116:21, 116:23,
117:8, 117:9, 117:10,
117:12, 117:15,
117:16, 117:19,
117:22, 117:24,
118:2, 118:4, 118:8,
118:10, 118:11,
118:13, 118:16,
118:18, 118:19,
118:20, 118:23,
119:1, 119:2, 119:14,
119:18, 119:23,
120:6, 120:9, 120:15,
120:18, 120:22,
121:1, 121:20, 122:8,
122:14, 122:16,
122:18, 122:20,
122:21, 122:23,
123:1, 123:2, 123:15,
123:24, 124:8,
124:14, 124:20,
125:6, 126:11,
126:17, 127:4,
127:10, 127:17,
127:21, 128:1, 128:4,
128:6, 128:8, 128:9,
128:11, 130:4, 130:6,
130:9, 130:12,
130:14, 130:16,
131:6, 131:18,
131:19, 131:23,
132:1, 132:3, 132:4,
132:11, 132:15,
133:6, 133:11,
133:16, 133:21,
134:3, 134:4, 138:2,
138:6, 138:9, 138:10,
138:11, 138:13,
148:13, 148:18,
148:22, 149:1,
149:10, 149:11,
149:14, 149:16,
149:18, 149:21,
149:23, 149:24,
150:2, 150:3, 150:5,
150:9, 150:12,
150:13, 150:14,
150:15, 151:1, 151:6,
151:10, 151:12,
151:14, 151:16,
151:18, 151:19,
151:22, 152:4, 152:5,
152:7, 152:10,
152:16, 152:18,
152:20, 153:3, 153:9,
153:11, 153:12,
153:19, 154:2, 154:7,
154:8
MS [124] - 5:17, 5:24

6:8, 6:10, 8:6, 8:23,
9:1, 9:8, 9:9, 9:21,
9:22, 10:22, 11:6,
11:7, 33:6, 35:4, 37:1,
37:4, 37:12, 37:19,
37:22, 38:14, 38:21,
38:24, 39:4, 39:7,
40:8, 40:13, 41:8,
45:12, 45:15, 45:19,
45:23, 46:8, 46:12,
46:20, 47:2, 47:4,
47:16, 48:1, 49:12,
50:8, 50:16, 51:2,
51:9, 51:16, 51:18,
51:24, 52:6, 52:9,
52:12, 52:16, 53:2,
53:5, 53:7, 53:21,
54:15, 68:2, 68:5,
68:13, 68:15, 69:1,
69:6, 69:10, 69:23,
70:3, 70:21, 72:16,
88:23, 89:19, 90:4,
90:6, 91:10, 93:19,
94:4, 94:23, 95:2,
95:5, 100:16, 106:5,
106:14, 106:19,
107:5, 107:8, 107:12,
107:16, 107:21,
107:23, 108:5,
108:13, 108:18,
109:3, 109:7, 109:9,
109:14, 109:16,
110:10, 110:21,
112:4, 112:7, 112:11,
128:14, 128:17,
129:3, 129:18, 130:2,
130:8, 130:11,
130:13, 134:8,
134:19, 135:4, 135:7,
135:23, 136:5, 136:8,
136:21, 137:18,
138:1, 148:17,
150:11, 151:4, 151:8,
151:15

multiple [4] - 24:21,
24:22, 108:23, 126:7
multiplier [1] - 72:10
municipalities [1] -
100:4

N

Nag [1] - 117:2
Nahobous [1] -
117:2
name [22] - 6:12,
14:15, 31:21, 37:10,
37:18, 38:20, 38:21,
38:23, 41:13, 45:14,
45:15, 45:18, 54:19,
56:1, 68:1, 90:7

109:5, 112:21,
112:22, 115:9,
115:14, 118:15
named [3] - 14:16,
22:12, 23:21
names [2] - 25:22,
37:11
national [2] - 6:19,
45:3
National [4] - 7:14,
12:15, 17:13, 97:13
nationally [1] - 45:7
natural [1] - 131:2
nature [1] - 72:17
navigating [1] -
126:1
NCHMA [1] - 7:15
near [12] - 19:4, 23:9,
24:2, 28:18, 29:4,
31:15, 31:23, 32:5,
38:12, 42:3, 87:20,
117:5
nearby [2] - 22:20,
86:10
necessarily [11] -
14:8, 46:7, 47:8,
53:19, 62:8, 62:18,
66:10, 76:1, 76:17,
80:11, 93:4
need [15] - 8:20,
25:9, 56:6, 70:5, 73:9,
97:3, 106:6, 119:5,
119:6, 119:12, 125:1,
127:5, 130:20,
153:20, 153:24
needed [3] - 86:9,
101:14, 101:20
needle [2] - 146:8,
146:9
needs [3] - 114:16,
114:19
negative [30] - 13:14,
14:12, 14:20, 15:5,
15:16, 15:23, 18:19,
19:16, 19:23, 20:3,
20:8, 21:4, 24:18,
24:19, 32:22, 47:14,
48:3, 49:3, 51:2, 53:9,
56:11, 56:19, 57:9,
57:16, 63:14, 84:11,
88:12, 106:15, 107:9,
107:14
negatively [3] - 35:1,
40:5, 88:3
neighbor [2] - 66:17,
66:19
neutral [7] - 5:11,
118:7, 118:9, 118:13,
134:6, 138:4, 153:16
never [2] - 32:10,
CSR

115:21
New [8] - 15:14,
47:22, 90:16, 91:7,
91:19, 92:13, 94:12,
126:6
new [1] - 31:3
newer [1] - 50:20
next [40] - 13:12,
13:20, 16:12, 19:12,
20:10, 21:13, 23:17,
24:24, 26:9, 26:18,
27:12, 27:18, 28:10,
28:15, 28:20, 30:1,
31:4, 32:15, 37:5,
41:16, 41:18, 46:17,
48:1, 49:12, 54:11,
61:14, 62:24, 72:13,
74:5, 76:20, 77:7,
77:15, 80:3, 80:15,
84:1, 89:9, 89:17,
112:15, 120:19,
128:13
nice [1] - 39:18
niche [2] - 93:4,
128:20
night [6] - 4:23, 56:5,
71:5, 130:24, 151:2,
152:23
nine [8] - 13:1,
27:20, 28:23, 29:3,
32:18, 58:1, 60:18
NOAA [3] - 97:14,
142:16, 143:5
nobody [2] - 25:11,
70:7
Nodurft [1] - 31:21
noise [3] - 108:22,
119:8, 119:11
non [20] - 25:6,
25:18, 63:23, 64:6,
66:16, 84:18, 86:5,
99:24, 100:12, 102:7,
120:23, 121:13,
122:3, 131:16,
138:21, 139:12,
139:14, 140:21,
142:5, 147:14
non-participant [2] -
63:23, 66:16
non-participating
[18] - 25:6, 25:18,
64:6, 84:18, 86:5,
99:24, 100:12, 102:7,
120:23, 121:13,
122:3, 131:16,
138:21, 139:12,
139:14, 140:21,
142:5, 147:14
none [3] - 60:17,
65:7, 69:16

O&M [1] - 134:15
Oak [1] - 30:8
Oakland [1] - 41:23
object [3] - 68:16,
 72:17, 106:24
objection [1] - 68:21
obstacles [1] - 145:2
obstruct [1] - 105:5
obviously [6] -
 10:19, 24:10, 25:3,
 28:16, 34:21, 42:14
occasion [1] -
 101:20
occupied [24] - 96:8,
 97:5, 99:24, 100:1,
 100:13, 114:7, 114:9,
 115:3, 115:9, 115:18,
 120:5, 121:13, 122:4,

11:2, 11:15, 13:3,
13:18, 14:13, 14:16,
15:1, 15:2, 15:11,
15:21, 16:9, 16:17,
17:3, 17:10, 17:12,
18:10, 18:11, 18:13,
19:22, 20:2, 20:16,
20:18, 21:1, 21:3,
21:4, 21:24, 22:1,
23:1, 24:1, 24:18,
26:19, 26:20, 27:7,
27:10, 28:17, 30:16,
35:16, 37:24, 38:13,
39:18, 48:13, 49:17,
49:19, 49:20, 49:21,
49:24, 50:1, 50:3,
51:13, 51:16, 53:2,
56:7, 58:2, 58:3, 58:4,
58:5, 59:6, 59:13,

Operational [3] -
25:2, 102:5, 147:21
opinion [2] - 36:4,
87:1
opportunity [5] - 5:4,
8:20, 34:4, 34:7,
42:15
opposed [6] - 5:10,
118:6, 118:9, 134:6,
138:4, 140:9
opposite [2] - 16:17,
41:7
opposition [1] -
153:14
orange [2] - 21:22,
123:19
order [2] - 16:17,
103:12
Ordinance [3] - 25:6,

oversaw [1] - 9:16
oversee [1] - 95:10
overseeing [2] -
 90:18, 91:2
oversight [1] - 90:23
overview [1] - 95:19
overwhelmingly [1] -
 15:5
own [6] - 40:19, 47:9,
 57:8, 129:20, 151:21,
 151:23
owned [1] - 25:17
owner [1] - 25:7
owners [1] - 84:18
ownership [1] - 62:4

**P-E-D-I-G-O [1] -
CSR**

participating [23] -
25:6, 25:18, 25:20,
25:22, 64:6, 84:18,
86:5, 99:24, 100:12,
102:7, 120:23, 121:9,
121:11, 121:13,
121:19, 122:3,
131:16, 138:21,
139:12, 139:14,
140:21, 142:5, 147:14
particular [19] -
17:12, 18:17, 24:11,
27:15, 28:6, 40:23,
43:14, 49:5, 50:3,
60:2, 62:17, 62:20,
66:13, 72:3, 80:2,
80:10, 87:3, 88:14,
143:23
particularly [6] -

86:8, 108:20, 139:5,
143:21, 144:15,
144:16
parties [1] - 36:20
partner [1] - 6:19
parts [2] - 34:5, 34:6
party [1] - 25:15
pass [1] - 130:21
passing [4] - 125:23,
131:1, 134:24, 135:17
past [3] - 11:3,
107:1, 108:6
patterns [1] - 136:15
pay [2] - 24:11, 75:11
PEDIGO [7] - 38:21,
38:24, 39:4, 39:7,
40:8, 40:13, 41:8
Pedigo [2] - 38:21,
41:11
peer [1] - 108:16
pen [1] - 23:17
people [58] - 7:9,
7:15, 7:20, 12:9,
14:18, 15:12, 17:23,
31:13, 34:17, 38:9,
38:18, 40:10, 40:17,
41:1, 41:5, 41:19,
42:3, 43:1, 43:3, 43:8,
43:14, 44:8, 44:13,
44:15, 47:5, 49:6,
61:15, 61:16, 67:3,
73:5, 73:19, 74:2,
74:7, 75:6, 75:9,
75:14, 76:4, 77:2,
77:22, 79:2, 80:6,
82:19, 82:21, 86:2,
87:6, 87:9, 111:16,
117:4, 119:8, 119:9,
121:16, 127:4, 134:9,
135:10, 151:24,
152:18, 153:13,
153:23
people's [2] - 72:9,
108:4
Peoria [1] - 2:19
per [15] - 25:5, 27:11,
28:24, 29:2, 29:5,
29:6, 99:23, 100:14,
111:10, 111:23,
121:3, 122:5, 122:12,
132:20, 134:13
percent [24] - 14:23,
15:4, 18:19, 20:18,
20:23, 29:6, 30:20,
48:21, 48:23, 49:3,
53:20, 57:3, 57:5,
57:10, 57:15, 58:23,
63:6, 63:10, 63:11,
63:13, 70:4, 103:5,
104:9, 144:6

percentage [2] -
20:17, 144:4
percentages [1] -
48:24
perfect [2] - 130:11,
137:19
perfectly [1] - 76:23
perform [1] - 93:1
performed [2] -
141:17, 141:18
perhaps [3] - 36:23,
69:4
period [5] - 23:11,
29:22, 44:13, 51:15,
53:10
periods [1] - 23:8
permission [1] -
147:15
permit [3] - 102:3,
123:13
permits [2] - 139:16,
140:1
permitted [2] -
56:24, 86:22
perpendicular [1] -
103:12
person [9] - 36:10,
68:6, 73:8, 73:11,
73:16, 110:24,
127:12, 127:15,
134:10
person's [1] - 42:9
personal [2] - 40:19,
69:18
personally [2] - 54:3,
147:19
perspective [3] -
58:14, 145:1, 145:2
pertaining [1] -
135:7
Peterborough [1] -
117:4
Ph.D [3] - 23:22,
128:17, 129:2
phenomenon [4] -
96:17, 130:19,
134:22, 134:24
Phil [1] - 54:21
Phoenix [1] - 48:10
photo [1] - 110:15
physical [4] - 29:4,
29:8, 114:2, 115:5
Piatt [4] - 65:19,
66:2, 93:23, 94:3
pick [3] - 60:10,
125:7, 143:16
picked [2] - 13:24,
23:17
picture [3] - 27:2,
106:23, 145:4

piece [3] - 61:24,
80:14, 103:22
Pilot [1] - 30:4
pins [3] - 27:2, 27:5,
28:13
place [5] - 48:15,
64:15, 76:12, 111:20,
114:3
places [4] - 10:13,
120:2, 123:6, 140:2
plan [1] - 44:16
plane [1] - 130:22
planes [1] - 132:22
PLANNING [2] - 1:3,
1:14
planning [1] - 152:5
Planning [8] - 1:18,
1:18, 4:3, 35:9, 89:2,
89:11, 148:19, 154:17
platted [1] - 48:10
play [3] - 82:17,
105:4, 144:18
played [1] - 78:15
Plaza [1] - 2:12
pledge [2] - 4:7, 4:8
plenty [1] - 42:17
plug [1] - 97:15
podium [1] - 56:6
point [11] - 18:5,
43:18, 99:1, 108:9,
114:16, 114:19,
115:19, 119:17,
135:14, 143:15,
152:13
poles [1] - 136:18
policy [1] - 111:22
population [4] -
35:19, 35:20, 35:24,
82:8
pose [1] - 117:20
position [2] - 104:1,
104:2
positive [4] - 15:22,
16:2, 18:24, 43:22
POSSIBLE [1] - 1:5
possible [3] - 22:16,
27:21, 82:23
possibly [1] - 51:13
post [6] - 23:8,
47:15, 65:2, 101:21,
123:3, 123:7
post-construction
[5] - 23:8, 47:15,
101:21, 123:3, 123:7
potatoes [1] - 11:17
potential [20] -
25:20, 31:12, 32:11,
77:3, 103:8, 104:4,
105:3, 123:11, 124:6,
124:23, 126:14

127:3, 132:10,
132:19, 135:21,
137:16, 144:14,
144:18, 147:5, 147:7
potentially [6] -
73:13, 98:15, 129:10,
147:18, 152:24, 153:1
potentials [1] -
137:14
power [1] - 86:9
practice [2] - 90:13,
90:16
pre [3] - 23:8, 47:9,
47:15
pre-construction [3]
- 23:8, 47:9, 47:15
precise [1] - 133:14
preconstruction [2]
- 64:24, 65:2
predicted [1] -
143:18
predominantly [1] -
17:7
preliminary [2] -
5:16, 5:17
premier [1] - 17:12
premise [1] - 17:20
preparation [2] -
9:16, 65:14
prepare [3] - 7:19,
11:8, 101:15
prepared [5] - 7:23,
9:2, 9:15, 12:24,
101:11
preparing [1] - 7:22
PRESENT [1] - 1:14
Present [1] - 1:17
presentation [4] -
61:1, 71:19, 74:14,
76:3
presented [2] - 34:4,
118:12
presenting [2] -
9:10, 153:7
presiding [1] - 4:20
pressed [1] - 83:3
pressure [1] - 25:17
pretty [11] - 24:13,
26:12, 45:7, 83:3,
98:17, 101:5, 104:13,
129:17, 137:14,
141:22, 146:12
previous [2] - 16:16,
19:14
previously [1] -
32:18
price [13] - 25:18,
28:5, 28:24, 29:2,
29:5, 46:2, 55:6,
55:16, 55:19, 74:19,

75:15, 75:17, 78:15
prices [9] - 14:2,
27:11, 30:24, 31:1,
31:19, 34:10, 40:22,
48:11, 55:5
primary [3] - 98:6,
106:11, 148:5
primer [2] - 95:19,
95:24
private [2] - 52:6,
70:12
privy [1] - 61:20
problem [4] - 73:10,
73:15, 84:11, 84:15
problems [2] -
104:24, 108:12
procedure [1] -
150:17
proceedings [1] -
156:7
PROCEEDINGS [2] -
1:9, 154:24
process [11] - 96:24,
102:1, 112:1, 134:15,
134:18, 149:15,
149:17, 150:1, 150:8,
150:19, 150:21
processes [1] - 5:2
processing [1] -
97:15
produced [1] -
104:10
produces [1] - 97:17
production [1] -
101:9
productively [2] -
61:12, 62:15
productivity [1] -
62:20
profession [1] -
128:23
professional [1] -
6:21
professors [1] -
78:19
program [3] - 129:2,
129:8, 129:15
programs [1] -
128:18
progression [1] -
39:19
project [53] - 4:5,
10:3, 10:11, 10:14,
11:24, 12:3, 13:21,
25:2, 26:23, 28:14,
28:17, 29:8, 31:4,
31:7, 33:8, 33:16,
33:17, 34:13, 34:14,
34:22, 42:18, 43:16,
49:23, 56:22, 65:4,

65:22, 65:23, 67:9, 83:12, 86:20, 88:14, 92:11, 92:22, 95:18, 96:1, 97:2, 98:12, 99:21, 101:24, 106:12, 111:23, 114:4, 120:12, 122:2, 122:7, 123:13, 137:23, 139:16, 140:1, 140:20, 141:16, 142:15, 151:20
Project [4] - 10:6, 30:6, 34:8, 92:15
projected [2] - 14:9, 36:2
projects [22] - 8:16, 12:4, 23:16, 25:21, 27:23, 32:19, 43:23, 57:24, 66:13, 76:11, 76:16, 91:1, 91:5, 91:8, 97:23, 100:3, 108:1, 112:3, 126:5, 126:7, 133:24, 146:5
Projects [1] - 71:18
promise [1] - 53:2
pronunciation [1] - 47:24
Proper [1] - 21:23
proper [2] - 36:8, 68:6
properties [11] - 7:20, 8:15, 18:7, 25:10, 46:16, 57:2, 57:23, 64:13, 86:6, 86:24, 88:16
property [36] - 8:7, 8:14, 10:3, 13:15, 15:20, 22:20, 26:7, 32:23, 38:2, 50:6, 55:15, 56:23, 57:1, 59:12, 62:1, 64:10, 65:12, 67:10, 72:13, 73:5, 73:10, 74:13, 79:22, 81:22, 82:10, 86:21, 86:23, 87:3, 87:19, 88:8, 88:9, 88:15, 131:13, 139:14
Property [2] - 9:12, 47:21
proposed [5] - 14:19, 30:17, 51:19, 87:2, 114:4
provide [3] - 93:20, 95:22, 109:4
provided [13] - 68:17, 87:15, 91:8, 92:5, 94:21, 97:9, 100:23, 101:3, 101:17, 113:12,

120:6, 143:17, 145:17
providing [1] - 92:14
provision [3] - 121:15, 139:17, 140:18
proximity [6] - 25:4, 32:24, 57:23, 86:4, 87:20, 121:24
proxy [1] - 71:22
public [21] - 4:1, 4:24, 5:9, 20:15, 21:20, 36:20, 67:5, 78:7, 83:21, 85:11, 93:22, 94:11, 95:23, 106:2, 111:23, 134:5, 138:3, 140:3, 152:12, 152:19, 154:9
publically [2] - 34:15, 52:11
pull [2] - 6:16, 55:9
pulled [2] - 54:13, 77:6
pulling [3] - 78:7, 145:14, 145:15
purchase [2] - 68:22, 109:20
purchased [3] - 67:9, 68:11, 69:6
purely [1] - 98:13
purposely [1] - 55:13
purposes [2] - 56:24, 86:22
put [16] - 15:8, 17:20, 18:15, 18:18, 46:14, 60:16, 61:7, 61:8, 83:6, 102:6, 110:24, 114:23, 115:21, 116:2, 142:2, 147:15
puts [2] - 104:2, 121:24
putting [1] - 100:24

Q

qualifications [1] - 91:23
qualified [2] - 8:13, 94:19
qualify [1] - 129:5
quality [1] - 132:2
quantifiable [2] - 22:19, 30:23
quarter [1] - 39:9
questioning [1] - 72:18
QUESTIONS [10] - 6:10, 9:9, 9:22, 11:7, 33:6, 85:23, 90:6, 92:4, 95:5, 138:13
questions [69] -

21:10, 33:2, 33:4, 35:5, 35:8, 35:13, 36:17, 36:19, 36:21, 39:6, 45:10, 52:18, 52:19, 63:11, 67:22, 70:19, 70:24, 71:2, 72:20, 73:23, 77:18, 77:22, 77:24, 78:1, 78:4, 78:5, 81:21, 83:21, 84:4, 85:10, 85:15, 88:19, 89:1, 91:22, 93:15, 94:22, 100:18, 102:15, 105:11, 105:12, 105:22, 106:1, 106:2, 110:5, 110:9, 111:5, 113:5, 113:24, 116:20, 119:3, 119:5, 119:6, 119:13, 119:20, 119:24, 128:12, 131:18, 131:20, 131:23, 134:5, 138:1, 138:3, 138:7, 148:14, 148:16, 148:19, 152:6, 153:17
quick [1] - 84:24
quite [7] - 37:22, 61:3, 67:13, 109:18, 110:17, 146:10, 153:4
quotes [1] - 32:13

R

R-U-N-N-E-R [1] - 90:10
rail [1] - 30:9
raise [2] - 35:20, 90:21
raised [2] - 149:2, 154:9
raising [1] - 62:19
ramp [1] - 137:2
ran [1] - 119:10
Randolph [2] - 30:14, 50:22
Randy [1] - 23:21
range [3] - 30:24, 81:12, 143:3
ranged [3] - 27:15, 29:20, 39:15
rarely [1] - 90:22
rate [5] - 24:14, 54:6, 87:10, 110:16, 152:22
rates [1] - 31:2
rather [2] - 51:20, 136:4
rays [1] - 99:13
reaction [2] - 17:22, 108:4

reactions [1] - 40:19
read [6] - 16:18, 19:17, 19:23, 53:8, 110:21, 117:10
reading [2] - 70:1, 117:13
real [20] - 6:20, 6:22, 7:1, 7:2, 7:6, 7:8, 7:10, 12:1, 18:18, 36:7, 36:10, 43:22, 44:2, 45:5, 48:7, 50:6, 55:4, 75:18, 115:24, 147:1
Real [4] - 7:12, 7:16, 9:11, 23:20
realism [2] - 14:22, 48:4
realistically [1] - 104:14
reality [1] - 98:20
really [16] - 15:20, 17:14, 17:21, 23:15, 29:15, 39:21, 40:15, 48:14, 59:21, 60:2, 129:6, 129:11, 134:1, 135:10, 136:16
realm [1] - 128:24
realtime [3] - 102:4, 146:2, 148:1
realtors [1] - 75:13
rearing [1] - 62:19
reason [4] - 44:9, 56:20, 84:17, 91:3
reasonable [2] - 48:23, 71:16
reasons [7] - 44:12, 74:3, 74:8, 98:21, 101:9, 106:9, 121:10
rebuttal [1] - 117:14
receive [1] - 7:6
received [1] - 32:10
recent [2] - 16:13, 39:21
recently [6] - 18:11, 19:3, 30:13, 45:24, 59:8, 60:22
receptor [29] - 96:7, 97:4, 98:23, 101:10, 104:2, 104:20, 113:11, 115:9, 115:14, 115:17, 115:21, 135:12, 141:4, 141:5, 141:9, 142:4, 143:16, 143:17, 143:18, 143:23, 144:21, 145:3, 145:7, 145:8, 145:15, 145:20, 145:21, 147:10, 147:21

receptors [11] - 102:7, 111:13, 113:16, 114:2, 114:3, 114:6, 120:2, 145:8, 146:5, 148:2
recess [3] - 89:13, 154:18, 154:21
recessed [1] - 89:11
Recession [3] - 14:4, 14:5, 48:9
recognize [2] - 9:13, 95:8
recognized [2] - 7:7, 97:22
RECORD [1] - 154:24
record [11] - 6:12, 10:10, 10:23, 10:24, 21:20, 67:5, 89:16, 90:8, 96:19, 112:21, 139:8
recorded [1] - 121:5
records [1] - 78:8
red [8] - 27:4, 28:14, 38:17, 38:18, 38:19, 123:18, 123:24, 125:8
redirect [2] - 88:22, 148:16
reduced [3] - 35:24, 75:10, 111:14
reduction [1] - 104:7
refer [2] - 121:7, 123:15
reference [2] - 25:23, 107:18
referred [4] - 7:14, 56:3, 138:18, 138:21
refers [2] - 96:3, 140:18
reflect [1] - 139:8
regard [2] - 17:11, 135:23
regarding [8] - 35:10, 76:10, 76:16, 81:22, 100:8, 100:18, 109:20, 134:8
regardless [2] - 99:3, 123:9
regards [2] - 15:19, 27:6
region [1] - 17:4
Regional [2] - 1:18, 1:18
regions [3] - 16:21, 17:2, 21:3
Regression [1] - 17:15
regular [1] - 134:1
relate [1] - 141:15
related [3] - 90:24,

129:15, 149:19
relates [4] - 57:5,
 110:3, 121:18, 139:22
relating [1] - 108:21
relation [3] - 34:22,
 92:6, 93:7
relative [1] - 62:10
relatively [4] - 17:18,
 40:24, 116:3, 147:22
relayed [1] - 87:18
release [1] - 142:20
relevant [5] - 12:20,
 23:1, 71:20, 72:5,
 73:2
reliably [1] - 22:19
remember [3] - 14:3,
 50:14, 94:8
remembering [1] -
 94:5
remind [1] - 81:22
Renee [1] - 31:18
Renken [1] - 31:9
repetitious [4] -
 72:17, 72:20, 72:22
report [45] - 9:11,
 9:13, 9:15, 9:23, 10:2,
 10:13, 11:16, 11:23,
 12:10, 13:8, 13:17,
 15:18, 23:6, 23:12,
 32:14, 33:10, 33:14,
 33:15, 33:18, 33:20,
 33:23, 65:1, 65:15,
 65:18, 65:20, 66:8,
 68:17, 73:17, 80:22,
 95:11, 95:13, 95:17,
 95:18, 96:18, 96:21,
 97:19, 99:19, 100:9,
 113:15, 116:24,
 117:1, 117:21
Report [3] - 9:12,
 11:24, 95:8
reported [6] - 31:11,
 31:23, 32:3, 73:4,
 135:11, 142:21
reporter [8] - 37:11,
 37:18, 38:23, 41:13,
 45:14, 54:20, 68:1,
 118:15
Reporter [3] - 1:20,
 156:4, 156:16
reporters [1] - 37:16
Reporting [1] - 1:21
reports [12] - 11:15,
 12:12, 13:13, 32:17,
 33:1, 33:11, 39:22,
 57:16, 63:18, 63:19,
 92:23
represent [1] - 27:5
representative [1] -
 80:11

represents [1] -
 103:4
request [1] - 147:15
required [3] - 102:3,
 140:6, 150:6
requirement [7] -
 116:12, 122:12,
 123:6, 140:19, 141:1,
 148:10, 150:16
requirements [4] -
 116:16, 138:23,
 140:8, 140:10
requires [3] - 106:10,
 137:23, 138:18
Research [2] - 90:14,
 117:3
research [6] - 46:6,
 47:9, 54:14, 59:7,
 108:11, 108:24
researchers [1] -
 108:11
residence [10] - 96:6,
 96:7, 115:3, 115:9,
 115:15, 135:13,
 135:15, 139:13, 144:9
residences [28] -
 14:18, 62:11, 67:10,
 86:5, 86:11, 96:8,
 97:5, 99:24, 100:12,
 114:3, 114:7, 114:9,
 115:18, 120:4,
 120:23, 121:3, 121:9,
 121:13, 121:18,
 121:19, 122:3,
 123:22, 131:17,
 138:21, 140:21,
 142:6, 147:14
resident [3] - 45:11,
 45:16, 112:18
residential [3] -
 13:15, 22:20, 131:12
residents [5] - 52:20,
 67:22, 71:1, 71:8,
 106:3
resolution [6] -
 149:15, 149:16,
 150:1, 150:8, 150:17,
 150:19
Resource [1] - 117:3
respect [5] - 19:16,
 91:22, 94:20, 117:21,
 149:3
respond [3] - 69:7,
 74:1, 116:9
response [10] - 4:12,
 4:16, 35:11, 36:18,
 85:12, 89:3, 105:24,
 131:22, 138:5, 148:21
responsible [1] -
 90:23

rest [1] - 54:12
restate [1] - 75:1
restated [1] - 139:19
restricted [1] -
 131:11
result [2] - 31:15,
 100:12
resulted [1] - 19:9
results [10] - 15:18,
 22:17, 24:20, 28:22,
 97:17, 97:18, 100:9,
 133:10, 148:1, 150:7
Resume [1] - 89:14
revenue [2] - 62:5,
 62:6
review [1] - 30:22
reviewed [3] - 11:18,
 42:16, 108:16
reviewing [1] - 92:18
Rhode [5] - 16:20,
 17:2, 21:2, 47:21,
 78:23
Rhonda [1] - 38:21
RHONDA [1] - 38:24
Richard [1] - 118:16
Ridge [1] - 31:11
ridiculous [1] - 55:16
rights [1] - 62:4
rise [2] - 4:6, 132:24
Rives [2] - 2:17, 5:20
road [7] - 125:12,
 125:17, 125:18,
 126:2, 126:3, 130:23,
 149:20
Road [6] - 10:7,
 10:14, 10:15, 10:16,
 10:17, 46:5
roadmap [1] - 152:17
roads [1] - 125:24
robust [1] - 19:11
role [1] - 78:15
roll [1] - 4:9
Romo's [1] - 83:6
roof [1] - 145:5
room [3] - 96:15,
 107:1, 107:3
rotating [1] - 103:14
rotation [1] - 126:3
rotor [5] - 96:6,
 124:18, 124:19,
 141:19, 142:3
rotors [1] - 119:7
rough [1] - 31:21
roughly [1] - 29:12
row [2] - 36:24,
 41:12
Royster [1] - 2:18
rule [1] - 83:24
rules [3] - 57:11,

72:11, 72:19
run [2] - 125:4,
 147:21
Runner [18] - 89:20,
 90:9, 90:20, 91:11,
 91:13, 91:22, 93:18,
 93:22, 94:19, 95:6,
 100:18, 109:16,
 110:9, 113:5, 113:24,
 118:22, 138:14,
 148:23
RUNNER [1] - 3:8
running [2] - 77:10,
 103:13
runs [5] - 11:2,
 80:18, 103:19, 142:7,
 142:22
rural [10] - 17:6,
 17:7, 18:8, 29:21,
 38:13, 40:16, 40:20,
 41:5, 86:1, 86:3
Ryerson [1] - 32:1

S

S-H-A-W [1] - 82:2
S-H-E-R-M-A-N [1] -
 56:2
safe [2] - 60:15,
 60:16
safely [1] - 126:1
safety [13] - 119:5,
 122:16, 122:21,
 122:24, 127:12,
 127:15, 127:24,
 128:2, 128:6, 128:8,
 151:5, 151:6, 151:13
SAID [1] - 155:1
sale [29] - 24:1,
 24:12, 25:16, 25:17,
 26:9, 27:19, 28:2,
 28:3, 28:15, 29:10,
 30:24, 31:1, 34:10,
 34:13, 34:16, 39:8,
 49:21, 54:10, 55:3,
 62:12, 62:15, 62:17,
 66:23, 68:7, 71:23,
 73:13, 77:8, 78:10
sales [68] - 11:21,
 13:1, 13:22, 13:23,
 14:1, 14:9, 15:1, 16:1,
 16:2, 16:4, 18:13,
 18:20, 23:23, 23:24,
 24:1, 25:1, 25:3,
 25:17, 26:1, 26:2,
 26:6, 26:11, 26:18,
 27:3, 27:7, 27:14,
 27:20, 27:23, 28:12,
 28:13, 28:18, 28:22,
 28:24, 29:1, 29:3,

29:7, 29:9, 29:17,
 29:19, 29:20, 30:19,
 30:20, 30:21, 38:11,
 40:11, 46:18, 48:9,
 49:22, 54:8, 54:10,
 55:14, 55:15, 64:6,
 64:11, 64:12, 64:15,
 64:17, 64:20, 65:12,
 65:14, 66:17, 67:1,
 74:15, 74:19, 81:15,
 82:11
Samantha [1] - 1:18
sample [1] - 14:13
sara.lode@afslaw.
com [1] - 2:9
Sarah [1] - 2:7
SARAH [1] - 90:6
saw [1] - 115:21
scenario [8] -
 100:14, 125:18,
 126:20, 126:21,
 145:5, 147:4, 148:6,
 153:5
scheduled [1] -
 154:15
Schiff [2] - 2:5, 2:8
school [11] - 35:14,
 44:1, 44:4, 44:5,
 82:17, 83:2, 93:5,
 105:16, 105:17,
 105:23, 140:2
schooling [1] - 93:11
science [1] - 91:18
Science [1] - 91:20
scientific [1] -
 115:13
scientists [1] - 14:6
scope [3] - 68:16,
 68:18, 68:20
Scott [2] - 2:22, 4:21
se [1] - 132:20
Sears [1] - 6:23
seat [1] - 90:2
second [12] - 11:23,
 12:20, 12:21, 20:2,
 20:20, 33:10, 84:23,
 95:17, 98:17, 103:6,
 121:14, 121:17
section [1] - 66:12
see [31] - 5:13, 12:4,
 12:23, 21:11, 24:18,
 24:20, 27:14, 28:11,
 29:24, 31:18, 41:22,
 41:24, 42:1, 42:12,
 48:21, 52:22, 55:5,
 62:18, 75:19, 83:4,
 99:2, 101:21, 113:15,
 114:24, 120:15,
 125:12, 127:13,
 132:5, 140:13, 153:5,

154:5
seeing [1] - 69:18
seem [1] - 48:23
seizures [1] - 110:15
selected [1] - 141:9
selecting [2] - 141:4, 141:5
selection [1] - 64:10
self [1] - 73:15
self-defeating [1] - 73:15
sell [15] - 44:19, 47:6, 53:21, 53:22, 55:5, 73:8, 74:5, 74:18, 75:3, 75:12, 75:15, 75:20, 76:18, 76:22, 77:7
sellers [4] - 25:23, 64:6, 67:2, 78:9
selling [4] - 34:12, 48:19, 75:24, 76:19
sells [3] - 42:14, 74:10, 74:12
semi [2] - 84:8, 103:11
sense [10] - 24:22, 25:12, 34:12, 34:17, 34:19, 116:1, 116:5, 129:7, 138:17, 139:7
sensitivity [1] - 110:15
sensor [2] - 115:5, 123:20
sensors [1] - 114:11
sentence [3] - 10:9, 121:17
sentiments [1] - 32:15
serious [4] - 58:18, 58:19, 101:24
serve [1] - 8:13
served [1] - 91:6
session [1] - 4:1
set [3] - 125:1, 128:23, 132:24
setback [4] - 72:7, 72:11, 84:17, 150:23
setbacks [2] - 25:5, 101:14
sets [3] - 24:17, 99:22, 121:20
setting [2] - 94:11, 125:19
settings [1] - 77:1
seven [2] - 19:2, 53:22
several [5] - 7:17, 17:15, 21:21, 153:15, 154:9
Shadow [1] - 95:7

shadow [88] - 91:3, 91:4, 91:13, 92:6, 92:8, 93:1, 93:3, 94:13, 94:20, 95:20, 95:23, 96:3, 96:11, 96:20, 97:24, 98:5, 98:12, 98:15, 99:20, 99:22, 101:14, 101:22, 103:13, 103:15, 104:4, 104:22, 105:3, 105:5, 105:15, 106:6, 106:15, 107:2, 107:10, 107:13, 107:17, 107:20, 108:17, 110:3, 111:1, 111:13, 111:20, 113:10, 113:15, 114:11, 116:8, 116:16, 119:6, 121:4, 122:9, 122:24, 123:11, 124:6, 125:13, 126:12, 126:22, 127:2, 127:3, 127:7, 128:2, 128:5, 128:18, 128:19, 129:1, 129:20, 130:16, 130:24, 131:3, 131:8, 131:16, 132:2, 132:9, 132:10, 132:14, 133:7, 133:19, 134:20, 134:24, 135:16, 135:21, 135:24, 138:19, 140:22, 143:19, 147:5, 149:4, 149:8, 149:19, 150:23
shadow's [1] - 135:17
shadows [5] - 96:3, 103:9, 126:3, 130:21, 131:1
shakes [5] - 80:5, 84:8, 84:10, 84:15
shape [1] - 18:3
share [1] - 32:14
SHAW [16] - 81:24, 82:2, 82:5, 82:7, 82:20, 82:24, 83:10, 83:17, 128:14, 128:17, 129:3, 129:18, 130:2, 130:8, 130:11, 130:13
Shaw [7] - 81:24, 82:1, 83:9, 83:20, 128:12, 128:14, 130:12
sheet [1] - 60:17
Shelly [1] - 31:9
Sherman [8] - 52:23,

53:1, 55:23, 56:1, 67:21, 119:21, 119:22, 119:23
SHERMAN [62] - 55:24, 56:10, 56:13, 56:16, 56:20, 57:6, 57:8, 57:19, 58:10, 58:21, 60:4, 60:9, 60:15, 60:24, 61:14, 61:22, 62:9, 62:22, 63:4, 63:9, 63:14, 63:20, 64:3, 64:8, 64:19, 65:3, 65:7, 65:9, 65:16, 65:19, 65:21, 66:1, 66:4, 66:15, 67:7, 67:12, 67:17, 67:20, 119:23, 120:6, 120:9, 120:15, 120:18, 120:22, 121:1, 121:20, 122:8, 122:14, 122:16, 122:20, 123:2, 123:15, 123:24, 124:8, 124:14, 124:20, 125:6, 126:11, 126:17, 127:4, 127:10, 128:9
shining [1] - 96:14
SHOOK [10] - 35:16, 35:18, 35:22, 36:4, 36:12, 36:15, 105:14, 105:20, 153:19, 154:7
Shook [1] - 105:13
shook [5] - 35:17, 105:21, 153:18, 154:2, 154:6
short [2] - 25:17, 78:10
shorten [1] - 105:15
show [9] - 23:19, 44:9, 46:22, 57:9, 75:5, 88:12, 111:9, 116:11, 140:19
showed [5] - 22:17, 39:14, 54:10, 123:12
showing [3] - 95:6, 122:13, 135:20
shown [2] - 42:24, 110:14
shows [2] - 31:14, 43:2
shy [1] - 141:23
sicknesses [1] - 117:17
side [7] - 59:9, 99:3, 109:2, 113:9, 147:2, 152:1
Sidney [1] - 71:13
sight [1] - 153:22
sign [1] - 121:16

signed [4] - 61:16, 61:17, 121:4, 121:14
significant [8] - 22:8, 22:19, 23:13, 56:14, 57:2, 63:11, 63:16, 108:16
signing [1] - 92:18
similar [20] - 23:10, 24:6, 24:20, 26:15, 27:23, 27:24, 30:16, 32:15, 38:12, 40:21, 50:24, 56:7, 77:7, 96:12, 96:17, 125:17, 135:18, 136:1, 136:13, 140:16
similarities [1] - 12:3
simplistic [1] - 147:20
simulate [1] - 114:11
simultaneous [1] - 136:11
sin [1] - 13:3
single [5] - 31:16, 55:18, 59:19, 98:24, 147:6
sit [1] - 109:24
Site [1] - 11:23
site [9] - 13:8, 13:9, 34:24, 101:10, 143:4, 143:7, 143:17, 144:22, 145:3
sites [9] - 58:1, 141:4, 141:6, 141:9, 142:4, 143:16, 145:20, 145:22, 147:10
siting [1] - 138:15
sitting [2] - 38:6, 79:2
situation [4] - 55:13, 80:7, 80:9, 96:12
situations [6] - 15:6, 47:10, 48:13, 51:7, 67:8
six [6] - 8:4, 39:10, 66:9, 83:11, 83:13, 83:15
size [6] - 14:13, 27:9, 51:10, 51:14, 124:19
sizes [6] - 23:12, 23:14, 26:15, 29:11, 78:8, 142:23
skill [1] - 128:23
skills [1] - 105:19
sky [3] - 132:5, 132:20, 133:1
sleeping [1] - 117:7
slide [22] - 6:16, 6:17, 11:14, 13:12, 16:12, 16:16, 19:12,

19:14, 20:11, 21:13, 23:17, 24:24, 26:18, 27:12, 28:10, 28:21, 30:1, 31:4, 32:15, 49:20, 61:1, 64:12
slides [6] - 9:2, 11:9, 11:12, 34:4, 50:9, 56:7
slightly [4] - 28:6, 28:8, 124:17, 132:21
slow [1] - 110:18
small [7] - 6:23, 14:12, 17:18, 20:17, 20:22, 28:1, 81:3
smaller [2] - 51:8, 51:9
smart [1] - 73:8
SMITH [12] - 41:14, 41:16, 41:20, 42:6, 42:8, 42:23, 43:7, 44:7, 44:23, 84:24, 85:3, 85:6
Smith [8] - 41:14, 41:15, 42:4, 45:1, 83:23, 84:3, 84:23, 85:9
software [5] - 97:20, 97:22, 129:12, 142:10, 142:11
solar [1] - 17:17
sold [19] - 13:20, 23:9, 23:10, 25:10, 26:7, 26:10, 27:4, 28:9, 42:18, 46:1, 46:13, 46:22, 61:12, 62:10, 63:21, 63:22, 64:13, 68:10
solely [1] - 142:10
someone [3] - 69:4, 119:16, 149:19
something's [1] - 48:22
sometime [1] - 143:21
sometimes [7] - 15:3, 24:1, 24:4, 67:2, 101:11, 101:15, 150:18
somewhat [2] - 40:21, 91:2
somewhere [4] - 24:8, 42:15, 94:12, 96:11
sorry [14] - 10:12, 17:1, 18:11, 50:8, 50:14, 50:18, 68:24, 79:10, 94:6, 95:1, 100:1, 118:24, 135:13, 142:1
sort [10] - 82:12,

93:7, 101:24, 111:16,
125:20, 129:3,
129:10, 130:21,
131:1, 133:24
sorts [1] - 125:16
sound [7] - 73:15,
73:18, 101:14,
150:23, 151:5, 151:6,
151:13
sounds [1] - 77:10
sources [1] - 97:10
South [1] - 31:11
south [6] - 10:17,
39:9, 104:21, 104:23,
113:8, 137:4
southern [1] -
136:18
space [1] - 115:2
spaces [1] - 41:24
spatial [3] - 47:23,
91:2, 93:6
speaking [3] - 81:7,
102:18, 122:17
specialize [1] - 45:4
specialized [1] - 80:8
specialty [1] - 7:18
Specific [1] - 11:23
specific [13] - 13:8,
14:24, 43:21, 67:16,
78:4, 88:5, 91:1, 93:5,
94:13, 102:21, 130:4,
133:19, 144:8
specifically [15] -
16:24, 22:19, 47:12,
56:21, 76:18, 90:17,
91:8, 92:21, 96:7,
97:23, 125:5, 131:11,
131:15, 137:22,
142:15
specifications [1] -
15:22
specificity [1] -
129:23
SPECTATOR [1] -
37:8
speculative [1] -
48:14
speed [1] - 126:11
spell [4] - 37:10,
38:22, 45:17, 90:7
spelling [1] - 54:20
spills [1] - 26:21
spinning [2] - 137:7,
137:9
split [1] - 30:18
Splitter [1] - 30:9
spoken [1] - 31:17
spot [1] - 114:17
spots [1] - 120:10
spread [2] - 28:16,

132:5
spreadsheets [1] -
103:23
spring [1] - 136:19
Springfield [3] -
2:22, 142:18, 143:4
Springs [1] - 46:5
square [9] - 27:9,
27:11, 28:24, 29:1,
29:2, 29:5, 29:6,
49:23, 49:24
St [1] - 85:4
staff [3] - 85:16,
87:17, 138:7
Stalk [5] - 30:11,
30:13, 50:21, 54:7,
60:12
stand [3] - 5:14,
80:17, 141:21
standard [2] -
104:12, 127:2
standards [1] -
139:10
staring [1] - 103:23
Stark [2] - 30:7,
31:18
start [6] - 13:12,
16:1, 26:4, 57:23,
83:12, 92:8
started [4] - 13:23,
66:9, 83:14, 83:16
starting [3] - 46:19,
120:1, 121:17
starts [1] - 10:9
State [6] - 15:15,
22:12, 43:20, 91:19,
139:18, 156:5
state [38] - 6:11, 7:1,
13:13, 15:18, 22:5,
33:1, 37:10, 38:9,
38:12, 41:13, 43:3,
43:9, 44:11, 45:14,
54:19, 66:12, 67:24,
76:11, 76:15, 80:20,
90:7, 102:1, 102:2,
107:9, 110:1, 112:21,
118:14, 123:14,
138:22, 139:10,
139:12, 139:21,
140:4, 140:5, 140:15,
140:18, 140:23
state's [2] - 123:12,
140:8
statement [3] -
31:16, 78:3, 79:6
states [8] - 7:17,
23:2, 23:6, 44:8,
86:19, 131:15,
138:15, 140:13
States [2] - 18:15,

97:11
static [1] - 103:17
station [3] - 39:12,
142:17, 142:20
statistical [5] - 23:7,
36:8, 47:13, 63:17,
63:18
statistically [1] -
23:13
statisticians [2] -
14:6, 17:12
statistics [2] - 23:22,
36:6
status [1] - 140:15
statute [7] - 138:15,
138:23, 139:10,
139:12, 139:18,
139:22, 141:2
stay [5] - 26:12,
27:21, 40:17, 41:5,
61:9
stayed [1] - 143:23
staying [2] - 145:23,
148:10
stems [1] - 36:9
step [3] - 89:5,
96:24, 148:23
steps [1] - 13:5
stick [3] - 72:19,
73:1, 115:18
still [9] - 15:22, 31:3,
38:4, 40:23, 71:23,
102:8, 103:22, 111:9,
153:16
stopped [1] - 38:9
stories [1] - 59:19
story [4] - 59:22,
59:23, 71:24, 72:1
straight [2] - 23:20,
101:5
strategy [1] - 75:16
Streator [1] - 31:10
Street [1] - 2:12
stroke [1] - 118:24
strong [1] - 6:22
structure [8] - 79:7,
99:9, 103:12, 130:21,
134:23, 135:2,
146:17, 147:1
structures [5] -
101:13, 144:10,
144:20, 146:6
students [1] - 83:2
studied [7] - 13:22,
18:16, 30:3, 30:12,
32:19, 34:22, 49:5
studies [90] - 7:19,
7:23, 8:15, 11:17,
11:18, 12:18, 12:22,
16:9, 16:10, 16:13,

16:14, 17:16, 18:1,
21:6, 21:14, 21:17,
21:18, 21:20, 21:22,
24:22, 26:19, 32:17,
39:24, 41:7, 42:23,
44:9, 44:14, 46:13,
46:15, 46:21, 46:22,
47:11, 48:2, 49:2,
50:4, 51:3, 52:2, 52:3,
52:10, 53:16, 53:18,
53:24, 54:2, 54:4,
54:5, 54:10, 55:2,
55:10, 55:14, 56:8,
57:6, 60:10, 60:21,
60:23, 62:9, 62:11,
63:21, 64:1, 64:2,
64:3, 64:14, 64:22,
65:3, 66:16, 67:14,
80:19, 81:11, 82:12,
86:2, 86:7, 86:8,
88:10, 88:12, 92:17,
92:21, 100:24, 101:4,
101:14, 101:15,
101:21, 107:9,
107:13, 107:18,
107:24, 108:11,
117:3, 123:3, 134:19,
135:5
study [55] - 14:12,
15:11, 15:19, 16:8,
16:19, 17:10, 19:4,
19:10, 19:11, 19:22,
20:3, 20:21, 22:11,
22:24, 23:4, 24:18,
31:8, 35:18, 35:19,
39:22, 40:14, 43:2,
43:19, 47:16, 47:19,
47:21, 49:2, 52:13,
54:6, 59:12, 59:13,
63:2, 64:19, 65:13,
66:11, 67:18, 78:24,
81:1, 81:4, 81:5,
92:19, 104:14, 106:7,
107:19, 108:14,
108:16, 108:18,
109:4, 109:21, 122:9,
123:7, 123:11,
125:10, 126:24,
129:24
studying [1] - 29:15
stuff [7] - 41:19,
53:7, 73:18, 93:7,
103:24, 129:17, 132:5
stupid [1] - 42:1
subdivisions [1] -
48:10
subject [1] - 121:11
subjects [1] - 30:21
submit [1] - 152:19
submitted [1] - 5:1

substantial [3] -
56:17, 58:11, 112:9
substantially [5] -
56:24, 86:23, 87:5,
88:8, 88:15
substation [1] -
39:11
sudden [1] - 48:17
suffered [1] - 42:21
suggest [5] - 21:14,
23:15, 41:4, 42:20,
88:14
suggestions [1] -
69:13
suggests [3] - 23:22,
40:5, 77:6
Suite [2] - 2:5, 2:8
summarize [1] -
100:10
summarizes [1] -
100:9
summary [1] - 95:23
summer [3] - 68:8,
69:15, 136:14
sun [16] - 96:6,
96:13, 99:13, 103:17,
104:1, 104:22,
114:19, 124:24,
125:19, 132:6,
132:23, 132:24,
133:4, 136:19, 137:4
sun's [4] - 96:5,
102:20, 103:8, 106:23
sunlight [5] - 107:1,
132:8, 132:16,
143:11, 143:12
sunny [2] - 104:9,
143:21
sunrays [1] - 144:10
sunrise [1] - 136:17
sunset [1] - 136:17
sunshine [4] - 97:12,
104:7, 137:16, 142:21
Supervisor [1] -
31:22
support [3] - 5:9,
151:20, 152:9
supporters [2] -
152:11, 153:8
supposedly [1] -
48:15
surface [2] - 145:13,
145:14
surmised [2] - 15:24,
16:3
surrounded [2] -
76:23, 76:24
surrounding [5] -
57:1, 66:23, 86:24,
87:3, 88:15

survey [3] - 97:11, 110:23, 111:2 surveys [2] - 82:9, 110:12 swish [3] - 119:12 switch [1] - 136:2 switching [2] - 37:15, 39:11 sworn [2] - 6:4, 89:24 syfy [1] - 114:22 symptoms [1] - 117:5 Syracuse [1] - 90:16 system [3] - 44:4, 142:2, 147:12 systems [4] - 44:1, 44:5, 82:18, 147:16	109:9 Taylor [8] - 45:16, 45:19, 45:22, 52:18, 60:18, 67:13, 106:4, 109:10 Tazewell [1] - 30:10 Team [2] - 69:16, 69:20 technical [2] - 108:24, 128:23 technically [1] - 113:2 technique [3] - 15:1, 23:23, 57:21 technology [2] - 40:2, 93:9 Ted [1] - 71:13 temporal [1] - 47:23 ten [13] - 18:21, 22:3, 23:11, 41:23, 51:6, 81:10, 81:11, 91:4, 132:14, 132:15, 133:7 tend [1] - 41:5 term [6] - 50:17, 66:20, 115:12, 115:17, 142:16, 143:7 terms [27] - 16:9, 29:10, 29:11, 30:24, 31:1, 31:2, 50:23, 55:12, 63:12, 63:13, 86:4, 86:18, 87:6, 88:7, 140:6, 141:7, 141:14, 141:24, 142:13, 143:8, 144:19, 146:14, 146:17, 147:9 Terry [1] - 41:14 test [17] - 23:24, 25:1, 26:2, 26:8, 27:3, 27:14, 28:3, 28:23, 29:1, 29:10, 29:17, 30:19, 30:20, 49:21, 63:7, 64:10, 64:11 testified [6] - 6:4, 8:3, 89:24, 92:11, 92:13, 94:10 testify [11] - 5:4, 5:15, 8:20, 8:21, 42:5, 93:22, 94:19, 152:9, 152:14, 153:8, 154:5 testifying [2] - 93:13, 133:17 testimony [19] - 5:2, 5:5, 5:8, 35:10, 68:16, 70:18, 71:9, 72:19, 86:12, 91:9, 92:5, 92:14, 94:21, 100:19, 106:4, 110:1, 117:11, 118:1, 153:7 textbook [2] - 23:20,	24:14 THE [203] - 2:3, 19:15, 19:20, 20:5, 20:9, 20:12, 20:18, 20:22, 21:2, 21:8, 21:13, 35:21, 35:23, 36:6, 36:13, 38:7, 39:13, 40:12, 40:15, 41:10, 41:18, 42:11, 43:5, 43:11, 44:21, 45:3, 46:3, 46:10, 46:15, 46:24, 47:3, 47:8, 47:18, 48:6, 49:19, 50:13, 50:18, 51:5, 51:11, 51:17, 52:3, 52:8, 52:10, 52:14, 53:15, 54:1, 55:11, 56:9, 56:12, 56:15, 56:18, 57:4, 57:7, 57:11, 58:8, 58:13, 59:4, 60:8, 60:12, 60:20, 61:11, 61:20, 62:3, 62:13, 63:3, 63:6, 63:12, 63:16, 64:1, 64:5, 64:16, 64:22, 65:6, 65:8, 65:13, 65:18, 65:20, 65:24, 66:3, 66:6, 66:22, 67:11, 67:15, 67:19, 68:24, 71:15, 71:22, 72:15, 72:24, 74:2, 74:16, 74:23, 75:9, 75:18, 76:1, 76:6, 77:5, 77:24, 78:6, 78:18, 78:22, 79:4, 79:17, 79:21, 80:21, 81:5, 81:15, 82:14, 82:23, 83:5, 83:14, 84:12, 84:16, 85:5, 89:6, 90:22, 91:17, 93:24, 94:6, 94:13, 94:16, 101:1, 101:5, 101:23, 102:12, 102:24, 103:3, 103:19, 104:18, 105:17, 106:8, 106:16, 106:21, 107:7, 107:11, 107:15, 107:19, 107:22, 107:24, 108:8, 108:15, 108:20, 109:6, 109:8, 110:16, 111:4, 112:6, 112:8, 113:11, 114:6, 114:14, 115:6, 115:11, 115:16, 115:22, 120:4, 120:8, 120:11, 120:16, 120:21, 120:24, 121:7, 121:23,	122:11, 122:15, 122:19, 123:4, 123:22, 124:3, 124:13, 124:16, 124:22, 125:14, 126:13, 127:1, 127:8, 127:19, 127:22, 128:16, 128:19, 129:6, 129:22, 130:19, 131:14, 132:7, 132:13, 132:18, 133:9, 133:13, 133:19, 133:22, 134:12, 134:21, 135:6, 135:9, 136:3, 136:7, 136:10, 136:24, 137:21, 148:15, 148:24, 154:24 themselves [5] - 11:15, 15:17, 23:14, 114:7, 145:3 therefore [2] - 86:10, 122:6 they've [4] - 25:21, 46:23, 54:7, 65:5 thinking [2] - 102:18, 114:20 thinks [1] - 149:7 third [3] - 13:6, 20:24, 98:22 THIS [1] - 154:24 thousands [1] - 133:3 three [22] - 13:18, 16:13, 16:22, 17:3, 18:21, 22:14, 23:3, 23:11, 24:7, 26:4, 27:8, 39:10, 73:23, 81:9, 81:10, 81:14, 81:16, 91:8, 92:7, 116:4, 123:17, 153:5 threshold [14] - 99:20, 99:21, 99:23, 100:3, 100:6, 100:9, 102:8, 106:10, 120:19, 122:1, 122:5, 140:16, 144:14, 146:6 throughout [2] - 103:20, 137:5 thump [3] - 119:11 Thursday [2] - 153:10, 154:16 tied [3] - 74:9, 74:12, 76:17 tip [3] - 25:7, 58:3, 60:23 today [1] - 34:4 together [2] - 55:9, 100:24 CSR	Tom [2] - 56:1, 119:23 TOM [1] - 56:1 tomorrow [8] - 151:2, 152:14, 152:15, 153:6, 154:13, 154:16, 154:18, 154:21 tonight [3] - 9:2, 11:9, 91:3 Tony [1] - 83:6 tool [1] - 128:20 tools [1] - 93:9 top [8] - 13:19, 18:16, 18:18, 38:17, 50:14, 71:14, 121:8, 145:6 Top [5] - 26:20, 28:20, 30:3, 71:13, 71:17 topography [2] - 145:5, 145:12 total [1] - 18:24 Tower [2] - 6:23, 59:21 town [2] - 41:21, 112:24 Tracey [1] - 32:6 track [2] - 69:14, 76:14 tracked [1] - 48:6 tracks [1] - 28:5 tractor [1] - 96:14 trade [1] - 86:15 training [1] - 93:11 transaction [2] - 46:7, 55:16 transactions [8] - 11:21, 13:24, 22:3, 22:15, 25:14, 26:18, 43:22, 76:13 TRANSCRIPT [1] - 1:9 transcript [1] - 156:7 transcripts [1] - 37:16 traveling [1] - 80:4 travels [1] - 137:4 trees [2] - 125:20, 144:20 tremendous [1] - 16:15 trend [3] - 14:10, 76:14, 88:5 trends [2] - 12:1, 34:19 Trent [1] - 117:2 tried [2] - 12:2, 27:20 trig [1] - 115:6 triggered [1] -
---	---	--	--	--

144:14 triggers [1] - 110:14 trigonometry [2] - 103:24, 115:4 truck [2] - 96:14, 106:24 trucks [2] - 80:4, 84:8 true [6] - 54:12, 68:14, 74:20, 80:14, 108:10, 156:6 try [10] - 24:22, 25:11, 31:6, 47:19, 61:22, 69:14, 73:12, 74:24, 109:19, 154:3 trying [4] - 73:8, 103:23, 146:5, 152:16 tuning [1] - 129:10 turbine [63] - 18:18, 19:3, 19:4, 25:2, 25:4, 25:5, 25:9, 26:4, 26:10, 28:13, 38:5, 38:11, 39:9, 39:19, 40:19, 41:17, 42:21, 57:24, 59:9, 60:7, 60:10, 61:6, 61:8, 61:13, 61:18, 61:24, 62:18, 65:11, 67:9, 71:17, 72:6, 76:20, 79:7, 79:16, 79:24, 80:15, 84:10, 96:2, 96:4, 96:6, 98:9, 98:10, 98:18, 99:17, 100:13, 101:6, 102:5, 103:10, 104:3, 104:20, 104:21, 105:7, 124:17, 129:21, 132:8, 132:9, 136:17, 142:3, 143:19, 143:20, 147:12, 147:23, 147:24 turbine's [2] - 119:7, 123:10 turbines [90] - 12:6, 12:9, 13:21, 15:19, 15:24, 16:3, 16:5, 19:3, 22:23, 23:9, 23:14, 27:5, 27:15, 27:18, 28:19, 31:23, 32:5, 37:24, 38:12, 39:10, 39:15, 39:17, 39:20, 40:3, 42:18, 44:11, 44:14, 46:14, 46:17, 46:18, 49:14, 50:9, 50:11, 50:24, 51:3, 51:8, 58:7, 59:3, 60:13, 60:14, 60:23, 65:5, 65:17, 71:14, 71:20, 73:6, 76:23,	76:24, 77:7, 78:14, 79:3, 79:5, 82:9, 82:11, 83:4, 85:6, 86:5, 86:8, 86:9, 86:10, 86:14, 86:15, 86:16, 88:3, 96:2, 97:2, 97:4, 98:14, 105:2, 111:12, 111:15, 113:13, 117:5, 119:10, 121:21, 121:24, 123:9, 130:18, 136:17, 137:7, 137:8, 137:11, 144:3, 145:3, 145:14, 145:18, 145:19, 146:6, 147:22, 148:3 turn [4] - 4:20, 5:5, 42:5, 57:22 turning [8] - 98:19, 98:21, 111:15, 126:19, 136:2, 136:5, 137:11, 144:3 Tuttle [1] - 15:12 two [52] - 14:14, 15:12, 18:5, 20:7, 20:23, 21:7, 24:17, 27:2, 27:3, 27:6, 27:7, 27:8, 28:22, 29:1, 29:6, 29:7, 29:18, 33:1, 33:10, 39:14, 49:11, 49:22, 49:23, 51:13, 59:19, 76:6, 77:1, 78:18, 78:22, 81:3, 81:9, 84:4, 84:5, 86:2, 93:23, 104:15, 111:5, 121:2, 121:5, 121:14, 121:18, 121:22, 123:16, 124:10, 124:15, 124:18, 125:2, 129:19, 152:23, 153:4, 153:5 type [3] - 26:16, 37:16, 129:5 types [2] - 27:24, 101:13 typical [1] - 134:17 typically [15] - 44:3, 44:5, 67:16, 81:9, 87:9, 97:8, 104:8, 111:24, 112:2, 134:14, 136:13, 137:2, 142:22, 143:2, 144:5	ultimately [2] - 98:10, 98:13 unaffected [1] - 18:6 unaware [1] - 38:19 under [7] - 100:13, 102:8, 122:5, 123:11, 143:24, 145:24, 148:10 understandable [1] - 129:17 understandably [1] - 140:13 understood [5] - 12:21, 50:13, 86:4, 138:17, 139:7 unit [1] - 31:1 United [2] - 18:15, 97:11 units [3] - 35:13, 36:17, 105:22 universities [1] - 12:14 University [7] - 15:13, 22:12, 43:20, 47:20, 78:23, 91:19, 117:3 unlikely [1] - 146:12 unlimited [1] - 94:21 unrelated [2] - 25:15, 78:10 up [45] - 4:4, 6:16, 9:3, 13:16, 13:21, 13:24, 15:8, 15:11, 16:17, 17:10, 17:20, 18:1, 23:17, 27:16, 28:7, 28:9, 31:15, 39:16, 40:20, 42:19, 46:14, 49:7, 52:22, 55:2, 59:21, 60:13, 61:9, 66:8, 75:5, 75:6, 77:10, 96:16, 105:6, 107:2, 112:4, 119:22, 120:13, 125:19, 130:7, 131:10, 137:2, 137:6, 150:6 updating [1] - 129:10 upset [1] - 17:21 urban [2] - 85:24, 86:3 uses [2] - 86:21, 98:4 utilized [2] - 97:22, 150:22 utilizing [1] - 129:11	valuation [6] - 6:21, 6:22, 7:6, 8:15, 131:16, 137:23 Value [1] - 9:12 value [22] - 38:2, 38:3, 46:2, 47:21, 59:12, 61:4, 61:6, 62:1, 69:24, 72:13, 73:5, 73:10, 73:13, 74:14, 75:21, 75:23, 76:10, 78:12, 87:11, 87:12, 87:20, 88:4 valued [2] - 8:16, 62:8 values [32] - 7:21, 8:8, 12:10, 13:15, 15:20, 22:20, 31:12, 31:14, 31:19, 31:24, 32:4, 32:7, 32:11, 32:23, 40:22, 41:6, 42:20, 44:2, 46:16, 57:1, 63:15, 68:7, 76:17, 79:22, 79:23, 81:22, 86:23, 87:3, 88:8, 88:9, 88:15, 105:7 variability [1] - 142:20 variable [1] - 101:17 variables [1] - 98:3 variance [2] - 30:19, 30:24 varies [4] - 104:18, 125:4, 133:23, 142:22 variety [2] - 74:3, 74:8 various [5] - 7:19, 8:15, 98:21, 126:1, 147:10 vary [3] - 104:17, 136:10, 136:24 vector [1] - 18:16 vegetation [3] - 99:8, 99:10, 111:16 vehicle [1] - 130:23 vehicles [2] - 125:23 verifies [1] - 106:11 verify [3] - 66:24, 120:10, 143:23 verifying [5] - 78:6, 78:8, 78:9, 101:12 Vermilion [5] - 68:7, 68:23, 69:4, 69:22, 156:5 versus [3] - 54:8, 63:18, 144:16 vertically [1] - 99:2 Vestas [6] - 100:14, 124:11, 125:7, 125:9, 141:19, 143:19	vicinity [2] - 56:23, 86:22 view [3] - 18:16, 18:17, 22:8 viewing [1] - 79:23 Vinavich [1] - 32:6 virtue [1] - 82:16 visibility [4] - 98:24, 99:5, 99:12, 145:9 visible [1] - 25:4 Voelker [1] - 2:18 voice [1] - 90:21 voir [1] - 8:9 volunteered [1] - 70:7
W				
Wacker [2] - 2:5, 2:8 wait [2] - 53:22, 84:1 waiting [1] - 152:12 waiver [2] - 121:15, 121:16 waivers [1] - 121:5 walk [3] - 11:11, 13:5, 95:16 watch [1] - 55:3 water [1] - 104:13 Watts [2] - 1:15, 4:19 WATTS [13] - 4:2, 4:9, 4:13, 4:15, 4:17, 4:19, 19:24, 100:20, 100:23, 101:2, 101:19, 102:10, 102:13 wearing [1] - 38:18 weather [4] - 142:13, 142:14, 142:16, 142:17 WECS [6] - 56:22, 86:20, 121:15, 122:12, 139:16, 140:1 Wednesday [5] - 153:2, 153:7, 153:8, 153:10, 154:16 week [2] - 5:8, 129:2 weeks [1] - 55:6 ween [1] - 137:3 weight [1] - 57:18 weird [1] - 114:21 welcome [1] - 4:23 Wendy [1] - 32:1 Wenz [3] - 18:13, 20:16, 63:2 WERE [1] - 154:24 west [3] - 10:8, 10:15, 10:20 Western [2] - 16:22, 17:6 wheel [1] - 126:16				

WHICH ^[1] - 154:24
White ^[1] - 30:8
who've ^[1] - 49:7
whoever's ^[1] - 109:12
whole ^[5] - 33:20, 43:9, 61:8, 149:14, 150:19
width ^[1] - 124:20
willing ^[2] - 38:4, 152:9
Wind ^[24] - 4:5, 5:1, 10:6, 26:20, 28:20, 30:3, 30:4, 30:5, 30:7, 30:8, 30:9, 30:11, 30:14, 31:10, 31:11, 34:8, 50:21, 50:22, 56:21, 69:16, 69:20, 71:14, 92:14
WIND ^[1] - 1:7
wind ^[144] - 4:24, 7:23, 8:4, 8:16, 11:22, 12:3, 12:6, 12:9, 12:18, 13:2, 13:14, 13:20, 14:19, 15:14, 15:16, 15:19, 16:5, 17:8, 17:16, 17:21, 18:7, 18:17, 19:6, 19:8, 22:5, 22:8, 22:14, 22:18, 22:23, 23:14, 23:16, 24:2, 24:3, 24:9, 24:10, 24:13, 25:2, 25:11, 26:8, 26:9, 27:4, 27:22, 28:13, 28:17, 28:19, 29:4, 29:8, 30:2, 30:18, 31:4, 31:7, 31:15, 31:20, 32:2, 32:3, 32:5, 32:8, 32:12, 32:18, 32:24, 34:5, 38:8, 41:16, 43:23, 44:10, 44:14, 46:8, 46:10, 46:17, 46:18, 46:21, 47:22, 49:21, 49:22, 50:20, 54:11, 57:24, 59:6, 59:9, 59:15, 60:7, 60:10, 61:6, 61:8, 61:18, 61:24, 62:18, 64:14, 64:17, 65:5, 65:11, 65:16, 66:10, 67:9, 68:8, 68:9, 73:6, 74:5, 76:11, 76:20, 77:2, 77:4, 77:7, 78:14, 79:3, 79:7, 79:16, 79:24, 80:15, 81:4, 83:15, 83:16, 84:10, 85:6, 86:5, 87:2, 87:20, 87:24, 88:1, 88:3, 96:2, 96:4,

97:2, 97:6, 97:8, 97:22, 98:18, 99:10, 101:8, 104:7, 108:1, 111:19, 114:4, 117:5, 117:18, 121:21, 126:4, 126:11, 126:22, 126:23, 137:15, 147:24
wind's ^[1] - 126:18
window ^[5] - 96:14, 102:23, 106:24, 147:7
windows ^[1] - 99:3
WindPRO ^[1] - 97:21
winds ^[1] - 137:12
windy ^[2] - 137:7, 144:15
Winslow ^[11] - 67:24, 68:2, 70:2, 70:5, 70:17, 70:23, 134:7, 134:8, 138:2, 149:2, 150:9
WINSLOW ^[20] - 68:2, 68:5, 68:13, 69:1, 69:6, 69:10, 69:23, 70:3, 70:21, 134:8, 134:19, 135:4, 135:7, 135:23, 136:5, 136:8, 136:21, 137:18, 138:1, 150:11
winter ^[1] - 136:15
wise ^[1] - 44:7
witness ^[27] - 5:14, 5:15, 6:3, 8:13, 8:17, 8:19, 9:5, 9:10, 11:21, 33:5, 36:22, 70:6, 71:9, 71:11, 89:1, 89:9, 89:18, 89:23, 90:3, 91:6, 91:9, 94:2, 94:20, 94:23, 95:2, 117:19, 119:22
WITNESS ^[201] - 19:15, 19:20, 20:5, 20:9, 20:12, 20:18, 20:22, 21:2, 21:8, 21:13, 35:21, 35:23, 36:6, 36:13, 38:7, 39:13, 40:12, 40:15, 41:10, 41:18, 42:11, 43:5, 43:11, 44:21, 45:3, 46:3, 46:10, 46:15, 46:24, 47:3, 47:8, 47:18, 48:6, 49:19, 50:13, 50:18, 51:5, 51:11, 51:17, 52:3, 52:8, 52:10, 52:14, 53:15, 54:1, 55:11, 56:9, 56:12, 56:15, 56:18, 57:4, 57:7, 57:11, 58:8, 58:13, 59:4, 60:8,

60:12, 60:20, 61:11, 61:20, 62:3, 62:13, 63:3, 63:6, 63:12, 63:16, 64:1, 64:5, 64:16, 64:22, 65:6, 65:8, 65:13, 65:18, 65:20, 65:24, 66:3, 66:6, 66:22, 67:11, 67:15, 67:19, 68:24, 71:15, 71:22, 72:15, 72:24, 74:2, 74:16, 74:23, 75:9, 75:18, 76:1, 76:6, 77:5, 77:24, 78:6, 78:18, 78:22, 79:4, 79:17, 79:21, 80:21, 81:5, 81:15, 82:14, 82:23, 83:5, 83:14, 84:12, 84:16, 85:5, 89:6, 90:22, 91:17, 93:24, 94:6, 94:13, 94:16, 101:1, 101:5, 101:23, 102:12, 102:24, 103:3, 103:19, 104:18, 105:17, 106:8, 106:16, 106:21, 107:7, 107:11, 107:15, 107:19, 107:22, 107:24, 108:8, 108:15, 108:20, 109:6, 109:8, 110:16, 111:4, 112:6, 112:8, 113:11, 114:6, 114:14, 115:6, 115:11, 115:16, 115:22, 120:4, 120:8, 120:11, 120:16, 120:21, 120:24, 121:7, 121:23, 122:11, 122:15, 122:19, 123:4, 123:22, 124:3, 124:13, 124:16, 124:22, 125:14, 126:13, 127:1, 127:8, 127:19, 127:22, 128:16, 128:19, 129:6, 129:22, 130:19, 131:14, 132:7, 132:13, 132:18, 133:9, 133:13, 133:19, 133:22, 134:12, 134:21, 135:6, 135:9, 136:3, 136:7, 136:10, 136:24, 137:21, 148:15, 148:24
Witness ^[1] - 89:7
witnesses ^[9] - 5:7,

151:17, 151:20, 152:20, 152:23, 153:4, 154:15
wonder ^[1] - 107:17
wondering ^[3] - 47:5, 69:23, 115:20
word ^[2] - 47:24, 57:14
words ^[4] - 21:16, 53:13, 60:16, 88:11
works ^[1] - 114:13
world ^[3] - 49:8, 50:6, 115:24
worried ^[1] - 7:20
worries ^[1] - 10:19
worse ^[1] - 16:4
worship ^[1] - 140:2
worth ^[4] - 42:10, 75:24, 99:6, 140:11
wow ^[1] - 65:9
wrap ^[1] - 77:9
writing ^[1] - 96:21
written ^[1] - 92:14

Y

yard ^[3] - 134:20, 135:5, 135:18
year ^[33] - 22:1, 29:12, 34:11, 53:10, 59:10, 93:22, 97:7, 99:23, 100:15, 102:17, 103:5, 103:20, 104:11, 106:18, 111:1, 111:10, 121:3, 122:5, 122:13, 133:17, 133:23, 134:9, 134:13, 136:13, 137:5, 137:24, 142:22, 143:21, 144:15, 144:16, 146:2, 147:24, 148:1
years ^[36] - 7:3, 7:19, 12:13, 13:23, 14:1, 14:10, 17:19, 19:2, 20:23, 21:7, 32:20, 40:10, 42:9, 42:19, 44:16, 51:6, 53:12, 53:14, 53:23, 59:17, 66:9, 69:15, 69:21, 83:11, 83:13, 83:15, 91:4, 102:4, 132:14, 132:15, 133:3, 133:8, 137:15, 143:2, 143:8, 143:10
yellow ^[4] - 27:3, 28:13, 123:19
yoder ^[3] - 128:13, 130:15, 131:19

YODER ^[3] - 130:16, 131:6, 131:18
York ^[7] - 15:14, 90:16, 91:7, 91:19, 92:13, 94:12, 126:6
Yost ^[1] - 45:6
yourself ^[3] - 95:14, 120:10, 142:9

Z

zero ^[2] - 19:5, 23:13
zoning ^[1] - 34:22