

STATE OF NEW HAMPSHIRE  
SITE EVALUATION COMMITTEE

NOVEMBER 28, 2012 - 1:39 p.m. DAY 7  
Concord, New Hampshire AFTERNOON SESSION ONLY

IN RE: SITE EVALUATION COMMITTEE:  
DOCKET NO. 2012-01: Application  
of Antrim Wind, LLC, for a  
Certificate of Site and Facility  
for a 30 MW Wind Powered Renewable  
Energy Facility to be Located in  
Antrim, Hillsborough County,  
New Hampshire.  
(Hearing on the merits)

PRESENT: SITE EVALUATION COMMITTEE:

Kate Bailey, Engineer (Presiding Officer)	Public Utilities Comm.
Amy L. Ignatius, Chrmn.	Public Utilities Comm.
Harry T. Stewart, Dir.	DES - Water Division
Johanna Lyons, Designee	Dept. of Resources & Econ. Dev.
Craig Green, Designee	Dept. of Transportation
Brad Simpkins, Dir.	DRED-Div. Forests & Land
Ed Robinson, Designee	Fish & Game Department
Richard Boisvert, Designee	Div. Historic Resources
Brook Dupee, Designee	Dept. Health & Human Svs.

COUNSEL FOR THE COMMITTEE: Michael Iacopino, Esq.

COUNSEL FOR THE PUBLIC: Peter C. L. Roth, Esq.  
Sr. Asst. Atty. General  
N.H. Atty.Gen. Office

COURT REPORTER: Susan J. Robidas, N.H. LCR No. 44

1    **APPEARANCES:**    Reptg. Antrim Wind, LLC:  
2                           Susan S. Geiger, Esq. (Orr & Reno)  
3                           Douglas L. Patch, Esq. (Orr & Reno)  
4                           Rachel Goldwasser, Esq.(Orr & Reno)  
5                           Jack Kenworthy (Antrim Wind)  
6  
7                           Reptg. Antrim Board of Selectmen:  
8                           Galen Stearns, Town Administrator  
9                           Michael Genest, Selectman  
10   Town of Antrim  
11  
12                          Reptg. Harris Center for Cons. Edu.:  
13                          Stephen Froling, Esq.  
14  
15                          Reptg. Antrim Planning Board:  
16                          Martha Pinello, Member  
17                          Charles Levesque, Member  
18  
19                          Reptg. Intervenor Abutters Group:  
20                          Janice Longgood  
21  
22                          Reptg. Audubon Society of N.H.:  
23                          Amy Manzelli, Esq. (BCM Environment  
24   & Land Law)  
25  
26                          Reptg. Intervenor Allen/Edwards:  
27                          Mary Allen  
28                          Robert Edwards  
29  
30                          Reptg. Industrial Wind Action Group:  
31                          Lisa Linowes  
32  
33                          Reptg. North Branch Group  
34   of Intervenor:  
35                          Richard Block  
36                          Loranne Carey Block  
37                          Elsa Voelcker

## I N D E X

## PAGE

WITNESS: JEAN VISSERING

Cross-Examination by Ms. Geiger 5

Interrogatories by Subcommittee Members:

By Mr. Dupee 26

By Chairman Ignatius 28

By Dir. Simpkins 37

By Dir. Stewart 41

By Ms. Lyons 46

By Dr. Boisvert 52

By Ms. Bailey 55

By Mr. Iacopino 71

Redirect Examination by Mr. Roth 102

\* \* \* \* \*

WITNESS: GREGORY C. TOCCI

Direct Examination by Mr. Roth 106

Cross Examination:

By Ms. Longgood 113

By Mr. Block 117

By Ms. Linowes 122

By Mr. Patch 182

## I N D E X (CONT'D)

	PAGE
INTERROGATORIES BY SUBCOMMITTEE MEMBERS:	
By Ms. Lyons	227
By Chairman Ignatius	231
By Ms. Bailey	238
By Dir. Stewart	245
By Mr. Iacopino	247
Redirect Examination by Mr. Roth	251

1 (WHEREUPON after the lunch recess the  
2 hearing was resumed at 1:39 p.m.)

3 \* \* \* \* \*

4 MS. BAILEY: We're back on the  
5 record, and we're going to resume  
6 cross-examination of Ms. Vissering.

7 MS. GEIGER: Thank you.

8 CROSS-EXAMINATION

9 BY MS. GEIGER:

10 Q. Ms. Vissering, before the lunch break I asked  
11 you some questions about your testimony -- or  
12 your supplemental testimony regarding the  
13 project's conservation plan and your  
14 statement, that you believe "additional  
15 conservation measures would be required to  
16 address the ridgeline as a whole and to  
17 ensure that any future development is not  
18 located within the more visually and  
19 ecologically sensitive higher elevation  
20 areas." Do you remember that question?

21 A. Yes.

22 Q. Okay. And do you remember I asked you where  
23 these ecologically sensitive, higher  
24 elevation areas were located? Do you

1           remember that question?

2    A.    Yes.

3    Q.    Okay.  And I believe your response was that  
4           they were located within a priority area for  
5           land conservation, according to Antrim's  
6           Open-Space Conservation Plan; is that right?

7    A.    Yes.

8    Q.    And could you please turn to the exhibit  
9           that's been marked as AWE 17.

10   A.    Yeah, I have it in front of me.

11   Q.    Okay.  Now, do you agree that is a map from  
12           the Open-Space Conservation Plan for Antrim  
13           that designates the Open-Space Protection  
14           Priority Areas in yellow?

15   A.    Yes.

16   Q.    Okay.  And do you know approximately how many  
17           acres those yellow areas entail?

18   A.    If you count all of the yellow areas on this  
19           map, I think there was a -- I think I saw  
20           somewhere a chart that said how many acres  
21           there were, which I don't see on this chart  
22           right now.

23   Q.    Well, that's okay.  Let me ask you a  
24           different question.  I believe that -- did

1       you indicate that the -- that you were  
2       concerned about the -- I think you said that  
3       you were concerned about the conservation  
4       plan -- or conserving more property that is  
5       located in West Antrim; is that correct?

6               MR. ROTH: I just want to get  
7       some clarification. What do you mean by  
8       "conservation plan"? Is there a conservation  
9       plan in the record somewhere?

10              MS. GEIGER: I believe that  
11       the Applicant has made a commitment with the  
12       Harris Center for Conservation, and I believe  
13       that has been made an exhibit. I think the  
14       agreement has been made an exhibit.

15              MR. ROTH: So that's the  
16       "conservation plan" you were referring to,  
17       the Harris Center agreement?

18              MS. GEIGER: Right, the  
19       agreement that the project would conserve  
20       685 acres within the project area and then  
21       surrounding the project area.

22              MR. ROTH: Okay. So there's  
23       no other document than the Harris Center  
24       agreement.

1 MS. GEIGER: I believe that  
2 that's the conservation plan that has been  
3 described in the Application.

4 MR. ROTH: Okay. Thank you.

5 MR. IACOPINO: Mr. Roth,  
6 though, before you begin, this AWE 17, if you  
7 look at the title of it, it appears to be the  
8 "Open-Space Conservation Plan for Antrim,  
9 Final Report."

10 MR. ROTH: I think they're two  
11 different things. I think that the  
12 Conservation Commission of the Town has an  
13 Open-Space Conservation Plan for Antrim,  
14 dated November of 2005. But I believe that  
15 the Applicant references something that they  
16 believe is a conservation plan and which I  
17 think has now been described as the "Harris  
18 Center Agreement."

19 MS. GEIGER: Right. I  
20 apologize for any confusion that my questions  
21 may have created.

22 BY MS. GEIGER:

23 Q. Basically what I'm asking, Ms. Vissering,  
24 about is in the conservation -- the



1           Open-Space Conservation Plan for Antrim that  
2           the Antrim Conservation Commission has  
3           developed and that you have in front of you,  
4           in terms of a map showing, I believe,  
5           protection priorities in the Town of Antrim  
6           in yellow -- is that correct?

7    A.    Yes.

8    Q.    Okay. Now, are you aware that the project  
9           itself would fall within West Antrim?

10   A.    Yes.

11   Q.    Okay. And are you -- does it -- just from  
12           eyeballing this map, does it appear that  
13           these Open-Space Priority Protection Areas  
14           are approximately half the town of Antrim?

15   A.    I think the -- there are various parcels that  
16           are priorities for various reasons that are  
17           identified within the plan in more detail.  
18           But there are a number of different priority  
19           areas. I think if you looked at the totality  
20           of them, it might total something like  
21           somewhere more than -- certainly more than a  
22           third, or around a third.

23   Q.    And are you aware that the 685 acres that  
24           Antrim Wind has agreed to conserve falls

1           within some of that yellow area in West  
2           Antrim?

3   A.    Yes, I am.

4   Q.    Okay. Now, I think you also indicated before  
5           the break that, with respect to ecologically  
6           sensitive areas that you've referenced in  
7           your testimony that you believe should be  
8           conserved, that there was some designation of  
9           some areas along the ridgeline that's  
10          ecologically sensitive by the -- by somebody  
11          in interest; is that correct?

12   A.    No, I don't think that's what I said. In  
13          fact, I'm sure I didn't say that. I may have  
14          been referring to a different project that I  
15          was using as an example, which had protected  
16          the areas surrounding the ridgeline as one of  
17          the measures of protection, that were  
18          permanently conserved, with no development at  
19          all allowed. But that was just as an example  
20          of both the extent and kind of conservation  
21          measures.

22                 And I want to clarify that the reason  
23                 I'm raising these, the conservation concerns  
24                 have certainly been addressed in the town

1           plan, as well as other places. But there is  
2           a direct correlation between that and some of  
3           the visual concerns because of the importance  
4           of the ridge to the town of Antrim.

5   Q.   And can you cite for me the area or the  
6           places in either the master plan or some  
7           other town document that says that the Town  
8           has established this ridgeline as an area  
9           that should be conserved?

10   A.   No, I didn't -- I don't think I said that. I  
11           looked -- this area where the project is  
12           proposed is part of this high-priority area  
13           that is a high priority for conservation.

14   Q.   So it was --

15   A.   It is not necessarily the only area. It is  
16           part of that area.

17   Q.   Part of that area?

18   A.   Yes.

19   Q.   Okay. Thank you for that clarification.

20           Now, isn't it true that the Antrim  
21           zoning ordinance -- I'm sorry. Let's back  
22           up.

23           The area of Antrim that we're talking  
24           about for this facility, would you agree it's

1 in the Rural Conservation District?

2 A. Yes.

3 Q. And isn't it true that the Antrim zoning  
4 ordinance allows public utilities to be  
5 located in the Rural Conservation District?

6 MR. ROTH: I object to this  
7 question. This is a legal question that's  
8 been litigated between the Applicant and  
9 other people. And asking a landscape  
10 architect brought as a witness on visual  
11 impact to answer a legal question about  
12 whether this project is a public utility or  
13 whether it would be allowed in this  
14 particular zoning district I think is  
15 inappropriate.

16 MS. GEIGER: I'm not asking  
17 the witness to decide whether or not this  
18 project is a public utility. I'm just asking  
19 her whether she understands that, generically  
20 speaking, the Antrim zoning ordinance permits  
21 public utilities to be located in the Rural  
22 Conservation District.

23 MR. ROTH: Given the contested  
24 nature of that, I don't know how she could

1           answer that question with any certainty or  
2           knowledge.

3                       MS. GEIGER: Well, it was my  
4           understanding that she reviewed the zoning  
5           ordinances with the Town's ad hoc committee.

6 BY MS. GEIGER:

7 Q.    Is that correct?

8 A.    I only reviewed it in terms of zoning  
9           ordinance. I was really looking at and asked  
10       to make recommendations in a specific part of  
11       the zoning regulations. I did not review the  
12       entire zoning regulations. I've looked at  
13       the town plan in more detail, which is  
14       usually the document that tends to be  
15       relevant in proceedings like these.

16                   MS. BAILEY: Is that a  
17       satisfactory answer?

18                   MS. GEIGER: Yeah, I'll  
19       withdraw the question. I think the zoning  
20       ordinances which are in the record speak for  
21       themselves. So we'll move on.

22 BY MS. GEIGER:

23 Q.    Now, your testimony doesn't specify a  
24       particular number of acres that you think the

1 project should conserve, does it?

2 A. No.

3 Q. Yet, you find 685 acres to be inadequate?

4 A. I do.

5 Q. What is the basis for that opinion?

6 A. The bases, I think, are several. One is that  
7 it certainly doesn't address the entire  
8 ridgeline. It certainly allows, without very  
9 much specificity, building to occur. But I  
10 think more importantly, just in comparison to  
11 equivalent kinds of sites with equivalent  
12 kinds of impacts of wind projects, where you  
13 have a high priority, where the value is an  
14 unfragmented habitat -- not all wind projects  
15 are located in areas like this -- and which  
16 has been identified with these kinds of  
17 values, then it seems to me that that acreage  
18 is a very small amount of acreage that really  
19 doesn't address the kinds of impacts, either  
20 visual or ecological. And I'm going to  
21 mostly limit myself to the visual impacts.  
22 There are parts of the ridgeline that have  
23 not been conserved at all and --

24 Q. Would you view the Applicant's conservation

1        efforts to be a positive then, if they  
2        haven't been conserved at all and now they're  
3        going to be conserved as a result of this  
4        project? Wouldn't that be a benefit?

5        A.    I think it's a very inadequate attempt to do  
6        this. I think, given the impacts of this  
7        project to a high-value area that is  
8        specifically identified in the town plan, as  
9        well as other statewide initiatives, that  
10       that is a very small amount of conservation.

11       Q.    Could you provide me with a cite to the town  
12       plan where it says that this is a high-value  
13       area?

14       A.    This map.

15       Q.    This map, meaning the open --

16       A.    Yeah. These are the high priorities for  
17       conservation, and those are -- the particular  
18       values are identified in the conservation  
19       plans.

20       Q.    So could you point me to where it says that?

21       A.    I don't have a town plan in front of me.

22       Q.    Let me show you. This has been marked as  
23       ACC 2. But here's a copy of it, the Antrim  
24       Conservation Commission Exhibit 2.

1 (Witness reviews document.)

2 MR. ROTH: Ms. Vissering, if I  
3 may, if you look at Page 4 of the plan --

4 THE WITNESS: Okay. I was on  
5 Page 17. But yes.

6 MR. ROTH: It says "Criteria."

7 THE WITNESS: Yes, I think I  
8 was at that in another place. It's also on  
9 Page 17 of the plan.

10 A. So there are the criteria for determining  
11 these high-priority lands which add to  
12 protected land: Aquifers, riparian areas,  
13 agricultural land, corridors, unfragmented  
14 forest land, scenic values, historic lands in  
15 West Antrim is mentioned. In the area for  
16 protected land, it's mentioned in the  
17 wildlife corridors; it's mentioned in the  
18 unfragmented forest land. And then, of  
19 course, the scenic areas refers to those  
20 above.

21 BY MS. GEIGER:

22 Q. But the designation of West Antrim, that  
23 isn't limited just to the Willard/Tuttle  
24 Ridge; is it?



1 A. No, but the project is located within that  
2 area.

3 Q. It's a subset within that area; correct?

4 A. It's a part of the area, yes.

5 Q. It's part of the area. Okay.

6 Could you turn to Page 16 of what I just  
7 handed you, ACC 2, please.

8 A. Okay.

9 Q. Do you see there at the bottom of the page  
10 there are some -- there is a list of -- the  
11 committee has developed a set of principles  
12 with which to guide its recommendations about  
13 land conservation priorities? Do you see  
14 that?

15 A. Yes.

16 Q. Doesn't it say there, the second bullet  
17 point, "Conservation easements will be the  
18 primary tool or strategy for protecting  
19 lands"?

20 A. Yes.

21 Q. Doesn't it also say, "Land conservation  
22 priorities cannot include all land. We can't  
23 save it all"?

24 A. Yes.

1 Q. Okay. Now, Ms. Vissering, are you aware that  
2 if this project is not built, the property  
3 upon which the project is proposed to be  
4 located, and the property this project would  
5 conserve if built, could be developed into  
6 three-acre building lots with houses and  
7 driveways, et cetera?

8 A. Well, I guess I would say that would be  
9 hypothetical.

10 Q. Would it be permitted by the Antrim Zoning  
11 Ordinance?

12 MR. ROTH: I object to that.  
13 Again, she's asking for a prediction about  
14 how the Antrim zoning regulations might be  
15 interpreted by the local planning people with  
16 respect to a residential development. I  
17 don't think that she's qualified to do that,  
18 nor should she be required to do that.

19 MS. GEIGER: Let me rephrase  
20 the question.

21 BY MS. GEIGER:

22 Q. Isn't it true that the Rural Conservation  
23 District, as defined and described in the  
24 ordinance, would allow for or would permit

1 residential housing to be built?

2 A. But not necessarily along the upper slopes.  
3 Because, given the documentation in the town  
4 plan, the Planning Commission has the right  
5 to perhaps not require, but to encourage  
6 development patterns that would place  
7 development on the least valuable land within  
8 any particular piece of property. That's  
9 pretty typical of what planning commissions  
10 are able to do. So it's not --

11 Q. Is that required in this zoning ordinance,  
12 though?

13 A. Is it required?

14 Q. Yes.

15 A. No. But given the value of this land, the  
16 Planning Commission -- I'm a member of my  
17 local planning commission -- would  
18 undoubtedly be taking a very serious look at  
19 how develop -- what development patterns  
20 were -- they would permit within this  
21 district.

22 Q. Okay. Now turning to your recommendations  
23 for this project. Your fifth recommendation  
24 is to "identify and address all areas from

1       which portions of roads, ridgeline clearing,  
2       cut and fill slopes and/or turbine pads may  
3       be visible." Are you saying that if roads,  
4       ridgeline clearing, cut and fill or turbine  
5       pads are simply visible and have no  
6       unreasonable adverse effect, that their  
7       visibility must still be mitigated?

8     A.   That is generally considered -- let me get  
9       close to the microphone.

10           The offset visibility of roads and  
11       turbine pads is one of the significant  
12       concerns about wind energy projects. And it  
13       becomes especially sensitive when they're  
14       seen from above, where that's more likely,  
15       because it's one thing to see the turbines  
16       emerging out of intact forest; it's another  
17       when the ridgeline itself is very evidently  
18       changed or altered with visible cut and fill  
19       slopes. So that creates another visual  
20       impact that is potential. And my concern was  
21       that that be looked at very carefully, to  
22       make sure that that was not going to occur  
23       from any locations. And that would be  
24       visible from public viewing areas.

1 Q. Did you consider that issue? Did you look at  
2 that issue?

3 A. I looked at the grading plans in detail. And  
4 I think in my report I mentioned a number of  
5 places where I had concerns that there could  
6 be some visibility. There's certainly the  
7 area from Goodhue Hill where there is  
8 visibility. So it requires doing  
9 line-of-sight assessment, which is not  
10 unusual to have done for looking at specific  
11 areas where the cut -- the fill or cut slope  
12 is potentially above the tree line. If you  
13 can look at the grading plan, you can pretty  
14 easily pick out where those areas might be.

15 Q. Your sixth recommendation is, "General  
16 revegetation of cut and fill slopes and all  
17 non-permanent surfaces must occur immediately  
18 following construction." Isn't the New  
19 Hampshire Department of Environmental  
20 Services requiring this as a condition of the  
21 alteration of terrain permit?

22 A. I don't know. I haven't seen that document.

23 Q. Okay. Your seventh recommendation is, "Any  
24 significant visibility of the substation and

1       the O & M building [sic] may need to be  
2       mitigated with screening plantings." Now,  
3       you agree with that being your  
4       recommendation; correct?

5     A.    Yes.

6     Q.    Okay. Do you know whether the substation  
7       will change the character of the proposed  
8       site of that station?

9     A.    What I was concerned about there, and it  
10    may -- this may not be an issue. But what I  
11    noticed is that the way that substation is  
12    designed, the expansion of the substation, is  
13    that it goes -- it's designed sort of against  
14    the contours. So it does kind of step down  
15    the contours to some extent. But there's a  
16    quite large area that is being built into the  
17    slope. So my main concern was the visibility  
18    from Route, is it 9 that runs along through  
19    there?

20    Q.    So it's near Route 9; correct?

21    A.    Yes.

22    Q.    And isn't it also adjacent to a large utility  
23       right-of-way with several high-voltage  
24       transmission lines?

1     A.    Yes.  But generally, even whenever a  
2           subdivision is -- excuse me -- a substation  
3           is proposed to be expanded, the visual impact  
4           is something that one would look at and  
5           possibly improve.  I know that's something I  
6           get involved with a lot for the Public  
7           Service Department in Vermont.  And that's a  
8           high priority, to try to at least mitigate it  
9           to the extent possible.

10    Q.   Did you know that Public Counsel requested  
11          vegetative screening for the Groton Wind  
12          Project substation in Holderness, New  
13          Hampshire, and the Site Evaluation Committee  
14          here denied that request because it would  
15          provide no discernible benefit?

16    A.    Okay.

17    Q.    The last two paragraphs of your supplemental  
18          testimony indicate that the project's  
19          expanded 10-mile viewshed analysis identifies  
20          approximately 33 additional recreational or  
21          cultural sites with potential visibility of  
22          the project.  And you conclude by saying  
23          that, quote, The identification of the  
24          additional resources affected by the project,

1 unquote, further supports your conclusion  
2 that the project has an unreasonable adverse  
3 impact on aesthetics in and around Antrim; is  
4 that correct?

5 A. Yes.

6 Q. Are you saying that simply because the  
7 project may be visible from some locations  
8 between five and ten miles away from the  
9 project, that this constitutes an  
10 unreasonable adverse impact?

11 A. What I said in my testimony, and which I  
12 think is important there, is that there  
13 certainly can be impacts from five to ten  
14 miles away, as well as zero to five. When  
15 you have -- and this was my concern: When  
16 you have a lot of resources throughout the  
17 area, all of which has visibility of the  
18 project -- in other words, the majority or  
19 vast majority of the lakes and ponds in the  
20 region would have visibility of the  
21 project -- that creates its own impact. It's  
22 a different kind of impact from the lakes and  
23 ponds that might be in very close proximity.  
24 But nevertheless, there are many, many lakes



1           and ponds within this area which would have  
2           visibility of the project.

3    Q.    But, in fact, you have expressly said that  
4           visibility by itself doesn't determine  
5           whether or not aesthetic impacts would be  
6           unreasonable, does it?

7    A.    Well, exactly.  So, for example:  If this  
8           project were only visible from Gregg Lake, if  
9           that was it, I probably would have had very  
10          different findings than the fact that it is  
11          visible from many, many different resources  
12          within the area.  That's one of the  
13          considerations.  It is not unreasonable for a  
14          project to be seen from a particular, let's  
15          say, lake or pond.  But when you have  
16          particular sensitive 2resources that are part  
17          of that environment, and you are seeing it  
18          from numerous lakes and ponds all throughout  
19          the area, that begins to sort of magnify the  
20          impact.

21   Q.    Did you visit those numerous lakes and ponds  
22          throughout the area?

23   A.    I did visit some, and for others I relied on  
24          the viewshed analysis.

1 Q. Okay. Okay. Thank you, Ms. Vissering. I  
2 have no further questions.

3 MS. BAILEY: Thank you.  
4 Committee questions. Mr. Dupee.

5 MR. DUPEE: Thank you, Madam  
6 Chairman. Take a moment to organize my  
7 thoughts. So bear with me.

8 INTERROGATORIES BY MR. DUPEE:

9 Q. So, I guess, in general, you mentioned that  
10 in reviewing this Application --

11 (Court Reporter interjects.)

12 Q. So, Ms. Vissering, when you looked at the  
13 Application, you concluded that, although  
14 there are some issues of concern to you, that  
15 issues could be mitigated that would perhaps  
16 make the proposal acceptable; is that right?

17 A. Yes.

18 Q. So, for example: You talked about  
19 conservation easements. So you might be able  
20 to -- if there was an aesthetic impact at one  
21 point in the process, perhaps that could be  
22 made up for or mitigated by offsetting  
23 benefits someplace else. Is that what you're  
24 thinking?

1     A.    I think that's possible.  I would -- it is  
2           always preferable to mitigate on site, to the  
3           extent that it's -- that that is possible,  
4           because that is still an important resource  
5           for the town.  And what -- just as an example  
6           of some mitigation that I have seen, as I  
7           said, in a very similar situation, it  
8           included both mitigating on the site, in  
9           terms of permanent conservation easements, as  
10          well as, because of the impact to identified  
11          unfragmented habitat, it included conserving  
12          some unfragmented land somewhere else.

13    Q.    So if that possible mitigation didn't exist,  
14           there was no possibility for mitigation, what  
15           would have been your opinion of this project?  
16           Would it have an unreasonable adverse effect  
17           on aesthetics?

18    A.    I think the possibility -- well, let's say  
19           hypothetically there is no possibility for --  
20           is that what you're suggesting?

21    Q.    I'm stating --

22    A.    Hypothetically, there's no possibility for  
23           that type of mitigation?

24    Q.    Correct.

1 A. It's hard for me to conceive that it wouldn't  
2 be possible. But it would be... I guess I  
3 would have to say that... this is a hard one.  
4 I'm just not able to imagine that there isn't  
5 some solution there --

6 Q. Let me restate it.

7 A. -- that could not be found.

8 Q. So if I restate my question, basically, if  
9 you have a proposal in front of you as is, no  
10 changes, straight up or down, would you find  
11 that to be an unreasonable adverse effect or  
12 not?

13 A. I guess I would.

14 Q. Thank you.

15 MS. BAILEY: Chairman  
16 Ignatius.

17 CHAIRMAN IGNATIUS: Thank you.

18 INTERROGATORIES BY CHAIRMAN IGNATIUS:

19 Q. Good afternoon.

20 A. Good afternoon.

21 Q. Couple, I hope, quick clarifications. Let me  
22 ask you -- we spent some time looking at the  
23 last page of your supplemental testimony in  
24 the discussion of temporary lighting. If you

1 look at Page 3 -- this is in PC 4 is the  
2 exhibit number -- Page 3, which is the last  
3 page of your supplemental testimony --

4 A. Yes.

5 Q. -- and second to the last question about  
6 radar-controlled lighting. And you had said  
7 that even the temporary use of night lighting  
8 would result in unreasonable visual impacts.

9 To be sure I understand what you're  
10 saying, is the use of the word "temporary"  
11 relating to "temporary" meaning on and off  
12 with the radar-activated style of lighting,  
13 or is your use of the word "temporary"  
14 meaning standard lighting might go into  
15 effect prior to the radar-controlled lighting  
16 going in?

17 A. Yes, I should clarify that. I think my  
18 concern is that there be a definite plan in  
19 place for radar-activated lighting with the  
20 certainty that it is feasible, and that it's  
21 feasible that it will definitely be  
22 installed. So I guess when I say  
23 "temporary," my concern had been that it  
24 would be -- the project might be approved and

1       that they would find out later down the road  
2       that this wasn't going to work. And then, of  
3       course, at that point it would be very hard  
4       to say, oh, you have to dismantle the project  
5       because you don't have -- so I think that's  
6       my concern. So that the idea of, yes, there  
7       is -- it has been approved, we know with  
8       absolute certainty that it can be and will be  
9       installed by such-and-such date, and that for  
10      six months we have to do lighting, that would  
11      not be a problem, in terms of that definition  
12      of "temporary."

13   Q.   So if FAA had approved radar-controlled  
14       lighting for this project already, and that  
15       was the only thing that would ever be  
16       installed, that would resolve your lighting  
17       concerns?

18   A.   Yes.

19   Q.   And if we knew that -- I'm not sure how we'd  
20       know this -- but that somehow the FAA was  
21       going to say it was okay six months from now,  
22       and there might be a limit of only six months  
23       of traditional lighting before the radar kind  
24       went into place, that would also resolve your

1 lighting concern?

2 A. Yes.

3 Q. It's the open-ended possibility that it might  
4 never go to the radar --

5 A. Exactly. Yeah.

6 Q. Okay. On lighting effects, you stated that  
7 that is a significant part of any of these  
8 projects' visual impacts. And I was struck  
9 with that, that for all of the photo  
10 simulations done, there is no photo  
11 simulation of lighting impacts. Is that done  
12 in the industry or not?

13 A. Lighting is very hard to simulate, because  
14 unlike just a two-dimensional image, it  
15 has -- there are many variables to lighting  
16 and how it looks, because it's not just  
17 showing a little red ball or a little yellow  
18 ball on an image like this. It has a -- it  
19 pulses, and that's one of its  
20 characteristics. But it also has a sort of  
21 shine to it. It's just visually complex, and  
22 so it is very hard to simulate. I know it  
23 has been done in some cases. But I know  
24 other people who have told me, "I will never

1 do this again because I was torn apart on the  
2 witness stand."

3 Q. Do you have -- one other clarification.

4 You had stated that, in your view, the  
5 size of turbines that were used in the  
6 Lempster project would be more appropriate  
7 for the setting that Antrim poses. And  
8 someone had asked you, did you think that was  
9 about 2-1/2 megawatts, or you may have  
10 thought that may have been 2-1/2 megawatts.

11 A. Yeah, that's what I think.

12 Q. If that isn't the right number of megawatts,  
13 is it -- is your thought about the size of  
14 Lempster, the megawatt level, or the ones  
15 that you've seen in Lempster, whatever those  
16 measurements may be?

17 A. The latter. I believe those are 2-1/2  
18 megawatts. Of course, these days, it doesn't  
19 always mean -- have a direct correlation with  
20 size, because there are turbines of varying  
21 sizes with different output. So I think I'm  
22 more concerned about the dimensions than I am  
23 with the particular output of the turbine.  
24 And those dimensions would include



1           particularly the height of the nacelle and  
2           particularly the sort of, I mean, the taper  
3           in the towers. But that's the diameter.

4   Q.    Okay. My recollection is they were  
5           2 megawatts. But I may be wrong about that.  
6           But your point, though, is the size that they  
7           present in that setting is what you think  
8           would be more appropriate?

9   A.    Yes.

10   Q.   You were asked by Ms. Manzelli about the  
11           Quabbin-to-Cardigan Corridor and that that  
12           was another area of -- I'm going to forget  
13           how you characterized it exactly -- but a  
14           resource that's of value of some sort. And  
15           can you just describe what that means, what  
16           the Quabbin-to-Cardigan project is?

17   A.    I'd have to preface this by saying this is  
18           not my area of expertise exactly. But I am  
19           familiar with the concept for a variety of  
20           reasons.

21                 It is the idea of protecting  
22           unfragmented habitat as a valuable resource,  
23           particularly for wildlife and eco systems.  
24           And so there has been an effort to try to

1 identify, in many states around New  
2 England -- this one obviously includes  
3 Massachusetts and New Hampshire -- those  
4 areas where unfragmented habitats still  
5 exist. They're becoming more and more rare  
6 because of the development. So, where you  
7 find large contiguous blocks of land, where  
8 development has not occurred. And so that  
9 area, that particular corridor was identified  
10 based on studies that were done to find those  
11 blocks. And it was -- so it was given a high  
12 priority for conservation for that reason.

13 Q. And you may have already said this. But is  
14 part of the Antrim project site within that  
15 corridor area?

16 A. Yes.

17 Q. There was quite a lot of discussion this  
18 morning about your testimony in this case,  
19 that the project is visible from many  
20 different locations, but even though it may  
21 only be 95 percent of the viewshed, that  
22 within that 5 percent there are significant  
23 resources. Is that a good paraphrase?

24 A. Yes. So there are certain -- and I have

1 throughout focused primarily on places like  
2 lakes, ponds and trails, as opposed to  
3 village centers and historic sites. So there  
4 are quite a number where there is the  
5 combination of a large amount of the lake or  
6 pond visible -- with visibility, including  
7 areas where all the turbines or most of the  
8 turbines are visible. Then there are some  
9 where you are seeing perhaps a fairly  
10 significant area of the pond with visibility.

11 So I counted about 14 ponds that had  
12 that kind of combination of a fairly large  
13 area of the pond with visibility and/or a  
14 large number of turbines visible, and  
15 another, I think, 11 sites -- I mean, these  
16 are some -- a few of these are trails, too --  
17 11 ponds with another -- with some degree of  
18 visibility on the pond. So in this fairly  
19 limited area, it's a fairly substantial  
20 number of lakes and ponds.

21 Q. Is your concern not the mathematical  
22 percentage of locations that have visibility,  
23 but what those particular locations are?

24 A. I guess I would back up and say that, if I

1       were just looking at Gregg Lake, Willard Pond  
2       and the two sort of summits near there,  
3       possibly including the Meadow Marsh Preserve,  
4       all of which are in very close proximity and  
5       have very high visibility, that, to me, would  
6       have been probably significant enough for me  
7       to say, yes, this is -- these are -- at least  
8       given the design of the project at present,  
9       this is unreasonable.

10           So I think that the additional sites,  
11       some of them that came up -- and one of them  
12       was Powder Mill Pond, which is another one  
13       with no motor boats allowed, just canoes --  
14       you look on the Paddlers' web site, and it's  
15       known as being "a highly scenic pond,"  
16       with -- according to the latest simulation,  
17       had all, pretty much, I think, nine of the  
18       turbines appear to be visible from that pond.  
19       That's quite a bit further away, but it's yet  
20       another situation.

21           So there are -- I think my concern was  
22       both the specifics of the particular sites,  
23       in addition to the added impact of -- to the  
24       area as a whole, because the ponds are places

1       where the -- the ponds are places where we  
2       get an open view. They're places where you  
3       spend time. They're places that you come, in  
4       part, for the scenic beauty of the area.  
5       Hills are part of that context. So they're  
6       all part of what I would call "sensitive  
7       areas."

8   Q.   Thank you. Those are my questions.

9                   MS. BAILEY: Mr. Simpkins.

10 INTERROGATORIES BY DIR. SIMPKINS:

11   Q.   I had a few questions regarding this issue of  
12       state or national significance and whether  
13       resources are of state or national  
14       significance.

15               The first question I had is, this  
16       morning in your testimony you mentioned about  
17       several of these things are of regional  
18       significance, but "regional" can have  
19       different interpretations. And I was just  
20       curious. When you say "regional," what scale  
21       are you referring to?

22   A.   Well, I guess I'm sort of imagining that,  
23       depending on the particular location that  
24       we're talking about, some of them probably

1       are a little bit more local, perhaps in  
2       neighboring towns like Gregg Lake. Then  
3       there's the Willard Pond natural area. I'm  
4       guessing that serves a much broader area that  
5       would be -- that perhaps includes the lower  
6       half of New Hampshire, maybe probably people  
7       from Vermont, northern Massachusetts. That  
8       kind of thing would tend to -- it's the kind  
9       of resource that certainly would be one that  
10      people visiting the area might go to. So I'm  
11      not sure if I'm answering that very well.

12    Q.    Yeah. Basically what I was getting at is you  
13          could say "regional," meaning the New England  
14          regions. But you're --

15    A.    Yeah, I'm thinking of --

16                   (Court Reporter interjects.)

17    Q.    But you're thinking, I mean, "regional" could  
18          mean like New England region. But your  
19          definition of "regional" means on a smaller  
20          than statewide scale is what I was getting  
21          at, it sounds like.

22    A.    That's correct, because I think we're talking  
23          about whether it achieves state significance.  
24          And so when I'm saying "regional," it is

1       potentially less than that.  Though, I would  
2       say some of those properties, like the  
3       Audubon Sanctuary, has received funding,  
4       Forest Legacy funding, for example.  That is  
5       certainly something that is a national -- or  
6       at least the bigger "region" that you were  
7       referring to kind of significance.  So it's  
8       another thing that is sometimes looked at in  
9       terms of the value or importance of a place,  
10      is the extent to which there has been public  
11      funding that has gone into protecting that,  
12      because that becomes something that is  
13      important to the people of New Hampshire.

14   Q.   Okay.  Well, that kind of gets into some of  
15       my next few questions.

16               Did you say this morning that you did  
17       not recognize resources of statewide  
18       significance during your review of this area?

19   A.   What I said, I believe, if I'm answering this  
20       correctly, is that I didn't -- I didn't see  
21       the resources necessarily as being of  
22       statewide, what I would call "statewide  
23       significance," in the sense of something that  
24       might be important to the state as a whole.

1       Although, there's probably not a whole lot of  
2       difference between a state park, like  
3       Pillsbury and the Audubon Nature Center, in  
4       terms of they both probably tend to be served  
5       more by kind of a regional group of people;  
6       and yet, one would tend to, just because it's  
7       state-owned, might be considered of state  
8       significance. But I'm not sure that's  
9       legitimate.

10    Q.   In Mr. Guariglia's prefiled testimony of  
11       October 11th, he mentions, "Resources of  
12       statewide significance are of greater  
13       aesthetic significance by virtue of their  
14       preservation by a governmental agency for  
15       benefit of the state's citizens." Would you  
16       agree with that statement?

17    A.   That sounds reasonable.

18    Q.   So, following that, would you consider a  
19       conservation easement held by the state and  
20       purchased with state and/or federal funds to  
21       be a resource of state significance?

22    A.   That's kind of where I was going with the  
23       Forest Legacy money. Because there's  
24       certainly been -- Bald Mountain is an example



1 of an area that was protected with Forest  
2 Legacy money. So in that sense, that would  
3 certainly make it of statewide importance, in  
4 terms of investment of money and funds.

5 Q. Are you familiar with the ranking process  
6 that a property goes through for the Forest  
7 Legacy Program?

8 A. Not precisely. I looked into that, and I do  
9 know that scenic quality was one of the  
10 considerations, as well as ecological value.

11 Q. And besides -- you mentioned Bald Mountain.  
12 Are you familiar with any other Forest Legacy  
13 or state-held conservation easements within,  
14 say, five miles of this project area?

15 A. I didn't come across any. But I didn't look.  
16 I only looked at a couple years of the  
17 donations of the Forest Legacy money. So...

18 Q. Okay. Thank you. No further questions.

19 MS. BAILEY: Mr. Stewart.

20 INTERROGATORIES BY DIR. STEWART:

21 Q. My questions revolve around the mitigation  
22 issue. And to put it in context, I manage  
23 the Water Division for Environmental  
24 Services, and we have the Wetlands Program.

1       And we have mitigation criteria for wetlands  
2       impacts, and those criteria vary with the  
3       value of the wetlands. Now, 10 or 12 years  
4       ago, we had nothing -- or maybe 14. And  
5       we've gradually put this in place to satisfy  
6       federal requirements, basically, for  
7       mitigation for wetlands.

8               So I'm trying to understand the  
9       magnitude of mitigation that we should expect  
10      on this project and others. And what I see  
11      here is we've got about, you know, I think  
12      it's 625 acres proposed of conservation land  
13      for 10 windmills now. Another issue with the  
14      wetlands is that not all wetlands are created  
15      equal, so that the mitigation shifts with the  
16      value, or the impact in this case.

17             So I'm trying to understand what an  
18      adequate mitigation package would look like,  
19      in your mind, in terms of the magnitude of  
20      conservation that would have to occur. And  
21      I'm an engineer, so I think in units. And in  
22      this case, we've got a proposal for 62 acres  
23      per windmill. So I'm trying to understand  
24      where do we go with that? And I think we're

1       early in this process, probably nationally,  
2       in terms of this mitigation. So, could you  
3       comment on that?

4     A.   Yes. Just as a reference -- and this might  
5       be useful for you to look at -- this was a  
6       big issue in discussions in Vermont for the  
7       Lowell Wind Project, because it has very  
8       similar characteristics, and it's being  
9       highly valued for unfragmented habitat. Has  
10      also quite a few scenic values. And what  
11      struck me about some of the decisions --  
12      there were two parts. One was the immediate  
13      conservation easements along the immediate  
14      ridgeline, which were done in several parts,  
15      depending on landowners. But they did -- the  
16      characteristics, I think -- now, this was  
17      about twice the size of this project, in  
18      terms of the numbers of turbines. So you'd  
19      have to take that into consideration.

20               But there were -- along the immediate  
21      ridgeline, there were a number of  
22      conservation packages, which I think added up  
23      to somewhere in the vicinity of 600 maybe,  
24      600 acres, something like that, of the area

1 next to the wind project which had -- where  
2 no building was allowed. They were permanent  
3 conservation easements. And they had  
4 restrictions on forestry, mostly to protect  
5 various types of habitat. In addition to  
6 that, there was about 1600, or a little over  
7 1600 acres, of unfragmented habitat that was  
8 conserved near the project, not on the ridge,  
9 to sort of compensate for the fragmentation  
10 that was happening on the ridge itself.

11 So, you know, probably be better to have  
12 you look directly at that decision. But  
13 there were two different decisions, because  
14 the final order for the Public Service Board  
15 identified the ridgeline easements, and then  
16 there was a separate agreement on -- that was  
17 part of a second order identifying the other  
18 conservation easements.

19 Q. How many windmills or turbines?

20 A. Twenty-one.

21 Q. Twenty-one? So that's more or less double  
22 what we have here.

23 A. Yeah. But I think what struck me is two  
24 things: One is that the entire ridgeline

1        was -- came under some kind of conservation  
2        easements that had allowed no development, I  
3        mean, other than the area of the wind project  
4        itself. And so there was certainty that  
5        there would be -- that that -- and I'm not  
6        sure of the exact area around the ridgeline  
7        that was protected, but it was a fairly  
8        significant part of the upper portions of  
9        that ridge. And, of course, forestry was  
10       allowed.

11    Q.    Were you involved with this project? I  
12       assume you were.

13    A.    I was only involved very peripherally. I was  
14       hired by the Green Mountain Club, because  
15       they had views of the project that was from a  
16       shelter about six miles away and also high  
17       elevation summit.

18                And so my recommendation in that project  
19       was not in opposition to the project, but  
20       requiring mitigation. And some of it was --  
21       some of the mitigation had to do with looking  
22       at the decommissioning plan for the project,  
23       the revegetation of the project. And so this  
24       part I was not involved with, but I was -- I

1           just am knowledgeable because I was looking  
2           through the order.

3    Q.    Do you know if there were any -- the  
4           1600 acres, was that a somewhat arbitrary  
5           number, or was there some objective basis for  
6           that?

7    A.    Well, it was between the ridge and an already  
8           conserved pond. So it was a very -- I think  
9           it was chosen as a very -- I don't know why  
10          the numbers were chosen. But it was chosen  
11          because of its high value.

12   Q.    Okay. Thank you.

13                               MS. BAILEY: Ms. Lyons.

14   INTERROGATORIES BY MS. LYONS:

15   Q.    Good afternoon.

16   A.    Good afternoon.

17   Q.    You spoke about the Recreational  
18          Opportunities Spectrum a little bit.

19   A.    Yes.

20   Q.    As you know, there's six classifications,  
21          major classifications for the Recreational  
22          Opportunities Spectrum. How would you  
23          classify the Willard Pond and Gregg Lake  
24          areas in that spectrum?

- 1     A.    Well, I'm not sure I'm going to use the exact  
2           correct terminology.  But I would definitely  
3           say that that is at the primitive end of the  
4           Recreation Opportunities Spectrum.  The  
5           specific goal is minimal development and  
6           retaining the natural landscape to the  
7           greatest extent possible.  It does -- it  
8           isn't a wilderness classification.  They do  
9           do forestry logging on that land.  So --
- 10    Q.    Are you referring to the recreational area  
11           itself, or are you referring to what the  
12           landscape is looking upon?  Because these  
13           areas are developed.
- 14    A.    Well, it is developed in the sense -- yes, it  
15           is.  But it is a -- it has the access road.  
16           It has parking.  It has access to the pond.  
17           But other than that, it's a fairly -- there  
18           is one old structure that was part of the  
19           property before the preserve and the dam.  
20           That's pretty much -- and some trails.  But  
21           other than that, there's very, very limited  
22           development.
- 23    Q.    So you're not specifically using the Forest  
24           Service's definitions then for --

1     A.    I may not be, because I think they -- I'm  
2           trying to -- I'm not using specifically their  
3           definitions, more of the concept, that idea  
4           of very -- the range of opportunities from  
5           the very primitive with minimal developments,  
6           such as, for example, the Appalachian Trail,  
7           and the two very heavily developed  
8           recreational areas, like ski areas.

9     Q.    As a tool, because mostly the Forest Services  
10           uses that for internal management -- so,  
11           looking at things within a forest or in a  
12           recreation area -- how would this Committee  
13           apply it, looking externally, affecting --  
14           you know, an external project affecting  
15           something on an adjacent piece of land?

16    A.    By "adjacent piece of land" --

17    Q.    Willard Pond.  It's usually used as an  
18           internal management tool to determine  
19           setting.

20    A.    Okay.  So what I'm thinking of is less -- I  
21           mean, being very strict about the Forest  
22           Service, because the Forest Service's  
23           approach is every piece of land ideally,  
24           doesn't always happen, is designated with a



1       certain, I guess they call it the ROS rating.

2               But what I'm thinking of is that when  
3       you're in state planning -- and I was  
4       involved in the Vermont Recreational Plan at  
5       one point -- there is an attempt to provide a  
6       range of experiences. So as a state thinking  
7       about recreation, it is important to provide  
8       the citizens of the state a range of  
9       different opportunities, some of which are  
10      very developed, some of which are very  
11      primitive. Often the state park system tends  
12      to provide that range of opportunities.

13             So I think the way I would think about  
14      it is that you have a -- you have certain  
15      places where you're trying to -- where the  
16      objective is to provide "a natural occurring  
17      landscape" -- I think the Forest Service uses  
18      that term -- so there's no evidence of  
19      something, or minimal evidence of something  
20      that is developed. And those are areas where  
21      you would try to avoid putting up a cell  
22      tower or something like that. So in that  
23      sense, I think it's a recognition that that  
24      is a value, that there are certain places

1       where that is what our objective is to do, is  
2       to try to retain that to the extent possible,  
3       the opportunity to be able to be in a natural  
4       setting, which can't happen all the time. We  
5       do see development from the Long Trail --  
6       Long Trail, that's my bias -- the Appalachian  
7       Trail. We do see development from other --  
8       which is -- you know, obviously my  
9       recommendation here is not to hide all these  
10      turbines from -- there will be turbines, in  
11      my recommendation at least, visible. But  
12      they would be further away, slightly smaller,  
13      reducing the impact.

14           I have mixed feelings about that. I  
15      think that the Willard Pond Sanctuary is my  
16      biggest concern here because it provides a  
17      unique opportunity, a kind of unique setting  
18      that is increasingly rare. But what I  
19      felt -- I know you're asking sort of  
20      generally how could this be used in general,  
21      which would be -- my recommendation would be,  
22      when you have a situation like that, that  
23      raises red flags, you try to see if -- to  
24      what extent you can minimize those kinds of

1           impacts to a recreation area like Willard  
2           Pond.

3       Q.   And my last question is: In your answer to  
4           one of the other Committee members, you had  
5           said that you were looking specifically at  
6           these recreation areas where lots of people  
7           gather and can, you know, have a gathering  
8           place. But you discounted town centers,  
9           which I would think would have as much, if  
10          not more, people at.

11      A.   Yes, that's a good question. And the reason  
12          for that is, in town centers, I do think that  
13          they're extremely important parts of the  
14          landscape in New Hampshire. But the reason I  
15          paid less attention to those is that what --  
16          if you look at the resource of the town  
17          center, the resource is right in front of  
18          you; it is your immediate surroundings. To  
19          some extent, it is the ridgelines beyond.  
20          But most of the resource in a town center is  
21          the buildings, the street, the community, the  
22          stores. And that is absolutely critical.  
23          But it's usually not a place where you are  
24          necessarily there as you might be on a lake

1 looking around at the surrounding mountains.  
2 That would not be the most dominant part. In  
3 addition to which, my experience in most --  
4 walking through most villages is that the  
5 buildings themselves often tend to -- and the  
6 trees often tend to quite significantly  
7 reduce the sort of impact, the dominance of a  
8 project like that. But I think it's a good  
9 point.

10 Q. Thank you.

11 MS. BAILEY: Dr. Boisvert.

12 INTERROGATORIES BY DR. BOISVERT:

13 Q. Sort of picking up on that same theme. You  
14 mentioned that historic properties were not  
15 considered in your visual analysis -- visual  
16 impact on historic properties. Can you  
17 explain why?

18 A. Yes.

19 MR. IACOPINO: Can you push  
20 that mic over?

21 DR. BOISVERT: Oh, sorry.

22 A. Do you need to maybe ask that again?

23 BY MR. BOISVERT:

24 Q. Yes. Could you explain why you did not

1 include historic properties in your visual  
2 analysis?

3 A. Yes. So I looked generally at some of the  
4 historic properties. And the approach that  
5 I've taken on historic properties is that,  
6 unless there is something in the  
7 documentation of historic significance of the  
8 property that suggests that the surrounding  
9 scenery was an important component of its  
10 past and that that surrounding scenery,  
11 whatever it is, is specifically affected, I  
12 do not feel that that is necessarily  
13 something that would be a visual concern to  
14 me. Most historic buildings are part of a  
15 landscape that is evolving, that is changing  
16 over time. And I can think of a few examples  
17 where this has come up, at least for me, in  
18 the context -- well, in a couple of contexts.  
19 One's in Maine and one's in Vermont. But  
20 someplace like Plymouth Plantation, perhaps,  
21 where you have a situation where you're there  
22 to experience, transport yourself back to  
23 another time, there's also the -- I would be  
24 most concerned with historic resources that

1       are open to the public, because those are the  
2       ones that are important to the public, which  
3       is what I think generally is the focus of the  
4       State of New Hampshire's concerns. And of  
5       those in this particular case, the one that  
6       perhaps was of -- that I did take a look at,  
7       and I think was in my report, was the  
8       Meetinghouse Hill Cemetery. But it was my  
9       feeling that there was quite a hedgerow of  
10      existing trees in the direction of the  
11      project, that it would probably be visible,  
12      but certainly not very dominantly visible  
13      from that vantage point.

14   Q.   Are there not historic landscapes? Speaking  
15       in general, not --

16   A.   Yes.

17   Q.   -- specifically New Hampshire.

18   A.   And I did actually come across that issue in  
19       New York, where there were designated  
20       historic landscapes, where the landscape  
21       itself was the resource. And there, I think  
22       that's a legitimate concern. But I didn't  
23       see anything in this particular case that  
24       suggested to me that there was going to be a

1 major visual concern from a historic  
2 resource.

3 Q. Are you familiar with the criteria of  
4 significance for listing properties on the  
5 National Register of Historic Places?

6 A. Somewhat, yes.

7 Q. Are you aware that setting is important for  
8 some properties, but not for others?

9 A. Yes. And I should say that I reviewed the  
10 historic report that was done for this  
11 project -- and I was unable to find in it the  
12 actual documentation, though maybe I was not  
13 looking in the right place, and maybe it was  
14 in an appendix that I couldn't find --  
15 because that to me is helpful, to know what  
16 were the criteria that were used to identify  
17 this as a historic site.

18 Q. I see. Thank you.

19 INTERROGATORIES BY MS. BAILEY:

20 Q. Good afternoon.

21 A. Good afternoon.

22 Q. I have a few questions about the  
23 Quabbin-to-Cardigan Initiative. I think you  
24 bring it up for the first time almost at the

1 end of your supplemental testimony, and you  
2 say, "The project ridge is also identified as  
3 an important conservation corridor in the  
4 Quabbin-to-Cardigan Initiative." And that's  
5 all you say about it, I think. Is that  
6 accurate?

7 A. Yes. And it probably was not as well  
8 articulated. I raised it primarily as a  
9 layer, another layer of concern about that  
10 particular property with regard to the  
11 conservation easements because of its  
12 identification. But it's -- it is --  
13 technically, it is not an initiative that is  
14 addressing scenic concerns; it is addressing  
15 ecological concerns.

16 So, in looking at the Antrim -- the  
17 ridge in question in Antrim, clearly, my  
18 concerns would be some of the visual impacts  
19 that would be happening from the project.  
20 But the easements are -- tend to be -- have  
21 more -- are designed to achieve a number of  
22 different goals. And so -- and one of  
23 those -- and certainly the importance of that  
24 ridge has to do, in part, with the fact that



1       it is not presently developed, which, you  
2       know, has a scenic attribute. Undeveloped  
3       ridgelines do contribute to the scenic  
4       qualities of the surroundings, but it is also  
5       related to this idea of unfragmented habitat.  
6       So they're a little bit intertwined.

7   Q.   And the ridgeline is physically part of the  
8       Quabbin-to-Cardigan Initiative?

9   A.   Yes. It's a very broad area that is defined  
10       in that initiative that runs from  
11       Massachusetts all the way up. But, yes, this  
12       is part of it.

13   Q.   Whose initiative is it?

14   A.   It's a broad coalition of state  
15       organizations, public and private  
16       organizations that have put this together.

17   Q.   So did you classify this as something that  
18       has state significance?

19   A.   Because of that? Because of -- not because  
20       of the -- necessarily because of the  
21       Quabbin-to-Cardigan Initiative.

22   Q.   Okay.

23   A.   There is that -- somebody had mentioned the  
24       Sunapee Trail System --

1 Q. Greenway.

2 A. -- yeah, Greenway System. And I think  
3 that -- and asked me if I would consider that  
4 of state significance. And I thought, yes,  
5 that probably does have state significance.

6 Q. But the Quabbin-to-Cardigan doesn't have New  
7 Hampshire state significance?

8 A. From an ecological point of view, it is an  
9 initiative, a plan, that is relevant. But  
10 I'm not sure that it -- and it is certainly  
11 something the state is very much involved  
12 with, but -- so I guess it's a little  
13 difficult for me to say how that exactly  
14 relates to this particular ridgeline, in  
15 terms of state significance.

16 Q. When you say -- sorry. When you say "state,"  
17 do you know what state agency would be  
18 responsible for this?

19 A. I would guess that part perhaps -- I don't  
20 know if the Department of Environmental  
21 Management is involved or some department  
22 within that agency. That would be my guess.

23 MR. ROTH: Madam Chairman, if  
24 I may, apparently I've just been informed

1           that there is an exhibit in the documentation  
2           submitted by the Blocks, LB 6, which is a  
3           fact sheet of some pages.

4                       MS. BAILEY: Well, can we get  
5           that in the Blocks' testimony maybe?

6                       MR. ROTH: Yeah. I'm just  
7           suggesting if you have questions about it,  
8           you can refer to it. I'm not trying to blow  
9           the record here. But I just want to make you  
10          aware that it is there.

11                      MS. BAILEY: Great. Thank  
12          you.

13 BY MS. BAILEY:

14 Q.    Okay. Can you look at PC Exhibit 1 and the  
15          photograph of Willard Pond where you did the  
16          Simulation 1B?

17                      (Witness reviews document.)

18 Q.    Okay. That's Willard Pond at the dam; right?

19 A.    Yes.

20 Q.    Is that in the wildlife sanctuary area, do  
21          you know?

22 A.    Where I was -- where the photograph was  
23          taken?

24 Q.    Yes.

1 A. Yes. Well, it's on the pond. I'm not sure  
2 exactly. I know the pond is state-owned.  
3 There's... I didn't -- I didn't distinguish,  
4 I guess, because I don't know where  
5 boundaries are. But it's certainly -- the  
6 sanctuary is entirely around the pond.

7 Q. Okay. Can you tell me which one of those  
8 towers is T9?

9 A. No.

10 Q. So you don't know which one is T10 either.  
11 You know, I'm asking because you  
12 recommended --

13 A. Yeah, yeah. Yeah, I'm not sure which one is  
14 T9 on this one.

15 Q. Okay. So I assume, then, you didn't do a  
16 visual simulation to show what the towers  
17 would look like if we adopted your  
18 recommendations to eliminate T9 and 10 and  
19 reduce the height of the towers.

20 A. No.

21 Q. So how do you know, then, if we adopt that  
22 mitigation plan, that it would be adequate to  
23 preserve the Willard Pond in the way that you  
24 think is necessary?

1     A.    Well, when I made that recommendation, it's  
2           partly because of Willard Pond.  It's partly  
3           overall because of many different viewpoints  
4           of the project.  Because even from Gregg  
5           Lake, from many of the vantage points, there  
6           would be a difference between seeing 8  
7           turbines and 10 turbines, just in terms of  
8           the scale of the project and the proximity,  
9           of course, the proximity of the turbines to  
10          the pond, and partly because that limits  
11          the -- it also limits the amount of roadway  
12          this is required coming in close proximity to  
13          the Willard Preserve.

14    Q.    Do you think that any of the roadway would be  
15           visible from this vantage point?

16    A.    No, I don't think so.

17    Q.    Okay.  You see the tower to the left of the  
18           two turbines on the right-hand side in that  
19           picture?

20    A.    Yes.

21    Q.    Is that the met tower, or is that a cell  
22           tower that's existing?  Do you know?

23    A.    That's the proposed met tower.

24    Q.    It's not the one that's there right now?

1 A. Oh, sorry. I'm trying to remember if we -- I  
2 think we -- I think it is the proposed -- it  
3 is the proposed met tower.

4 Q. Okay.

5 A. Yeah, because I think it would be -- the  
6 existing one wouldn't read on this  
7 photograph. They're very hard to pick up  
8 with a camera.

9 Q. Oh, are they -- well, it's harder to see,  
10 obviously, than the wind turbines.

11 A. Yes.

12 Q. Okay. So if I understand your testimony, it  
13 would be better if it had less turbines and  
14 the turbines were less high, that the visual  
15 impact would be less than it is now, but  
16 there would still be a visual impact.

17 A. Yes.

18 Q. Then your testimony is that that visual  
19 impact would no longer be unreasonable?

20 A. Well, that plus the other recommendations  
21 that I made. But yes.

22 Q. Okay. If the Applicant decided that -- let  
23 me start over.

24 If we made those conditions, and they

1 had to build the shorter towers, and they had  
2 to eliminate two of them, and the Applicant  
3 decided that the project was no longer  
4 financially viable because the power  
5 generated by that configuration wouldn't  
6 exceed the cost of building it, would that be  
7 a good result, that the project would be  
8 eliminated?

9 A. So I think --

10 MR. ROTH: Madam Chairman, I  
11 know this is kind of unusual to object to a  
12 question by the Committee. But her expertise  
13 and her role is not to decide the ultimate  
14 policy question about whether a wind farm  
15 should or should not be built on this site.

16 MS. BAILEY: I understand.  
17 But I think she has lot of experience in  
18 wind-development siting, and I think she has  
19 an opinion about the value of wind energy.

20 BY MS. BAILEY:

21 Q. Do you have an opinion about the value of  
22 wind energy?

23 A. Well, I do.

24 MS. BAILEY: So I don't think

1       it's an unreasonable question to ask her  
2       opinion. Perhaps the other chairman could  
3       help me out on this.

4                   MR. ROTH: I'm not going to  
5       argue with you on this, but I just wanted to  
6       voice my objection. I think it's perhaps  
7       going too far to ask her for that ultimate  
8       conclusion. That really is up to you.

9                   CHAIRMAN IGNATIUS: I think  
10      it's fair to ask her her point of view, if  
11      you want to pursue it.

12 BY MS. BAILEY:

13 Q. I'd like to know your point of view.

14 A. So one of the things that this project has  
15      made me think about is that it is somewhat  
16      unfortunate that, to me, as I look at this  
17      project, there were some big red flags there  
18      from the outset. I don't know if anybody  
19      ever said this to the developer. But if you  
20      compare this project with Lempster, they are  
21      night and day. Lempster is hardly visible  
22      from anywhere. It's the perfect project.  
23      Here we are, five miles, ten miles away, and  
24      this is a very, very different setting. So



1       my feeling is that -- and I guess what I feel  
2       sad about is that, had there been some kind  
3       of state agency that could look at this and  
4       say, Look, you've got some really red flags  
5       here. You might want to think about a  
6       different kind of project here, because a lot  
7       of time and money goes into the planning for  
8       these projects. And anybody could have  
9       looked at this. I don't think that what I'm  
10      saying is quite shocking -- exactly shocking.  
11      Looking at this compared to some other  
12      projects, it is -- you've got a lot of public  
13      resources.

14             And so I guess the answer to my question  
15      is: The reason I thought this was a good  
16      wind site generally is because it's near  
17      power. It's a ridge that isn't -- isn't too  
18      difficult, I think, to get up on, in part.  
19      But on the other hand, it's got some real  
20      impacts. And I guess I think that this is  
21      something that it would be nice to start that  
22      discussion a little bit earlier in the  
23      process to get a project that is  
24      appropriately scaled to the site. And I

1 think that's really important to do, because  
2 you're going to be -- well, there will be  
3 many more of these projects, and I think it's  
4 important to get them right. Because when  
5 you get them wrong, that's when the public  
6 is -- the wind energy doesn't fly. It's --  
7 so I guess that's my -- if that is clear.

8 The basic answer is: This needs  
9 mitigation. And I'm sort of guessing that  
10 the changes can be made. But it would have  
11 been easier for them to have been made  
12 earlier in the process.

13 Q. Okay. Do you remember the conversation you  
14 had with Ms. Manzelli about defining "scenic  
15 views," and it was based on some research  
16 that was done in the '70s, I think you said?

17 A. Oh, yeah. I think I was talking about the  
18 U.S. Forest Service's methodology.

19 Q. And I think what I heard, or what I took away  
20 from that discussion -- and correct me if I'm  
21 wrong -- that's the question. The way we  
22 think about a scenic view -- the way the  
23 general population thinks of a scenic view  
24 is this definition that was based on how we

1 think of scenic views, how we thought of the  
2 scenic views in the '70s?

3 A. Okay. So what the -- there are a range of  
4 different principles and ways of seeing  
5 landscapes. They're not new. They probably  
6 go back to the days of the ancient Greeks and  
7 well before. They are the same principles  
8 that artists use in terms of looking at  
9 visual objects, visual places, whether it's  
10 towns, cities, countrysides. And so, I mean,  
11 just to give you an example that the U.S.  
12 Forest Service uses, they have a -- to  
13 some -- the terminology has changed a little  
14 bit, but the idea is basically the same.

15 So there is a diversity or a variety  
16 rating. So, in other words, if you think  
17 about a flat forest, there's much less visual  
18 diversity in that than hills. You add a  
19 lake, you add a waterfall, something, you're  
20 increasing the visual diversity. So, I mean,  
21 that's an example of one of the basic  
22 principles. And that is what is sort of the  
23 basis for looking at landscapes and  
24 evaluating sort of the variety rating. They

1       have different categories of common  
2       landscapes. Minimal landscapes, which would  
3       be ones with a lot of, for example,  
4       industrial development; common landscapes,  
5       which would be sort of ordinary, maybe some  
6       woods or something like that. And  
7       "outstanding" isn't the word they use. It's  
8       something else. But those would be ones with  
9       a high degree of variety of things like  
10      diversity in slopes. They look at diversity  
11      of slopes, diversity of water features,  
12      diversity of vegetation, patterns of  
13      vegetation, field and forest maybe. That is  
14      one of the basic underlying principles. So  
15      it's very -- you can use that over and over  
16      again to look at whatever landscape you're  
17      looking at. Then you have to look at some of  
18      the detracting elements that come in. So  
19      there are a number of basic principles like  
20      that.

21           And then, to some extent, what the  
22      other -- one of the other considerations that  
23      is used by the Forest Service, that Mr.  
24      Guariglia talked about to some extent, was

1       the idea of contrast. You have an existing  
2       condition. You introduce something new. To  
3       what extent does it contrast with what's  
4       there in form, line, color, texture,  
5       something like that? And, of course, you  
6       know, wind energy projects have -- are fairly  
7       highly contrasting because they're located in  
8       highly visible locations on top of a ridge;  
9       they're white. On the other hand, one of the  
10      attributes of wind energy projects that helps  
11      them is that there is a kind of uniformity of  
12      the elements. You're not having a wind  
13      turbine next to a cell tower, next to a silo,  
14      next to I don't know what. So there is  
15      something that tends to hold them together.

16           I'm sort of rambling a bit here and  
17      probably going way too far than I need to.  
18      But I guess the idea is that there are a  
19      number of basic principles that you can begin  
20      to look at, in terms of the degree to which  
21      your project will contrast with the existing  
22      conditions and how it affects that, the  
23      relative scenic quality of the existing  
24      condition. So, Willard Pond is a great

1       example; a landscape with high scenic  
2       quality; water; rocky; you know, hills up  
3       above; diverse vegetation; very little  
4       detracting elements.

5     Q.   And do you know if any research has been done  
6       about how the public perceives wind towers  
7       when they're introduced into the scenery?

8     A.   There has been some.  Unfortunately, most of  
9       what I have seen to date has been focusing on  
10      much smaller turbines than -- they were the  
11      old ones.  So there have been some books.  
12      There's one called Wind In View.  But I have  
13      not found it particularly helpful because  
14      it's -- it looks at more situations that  
15      occur out in California, not the kind of  
16      situations we have here.  So I am --  
17      unfortunately, I have not seen any great,  
18      what I would consider to be really excellent  
19      studies of wind projects.  And what we have  
20      here in New England is somewhat distinct  
21      because they are on these bigger ridges.  We  
22      definitely need them.  We need studies.

23    Q.   Okay.  Thank you.

24                   MS. BAILEY:  Mr. Iacopino.

1 MR. IACOPINO: Thank you.

2 INTERROGATORIES BY MR. IACOPINO:

3 Q. Good afternoon, Ms. Vissering. I have a few  
4 questions for you, but first, just a couple  
5 of housekeeping ones to make sure I  
6 understand that I got it right.

7 You indicated in your -- during your  
8 cross-examination by Ms. Geiger, when she  
9 asked you to look at AWE 17, you referenced  
10 that you considered the designation of  
11 priority area for land conservation as being  
12 one of the criteria that came from the local  
13 government that informs your opinion about  
14 this particular project; correct?

15 A. It was informing my opinion particularly with  
16 regard to the question of the conservation  
17 that -- but yes.

18 Q. At that time, you also indicated that it was  
19 that and some other statewide initiatives.  
20 I'm just curious as to what those statewide  
21 initiatives are that you believe existed with  
22 respect --

23 A. Oh, that was the Quabbin-to-Cardigan that I  
24 referred to.

1 Q. Okay. So it wasn't -- it was not the State  
2 of New Hampshire type of -- I mean, in other  
3 words, nothing -- no government-sponsored,  
4 state-sponsored initiative.

5 A. No. Various state agencies are involved in  
6 that, so it's not -- it's sort of state --  
7 it's a coalition, I think, of state and  
8 private entities and nonprofit entities.

9 Q. You indicated that, early on in your  
10 testimony, I think it may have even been  
11 during your direct testimony, that there was  
12 a Vermont project that had the same values  
13 and conservation measures as this one. Is  
14 that the Lowell project that you're talking  
15 about?

16 A. Yes, that I was referring to.

17 Q. And yet, Lowell is roughly twice the size of  
18 this proposed project?

19 A. Yes. So you'd have to kind of take that into  
20 consideration in looking at what was  
21 recommended.

22 Q. And do you know what the turbine sizes are in  
23 Lowell?

24 A. They're using -- that's a very big mountain.



1           They're using the 3-megawatt, I think is what  
2           they ended up with. I don't know which  
3           turbine, though.

4   Q.   And do you know what the turbine heights are  
5           in Lowell?

6   A.   They are -- no. But they're probably  
7           comparable to what is being proposed here.  
8           But of course -- yeah, that was a very  
9           different situation, in terms of the -- how  
10          it was seen and the size of the mountain.

11   Q.   Well, the ones here are almost 500 feet.

12   A.   Yeah.

13   Q.   Does that --

14   A.   No, I know, and --

15               (Court Reporter interjects.)

16   Q.   You worked on the Lowell project. Do you  
17          recall what the size of those turbines would  
18          be?

19   A.   I think they amended their application after  
20          I was involved to use a different type of  
21          turbine. So I'm not exactly sure what's  
22          being proposed. But as I said, I think  
23          they're comparable to what is being proposed  
24          here in size.

1 Q. You also compared the Lowell project to the  
2 Sheffield project in Vermont. And you  
3 indicated that -- I thought you said that  
4 Sheffield's larger turbines required more  
5 construction impacts.

6 A. It was the opposite.

7 Q. Lowell?

8 A. It's the Lowell project, yeah.

9 Q. Okay.

10 A. Yeah, there's been a lot of discussion in the  
11 state, because one of the projects seemed to  
12 have far fewer impacts than the other. The  
13 Sheffield project had far fewer impacts than  
14 the Lowell project.

15 Q. And you attributed some of the difference  
16 between those two projects to the impacts of  
17 construction -- building the roads, building  
18 the turbine pads -- and that, I think, if I  
19 understood you correctly, you're asserting  
20 the proposition that there is more visibility  
21 of roads and turbine pads as a result of  
22 using these larger turbines.

23 A. I was -- the difference seems to be -- there  
24 is some more visibility with the Lowell

1 project, but that's mostly because there are  
2 nearby high-elevation areas. Not very  
3 nearby, but six miles away. But it is seen  
4 from above.

5 But, no, the real differences seem to be  
6 simply in the effect on the mountain  
7 landscape itself, not necessarily from public  
8 vantage points, and which was interesting to  
9 me, less as a concern from sort of off-site  
10 aesthetics, as just lessons to be learned in  
11 terms of how to minimize the amount of  
12 regraded, altered landscape within a mountain  
13 setting.

14 Q. Okay. So you're sort of outside your area of  
15 expertise. You're actually talking about  
16 environmental issues and ecological issues.

17 A. Yes, exactly.

18 Q. Okay. So, from a visual impact, is -- let me  
19 understand. Is it your opinion that the  
20 larger turbines cause a larger visibility of  
21 both turbine pads and roads once a project is  
22 constructed, or not?

23 A. Yes. I mean, the reason I was interested in  
24 this is that the more -- the larger the

1 turbine pad has to be and the wider the  
2 roads, the greater the likelihood for any  
3 kind of off-site visibility even from below,  
4 because, depending on the terrain, you know,  
5 there's substantial cut and fill slopes  
6 involved with these projects. And so there  
7 is the potential for some exposure of cut and  
8 fill slopes, not just, as I said, turbine  
9 emerging from the forest, but actually seeing  
10 from another vantage point the cut and fill  
11 alteration. So, with that concern in mind  
12 visually, that's why I was interested in the  
13 difference between those two projects.

14 Q. Did you do any comparison of, for instance,  
15 construction plans between those two  
16 projects?

17 A. I've been trying to get a hold of  
18 construction plans, and I've not been able --  
19 I actually have the Lowell ones, but I don't  
20 have the -- I don't have the Sheffield ones.  
21 And I've wanted to look at the differences.

22 Q. Have you done any analysis, for instance, of  
23 what the road widths will be at the end of  
24 construction between those two, the Sheffield

1 plant and the Lowell plant?

2 A. One of the differences seemed to have been  
3 that the -- at the Sheffield project, the  
4 turbine pads were very small because of a  
5 construction technique that they used which  
6 required only a single part of the turbine at  
7 a time. Each one was brought up, erected,  
8 and then another one. So the turbine pad  
9 didn't have to store every part of the  
10 turbine as it did at Lowell, so the turbine  
11 pads only needed to be large enough to hold a  
12 very small amount of equipment.

13 Q. But I guess my question is: Have you done  
14 any sort of analysis of what the actual, at  
15 the end of construction, what will be visible  
16 and what will not be on those two projects  
17 and then compared them to each other?

18 A. From off-site visibility, I have not at this  
19 point.

20 Q. Do you know what the after-construction road  
21 width is expected to be with respect to the  
22 Antrim project?

23 A. There's the access road. I know I've -- I  
24 was aware of these. I believe that the

1           access road was somewhere in the vicinity of  
2           something like 16 feet, finished.

3   Q.    Okay.

4   A.    The summit road --

5                       MR. ROTH:  Ms. Vissering, if I  
6           may, it's in your report on Page 2.

7                       THE WITNESS:  Thank you.  I  
8           knew it was in there.

9                       (Witness reviews document.)

10   A.   Yeah, the access road is 16 feet.  And then  
11       it will extend to 30-foot wide, with a 9-foot  
12       crane path on either side it says, with  
13       additional widths required for clearing and  
14       grading.  The crane path does get revegetated  
15       generally with the remaining 16-foot-wide  
16       road, though I --

17   Q.    So the road width is expected to be 16 feet  
18       wide, for the most part, throughout the  
19       project.  How does that compare with what  
20       you've observed at Lowell and Sheffield, I  
21       guess?

22   A.    I think that it's pretty -- it's pretty  
23       identical to Lowell.  And I don't know about  
24       Sheffield because, as I said, I haven't been

1           able to get a hold of the plans.

2       Q.    You have indicated -- and I'm going to jump  
3           off of something that Ms. Bailey asked you.

4            You indicated during your direct  
5           examination that you've taught at the  
6           University of Vermont, I guess, courses in  
7           scenic quality, or that deal with scenic  
8           quality.

9       A.    Yeah, Visual Resource Planning.   Hmm-hmm.

10      Q.    And you indicated that that sort of field of  
11           study is based upon the study of human  
12           perceptions of the viewscape, I guess; is  
13           that correct?

14      A.    Yes.

15      Q.    It's fair to say human perceptions change  
16           over time; isn't that correct?

17      A.    To some extent.   And they're also  
18           geographically based.   I think one of the  
19           things in the research is it's often  
20           important as to whether you're talking about  
21           New England, California, out West.   Those are  
22           different -- there are likely to be -- the  
23           same principles will be involved, but  
24           specific perceptions, for example, of timber

1       harvesting would be different.

2       Q.   And are those changes in perceptions over  
3       time, are those studied in your field as  
4       well?

5       A.   There's always research going on, in terms of  
6       people's perceptions. And, yes, they do  
7       change over time.

8       Q.   Is acceptance of new things one of the things  
9       that lead to changes in perception?

10      A.   Yes. And there's quite a few examples of  
11      that. But landscapes change. We have new  
12      technologies, and we do adapt to those.  
13      Power lines have remained consistently  
14      unappealing. I will say that from the  
15      studies.

16      Q.   But that's not this case.

17      A.   Exactly. On the other hand, there certainly  
18      are -- I think new forms of technology do  
19      become more acceptable.

20      Q.   Are there any studies in that regard, with  
21      regard to wind turbines, as far as you are  
22      aware?

23      A.   The only study that I am aware of is one with  
24      the Searsburg project, the old Searsburg



1 project, which was -- the turbines were under  
2 200 feet tall -- in which they did a survey.  
3 This was Jim Palmer, who was hired by the  
4 power company, Green Mountain Power I think  
5 it was, that developed the project. He did a  
6 pre-construction survey to find out people's  
7 attitudes and then did a post-construction  
8 survey to find out people's attitudes. And  
9 generally, the project appeared to be an  
10 increase in acceptability following the  
11 construction of the project.

12 Q. And was Mr. Palmer's paper peer-reviewed?

13 A. Yes. I think you could probably find it if  
14 you Googled it.

15 Q. I was told earlier today to "just Google"  
16 something. So I'll get good at that.

17 Okay. During the course of your  
18 testimony, you sort of indicated -- you  
19 didn't sort of -- you testified, and I think  
20 it's in your report as well, that you look at  
21 the places to assess based upon the values of  
22 the resource; is that correct?

23 A. Yes.

24 Q. And you seem to have a list of what the

1       pertinent values are that you look for. And  
2       I think it's right in the beginning of your  
3       report, if I can find it now. I think there  
4       are seven of them that you list on Page 4 of  
5       your visual impact assessment.

6               (Witness reviews document.)

7   A.   Yes.

8   Q.   In there you call them "visual  
9       sensitivities." Are those synonyms, "values"  
10       and "visual sensitivities"?

11   A.   Yeah, I wanted to clarify, because what I  
12       looked for initially was not the value of the  
13       location, but the character of the area. So,  
14       what are its existing attributes, which may  
15       include -- which might include a value such  
16       as this is recreation area. So it has  
17       that -- that would be one of its particular  
18       values.

19               But then, this would be a way of looking  
20       at kind of sifting through some of the many,  
21       many viewpoints that -- and I think there  
22       were hundreds of them that were identified by  
23       Mr. Guariglia -- and say these are the ones  
24       that I want to focus on for these reasons,

1           that they have -- their value might go up  
2           because of certain attributes -- or the  
3           concern.

4    Q.    You recognize that people in other endeavors  
5           may have a different list of values when they  
6           look at the same areas.

7    A.    So, okay.

8    Q.    I mean, is that true?

9    A.    Well, yes.  So, for example:  I mean, I'm  
10           saying that it's used by the public.  
11           Obviously, there's people here for whom the  
12           fact that it's their home is a consideration,  
13           yes.  But that's -- that, to me, is where I  
14           -- looking at the state resource or the  
15           concern to the state is focused.

16   Q.    You recognize, though, that other people  
17           could look at the Willard ridge, and a logger  
18           would look at it and say, hey, I can make a  
19           lot of money by harvesting a whole bunch of  
20           timber off that ridge; right?

21   A.    But the logger is not doing a visual impact  
22           assessment, and I am.

23   Q.    I know.  But you're saying that's based on  
24           values, though; right?

1     A.     I'm saying that it's based on visual values.  
2           And the visual values come out of -- the  
3           visual values come out of methodology of  
4           study of practice.  So, while it's true -- I  
5           mean, I actually am doing a timber harvest  
6           study right now for the State of Vermont, so  
7           I can relate to that.

8                     But nevertheless, even in timber  
9           harvesting, foresters now are trained in  
10          aesthetic values.  I mean, that is one of the  
11          considerations in forest harvesting that  
12          becomes important, because people care about  
13          it.  And I think that what I'm trying to do  
14          here is look at the aesthetic attributes of  
15          the landscape and to make some determination  
16          based on a logical set of criteria as to what  
17          extent might this project -- this particular  
18          project, not a logging project, but this  
19          project affect the existing condition.  And  
20          part of that has to be to understand how --  
21          part of understanding how much it might be  
22          affected would be these variables here.  It  
23          would be affected because it's very close,  
24          because there's something unique about it,

1       because there's an extended duration -- these  
2       are all basic principles used in almost every  
3       methodology -- duration of view, that you can  
4       actually see the project.

5               And the reason that I give a high --  
6       have a high concern about the natural setting  
7       is that, when you are in a setting, a built  
8       setting -- that's one of the reasons for the  
9       town center -- you're in a built setting or  
10      you're in among many other -- you're in a  
11      developed landscape. That's a different  
12      kind -- character of an area. There are  
13      places that have identified recreational,  
14      scenic or cultural values. That gives me  
15      some clues. They're identified as  
16      "recreational" settings. So those are --  
17      those have to be the -- that's part of the  
18      sifting process.

19   Q.    So you would use these same criteria if you  
20       were reviewing a wind farm, a logging plant  
21       or a housing development --

22   A.    Yes.

23   Q.    -- to be on that ridge?

24   A.    Yes.

1 Q. Okay. During your cross-examination by Ms.  
2 Geiger, I believe you were asked whether it's  
3 possible that on -- that the Gregg Lake  
4 simulations that you did and the Goodhue Hill  
5 simulations, whether another expert might  
6 view the impact differently. And I believe  
7 in those two cases you assigned a "moderate  
8 to significant" impact. And you indicated  
9 it's possible; is that right?

10 A. In any -- most visual impact assessments that  
11 I have seen, there are basically some similar  
12 criteria that are used for doing the visual  
13 assessment, which is very similar to mine. I  
14 mean, I think we can all agree what the  
15 character of the area is. We can certainly  
16 agree as to what will be seen. And these are  
17 the criteria that are often identified  
18 through many different methodologies as to  
19 why we -- why -- the degree of impact. And  
20 that's obviously where we disagree on the  
21 degree of impact.

22 My feeling is that I look at this, and I  
23 look -- based on my experience and my  
24 knowledge, I try as best I can to articulate

1       these are the impacts -- this is the  
2       resource, these are the impacts, and why.  
3       That's my job, to come to a conclusion and to  
4       back up that conclusion with some kind of  
5       logic.

6   Q.   I understand what you did and the way that  
7       you came to your conclusion. The question I  
8       thought was posed to you, and maybe I  
9       misunderstood the question, but was that, if  
10      somebody else applied the same criteria that  
11      you applied, that they could come up with a  
12      different classification for those two views,  
13      Gregg Lake and Goodhue Hill. In other words,  
14      you put them in the moderate to significant  
15      range. The way I understood your answer was  
16      someone else applying the same criteria as  
17      you might put them in the moderate range or  
18      maybe in the significant range. Is that the  
19      right way to understand your answer to the  
20      question?

21   A.   I think, clearly, it's possible. You've  
22       probably had many people in front of you  
23       looking at the same resource and the same  
24       project --

1 Q. Actually, you're one of the most frequent.

2 A. Oh, dear. No, I mean, in my experience, that  
3 happens -- having sat on different sides of  
4 the table, and I have -- but I like to think  
5 that I can logically explain why I come to my  
6 conclusions.

7 Q. Right. But I guess my point that I'm getting  
8 at is another expert might come to a  
9 different conclusion, and using your same  
10 criteria be able to logically explain their  
11 conclusion; is that right? I mean, do you  
12 disagree with that? Or is your  
13 classification of "moderate to significant"  
14 the only classification that anybody with  
15 your expertise could come up with on  
16 viewing -- on assessing those impacts?

17 A. Oh, I see. Okay. Well, in terms of the  
18 "moderate to significant," that particular  
19 nomenclature --

20 Q. Well, any of your assessments. I mean, the  
21 question goes to any of your assessments.  
22 She happened to ask about those two.

23 A. Okay. So you're talking generally about the  
24 way I go about looking at --



1 Q. Yeah, but I'm not asking you to explain  
2 again, because I think you explained it well.  
3 The point is that, the way I understood --  
4 and I may have misunderstood your answer  
5 before. But the way I understood your answer  
6 was that you conceded to Ms. Geiger that,  
7 applying the same criteria, you might come up  
8 with the classification that you did. And  
9 let's say you came up with moderate as  
10 opposed to being on the cusp of moderate  
11 to -- you might come up with moderate. But  
12 another expert might say it's minimal or  
13 might say it's significant, depending upon  
14 who the expert is, but using the same  
15 criteria.

16 A. I think that that is -- I think that it is  
17 definitely -- it is possible that somebody  
18 would come up with a different conclusion  
19 than I did. I would hope that they would  
20 have explained in detail why they came to  
21 that conclusion --

22 Q. Okay.

23 A. -- because I guess that's something I feel  
24 very strongly about. I need articulating the

1 reasons in a way that somebody can  
2 understand. The logic and rationale is  
3 important.

4 Q. And I agree with you. I guess my point,  
5 though, is you do believe that it is possible  
6 for two people, reasonably experienced like  
7 yourself, to come up -- using the same  
8 criteria, to come up with a different  
9 classification at the end of the day.

10 A. I've seen it in the past.

11 Q. Okay. Also, and I just... you testified  
12 about the unfragmented habitat being one of  
13 the values for your assessment. And we heard  
14 earlier in this proceeding about unfragmented  
15 land in the context of wildlife and the  
16 environment. I'm sure we're going to hear  
17 more of that as well.

18 I just want to be sure. When you're  
19 talking about "unfragmented habitat," you're  
20 only talking about it from the visual  
21 standpoint; is that correct?

22 A. Yes.

23 Q. Okay. And can you explain how the fact that  
24 the -- all right. Let me back up.

1           It wouldn't -- you wouldn't want to get  
2           into an argument, then, whether or not the  
3           proposed project actually fragments the land  
4           up there from an ecological or environment  
5           standpoint.

6   A.   Technically, that's not really my concern.

7   Q.   So what is the concern with the unfragmented  
8           habitat, solely from the visual point of  
9           view? I mean, why is it that that becomes  
10          such as a value?

11   A.   I was largely talking about that in  
12          connection with the easements. And the  
13          reason those become important visually is  
14          because of the importance of the ridgeline  
15          generally. Ridgelines in general, this one  
16          in particular, to a -- to the undisturbed  
17          forest habitat along that ridgeline is part  
18          of its visual appeal at the moment. It is  
19          something that is very different from seeing  
20          houses up there, for example. The  
21          undisturbed forest landscape is something  
22          that is visually important and that, to some  
23          extent from viewpoints, at least one  
24          viewpoint would be lost. But to the extent

1           that that is part of the compensation for the  
2           project on top of the hill, that would be a  
3           mitigation. In other words, we have the wind  
4           project, but at least the rest of the hill is  
5           not developed.

6    Q.    You started off saying that your concern with  
7           the unfragmented habitat had to do with the  
8           easements. You're talking about the 625 --  
9           or 675 acres of easements that's been  
10          offered -- conservation easements that's been  
11          offered in the vicinity of the project?

12   A.    I missed the first part of your question.

13   Q.    You said -- when I asked you about the  
14          unfragmented habitat, you said you were  
15          talking about that in the context of  
16          easements.

17   A.    That's correct.

18   Q.    And the easements you're referencing are the  
19          675 acres that --

20   A.    Yes --

21   Q.    -- has been set aside with the Harris Center.

22   A.    Yes.

23   Q.    All right. And actually, you seem to have  
24          both the quantitative and qualitative problem

1           with those easements. You don't think that  
2           it's enough land, and you don't think that  
3           the easements are good enough, if I  
4           understand you correctly.

5    A.    Yes, I think it's partly quantitative and  
6           it's partly qualitative, in the sense of it  
7           certainly is not an easement that doesn't  
8           prevent development, but it -- and it also  
9           doesn't protect the entire ridge.

10   Q.    Okay. The easements, as I understand them,  
11           they permit logging and they permit the  
12           building of a single-family home on each  
13           parcel, I guess it is. Is that your  
14           understanding?

15   A.    Yes.

16                               MR. ROTH: Madam Chairman, I'm  
17           sorry to interrupt Mr. Iacopino. We've  
18           been -- the witness has been on the stand for  
19           something like two hours now. I guess I  
20           would like to recommend that we take a break  
21           and give her and the reporter a small recess,  
22           not so I can consult, just so everybody can  
23           have a break.

24                               MR. IACOPINO: Well, I have

1           about five or ten minutes of questions.

2                       MS. BAILEY: Does the reporter  
3           need a break?

4                       THE COURT REPORTER: I'm okay.

5                       MS. BAILEY: You're okay?

6                       MR. ROTH: Ms. Vissering, are  
7           you all right for another five to ten  
8           minutes?

9                       THE WITNESS: Yeah, that would  
10          be fine.

11   BY MR. IACOPINO:

12   Q.   So, as I understand it, those are two of the  
13          issues that -- concerns that you have with  
14          the conservation easements that have been  
15          proposed.

16   A.   Yes. And as you said earlier, the quantity  
17          or the extent of them, yes.

18   Q.   With respect to the issues with the easements  
19          that have been proposed, what -- is it  
20          realistic to believe that building  
21          single-family homes somewhere on these  
22          parcels is going to have a visual impact if  
23          these turbines are built?

24   A.   It's certainly possible. Are you suggesting

1           that because there's already turbines up  
2           there --

3   Q.   Well, I think --

4   A.   -- there's already an impact up there?

5   Q.   Well, isn't what you told us, the concern  
6           with the turbines becomes the focal point  
7           when somebody observes the ridge from the  
8           various viewpoints?

9   A.   So I guess -- I think maybe I could answer it  
10          this way: With a wind project, the idea of a  
11          wind project, but everything else is --  
12          retains the sort of condition of a natural,  
13          even if it's logged, forest is very different  
14          from houses in the high elevation. So I  
15          think one concern would be that -- would be  
16          that you'd be sort of, in addition to the  
17          wind project, adding new impacts, new visual  
18          impacts, in the form of visible houses.

19   Q.   And what about the logging aspect of it?  
20          Does that --

21   A.   I think the logging is pretty much consistent  
22          with the existing condition. It's a  
23          temporary -- it's a kind of temporary impact  
24          that over a few years tends to be very often

1 not particularly noticeable, and it evolves.  
2 It's green.

3 Q. If the easements had -- if the proposed  
4 easements had prohibited construction of a  
5 single-family home, but still permitted the  
6 logging, would that satisfy your qualitative  
7 concerns about the proposed easements?

8 A. I think if they were the kind of easements  
9 with no development, that would be an  
10 improvement. But I still have some concerns,  
11 as you indicated, with the --

12 Q. Quantity?

13 A. -- the quantity. Thank you. I'm losing it a  
14 little bit here.

15 Q. I only have a couple more questions.

16 You indicated that you believe that  
17 Lempster is a great project because it's not  
18 visible from anywhere. Have you been out to  
19 the Lempster project?

20 A. I've been out a couple times.

21 Q. Have you ever had the opportunity to drive  
22 down Route 10?

23 A. Yes. It's definitely very visible from  
24 Route 10.



1 Q. Have you ever had the opportunity to drive up  
2 County Road and go past the pond on County  
3 Road?

4 A. Is that the road that's sort of on the east  
5 side?

6 Q. If you're coming from Sunapee area, you bank  
7 a left at the little village. I don't --  
8 that's County Road.

9 A. I think I've been on it.

10 MR. ROTH: It goes towards the  
11 town of Washington.

12 MR. IACOPINO: Yes.

13 A. And I should say, I am aware that it's  
14 certainly visible.

15 BY MR. IACOPINO:

16 Q. Okay. What do you base the statement that  
17 it's "not visible from anywhere" or --

18 A. Nowhere --

19 Q. -- is it just some hyperbole?

20 A. No, no, no. What concerns me here, if this  
21 project were visible from some of the state  
22 roads and the town centers, I wouldn't -- I  
23 would not have many concerns at all. It is  
24 not visible -- there may be some slight

1 visibility from the state park that's on the  
2 other side. But other than that, there is  
3 very -- that might be the only resource, sort  
4 of recreational resource, kind of highly --  
5 what I would call a "visually sensitive  
6 resource" from which it is visible. Most of  
7 the road, there's already lots of development  
8 and there's power lines. This is a different  
9 context. This is not a place where from 25  
10 lakes and trails there is necessarily high  
11 visibility. And I shouldn't -- especially in  
12 close proximity with all of the turbines.  
13 It's very hard to see all of those turbines  
14 from anyplace around there.

15 Q. Okay.

16 A. And -- excuse me -- there were already three,  
17 at least three cell towers on top of that  
18 hill to begin with, maybe two. So this was a  
19 hill that already had development on it.

20 Q. And then the last question I have is -- you  
21 had mentioned being on the planning  
22 commission in your town, and you had  
23 suggested that there was some ability for the  
24 planning commission to do something to

1       discourage housing development in an area  
2       like Willard -- the Willard Ridge. I'm  
3       sorry. What did I say? I'm sorry.  
4       Conservation commission is what your  
5       testimony was. I think the point you were  
6       making was that the Antrim Conservation  
7       Commission could take some action to  
8       discourage housing development in the area of  
9       this project on the ridge.

10    A.   Oh, I did say -- at least I meant to say  
11       planning commission. That's what I'm on.  
12       They would be the governing body for  
13       development, unless we have a DRV in --

14    Q.   So, sort of like a planning board. We have  
15       the Antrim Planning Board.

16    A.   Yeah.

17    Q.   Okay. Now, is that based upon your review of  
18       the rules, either site plan rules,  
19       subdivision regulation, zoning code or any  
20       anything in Antrim? Or is that just the  
21       general understanding that you have based  
22       upon your own experience?

23    A.   So I recall reading in the town plan, there  
24       is language about the -- trying to encourage,

1       especially in these areas, using the kinds of  
2       tools like conservation subdivision, cluster  
3       development, that kind of thing, as a method  
4       for trying to avoid the impacts to the  
5       sensitive landscapes in that -- in those  
6       areas.

7       Q.    Okay.  So you believe that there is something  
8       in the Antrim ordinances that would provide  
9       the planning board with that authority?

10      A.    They would have some tools.  I mean, with  
11      these techniques, they're -- you can't always  
12      insist that somebody do it exactly the way  
13      you want them to do it, obviously.

14      Q.    And I lied because I said I only have one  
15      more question, but I do have one more.

16               With respect to your simulation on  
17      Goodhue Hill, you testified that there was  
18      obviously logging done in the vicinity of the  
19      viewpoint.  And I believe that that's not  
20      that chart that you have up, but it's on one  
21      of the charts that you have there.  I believe  
22      it's 1A.

23      A.    Yeah, there we go.

24      Q.    The top two.  Okay.  That's actually 1C.  I'm

1       sorry. 1D. That's actually 1D that you have  
2       up right now. The top two photographs were  
3       the ones that we're interested in. That's  
4       the Goodhue Hill viewpoint; correct?

5   A.   Correct.

6   Q.   And that's what you indicated had been  
7       recently logged?

8   A.   Yes. That was an intentional logging by  
9       Audubon to clear that. It was within the  
10      confines of an old field. It was an old  
11      field, and they were clearing it for partly  
12      view reasons and partly ecological reasons.

13   Q.   Okay. Well, that was going to be my  
14      question. How did you know it was done to  
15      create a view?

16   A.   Oh, because I spoke with the caretaker at the  
17      Audubon.

18   Q.   Do you know how long before the photograph  
19      was taken that it was actually cleared?

20   A.   Very recently is my understanding. Within a  
21      year, I believe. I think it had been the  
22      summer before.

23   Q.   If that had not been different than the view  
24      from that viewpoint -- I'm sorry.

1           If that had not been done, the view from  
2           that viewpoint would have been significantly  
3           different than presently existing in those  
4           photographs; correct?

5   A.   Certainly.  Yes.

6   Q.   I don't have any other questions.

7                   MS. BAILEY:  Okay.  Now it's  
8           time for our break.  And then we're going to  
9           have redirect, okay.  Thank you very much.

10                   MR. ROTH:  Thank you.

11                   MS. BAILEY:  Let's come back  
12           at 4:00.

13                   (Whereupon a recess was taken at 3:49  
14           p.m., and the hearing resumed at 4:12  
15           p.m.)

16                   MS. BAILEY:  Okay.  We're back  
17           on the record, and we're going to have  
18           redirect from Mr. Roth.

19                   MR. ROTH:  This is going to be  
20           very brief, I hope.

21                   REDIRECT EXAMINATION

22   BY MR. ROTH:

23   Q.   Ms. Vissering, during Attorney Iacopino's  
24           questions, he asked you about statewide

1           initiatives that you considered. And you  
2           listed, I believe it was Quabbin-to-Cardigan.  
3           Were there any others that you considered?

4    A.    I think we were talking about the Forest  
5           Legacy Project, the funding coming from  
6           Forest Legacy monies.

7    Q.    So you would consider the Forest Legacy a  
8           statewide initiative as well?

9    A.    It certainly involves state entities.

10   Q.    And were you aware that the western half of  
11          Willard Pond and all of Robb Reservoir are  
12          subject to Forest Legacy easements?

13   A.    I had known about Bald Mountain. But as I  
14          said, it was only because I had only looked  
15          at a year or two's worth of projects by the  
16          Forest Legacy Project. But that is my  
17          understanding, that that's -- that there was  
18          considerable land in that area that was  
19          preserved --

20   Q.    As part --

21   A.    -- with that money.

22   Q.    Okay. Thank you.

23               Also during Mr. Iacopino's questioning,  
24               you discussed briefly a visual impact

1 pre-construction/post-construction study for  
2 the Searsburg project. Do you think that the  
3 Searsburg project is comparable to this one?

4 A. That was the first Searsburg project, which  
5 was under 200 feet. So the turbines were not  
6 lit. They were very small. So it was  
7 certainly a single study done of a much  
8 earlier project.

9 Q. That was -- do you think that the study has  
10 any value or any valuable lessons for the  
11 Committee to consider with respect to this  
12 project in the town of Antrim?

13 A. I would be very hesitant to draw any  
14 conclusions based on one study at one  
15 particular site, just because every site is  
16 very different.

17 Q. Now, I also believe it was during Attorney  
18 Iacopino's questioning, there was a  
19 discussion about the degree of impact and  
20 whether other professionals such as yourself  
21 could reach a different conclusion following  
22 the same methodology. Do you remember that?

23 A. Yes.

24 Q. Okay. Do you think that another view about



1           this project than the one you reached would  
2           be correct?

3    A.    No.

4    Q.    Are you confident about that?

5    A.    I feel very confident in my own conclusions.

6    Q.    Okay. And was there -- as far as you know,  
7           is there any other visual impact study in  
8           this case where the same methodology was  
9           followed and a different conclusion was  
10          reached?

11   A.    No, there's no other -- there was no other  
12          study that used the same methodology.

13   Q.    And was any other -- did any other study  
14          using a different methodology reach different  
15          conclusions about specific resources in this  
16          case?

17   A.    Well, there was the -- there was certainly  
18          the approach that Mr. Guariglia used that was  
19          based primarily on the -- I would say largely  
20          on the simulations and the amount of area  
21          from which the project would be visible.

22   Q.    Okay. That's all I have for redirect. Thank  
23          you.

24                           MS. BAILEY: Thank you. Ms.

1 Vissering, thank you for your testimony. You  
2 may be excused.

3 Okay. Let's prepare for Mr.  
4 Tocci. I'm going to use the phone to call  
5 Mr. James so that he can listen on mute.

6 (Pause in proceedings)

7 (WHEREUPON, JAMES TOCCI was duly sworn  
8 and cautioned by the Court Reporter.)

9 JAMES TOCCI, SWORN

10 DIRECT EXAMINATION

11 BY MR. ROTH:

12 Q. Good afternoon, Mr. Tocci. Or is it evening?

13 A. Close.

14 Q. I'd like to start with you introducing  
15 yourself. State your name and town of  
16 residence and occupation for the Committee to  
17 get to know you.

18 A. Yes. My name is Gregory C. Tocci, T-O-C-C-I.  
19 I live in Sudbury, Massachusetts, at 30  
20 Nobscot Road. I'm president of Cavanaugh  
21 Tocci Associates, and senior consultant --  
22 senior principal consultant with the firm.

23 Q. And what's your occupation?

24 A. Consulting engineer in acoustics.

1 Q. Okay. And can you describe for the Committee  
2 some of your qualifications and experiences?

3 A. Yes. I'm a professional engineer in the  
4 Commonwealth of Massachusetts and the state  
5 of Rhode Island. I am a board-certified  
6 noise-control engineer. I am a past  
7 president and first vice-president for board  
8 certification in the Institute of Noise  
9 Control Engineering. I'm a member and Fellow  
10 of the Acoustical Society of America and past  
11 president of the National Council of  
12 Acoustical Consultants.

13 Q. And are you the same Greg Tocci that produced  
14 the testimony that's in this case and that's  
15 in front of you there, I believe, as PC 2 and  
16 PC 5?

17 A. Yes, I am.

18 Q. Okay. And to the best of your knowledge and  
19 information and belief, is the testimony that  
20 you gave in those documents true and correct?

21 A. Yes, it is.

22 Q. Is there anything in there, in those  
23 documents, that at the moment you can think  
24 of that you would like to correct or amend?

1 A. No, there isn't.

2 Q. Okay. And if you were to be asked today all  
3 the same questions that are -- that you  
4 answered in those testimonies, would you  
5 answer them the same today?

6 A. I believe I would, yes.

7 Q. All right. I would like to call your  
8 attention to some of the prefiled testimony  
9 that was filed -- the supplemental prefiled  
10 testimony that was filed by Mr. Rob O'Neal.  
11 Are you familiar with that testimony?

12 A. Yes, I am.

13 Q. I'm going to ask you a couple questions about  
14 some of the statements that Mr. O'Neal made  
15 about your testimony and ask you to respond  
16 or clarify, as the case may be.

17 Now, in his testimony on Page 6, he  
18 described that -- he asserts that the  
19 experience that people have with Mars Hill  
20 and Falmouth are not applicable to the Antrim  
21 Wind situation, and one of the reasons is  
22 that the turbines -- I believe it's the  
23 turbine blades will have different sound  
24 profiles because of the pitch control/stall

1 control issue. Would you comment on that.

2 A. He has indicated that as being the case for  
3 Falmouth, that the wind turbine in Falmouth  
4 is a stall-controlled blade. And unlike  
5 pitch-controlled blades, at a certain point  
6 that they -- the sound levels will increase  
7 with increasing wind velocity, where a  
8 pitch-controlled reaches a certain sound  
9 power level, and the sound power level  
10 remains constant with increasing velocity.

11 Q. And why is that distinction not really -- why  
12 does that not really matter?

13 A. Well, in any event, the qualitative  
14 characteristic of the complaints that have  
15 been issued by people in Falmouth certainly  
16 bear merit here. The turbines here are  
17 larger, although they are variable-pitch  
18 machines, so they will plateau. Sound levels  
19 at Falmouth under high wind conditions could  
20 be noisier than they are here. But at high  
21 wind conditions, I don't have any further  
22 information on the characteristics of that  
23 turbine, however.

24 Q. Okay. Do you think that there's any

1 comparability between the Mars Hill  
2 configuration and the situation at the Antrim  
3 location?

4 A. More so in the sense that at Mars Hill, that,  
5 I believe, is also a variable-pitch turbine,  
6 but smaller in size than proposed here at  
7 Antrim.

8 Q. Okay. Mr. O'Neal also expressed the view  
9 that your technique of extending, if I'm  
10 getting this correctly, the sound energy from  
11 the machines proposed to be used in this case  
12 40 percent more, because of their greater  
13 size than what was used in Falmouth, is not  
14 reasonable. Do you agree with that?

15 A. I disagree. I disagree. At some point there  
16 will be a point where the sound power from  
17 the Falmouth turbine would be proportionately  
18 less than that produced by the proposed  
19 turbines at Antrim.

20 Q. So if I understand correctly, you think it's  
21 fair to sort of extrapolate based on the size  
22 of the turbine?

23 A. It's not unreasonable to expect that sound  
24 levels produced by the Antrim turbines would

1 be larger. But now having cited that the  
2 Falmouth turbines are stall-controlled and  
3 the complexity of sound power levels increase  
4 with the wind velocity obviously makes that  
5 much more complicated to say is it  
6 40 percent, less or more.

7 Q. Now, you were here when Mr. O'Neal testified  
8 a couple weeks ago in some of his rebuttal to  
9 your supplemental prefiled testimony. And I  
10 want to call your attention to a couple  
11 things and see if there's anything you want  
12 to clarify.

13 In his testimony, Mr. O'Neal said that  
14 15 decibels was never measured in the Antrim  
15 pre-construction studies done by you or by  
16 he. And can you explain your view on that?

17 A. It's true that it was never directly  
18 measured. However, when we corrected our  
19 noise data collected in an attended  
20 measurement during the night on one occasion,  
21 over the night, when we removed the sound  
22 produced by insects and a very small amount  
23 of sound produced by the microphone itself,  
24 we ended up with an estimated sound level of

1           15 decibels, or approximately 15 dBA.

2   Q.   And he also seemed to express that it was  
3       extremely -- in his words, "extremely,  
4       extremely rare" that you would find baseline  
5       levels of sound between 15 and 19 decibels.  
6       Do you agree with that conclusion in this  
7       kind of circumstance, in this kind of  
8       location?

9   A.   Well, in part. Obviously in a more built-up  
10       area, it be unusual to find sound levels this  
11       low. But we did find a sound level at two  
12       locations that are pretty far apart over the  
13       same evening. And so I'd say it's  
14       characteristic of this area and areas like  
15       it.

16   Q.   Okay. That's all I have in this regard.

17                   MR. ROTH: And the witness is  
18       now available for cross-examination.

19                   MS. BAILEY: Thank you.

20                   Mr. Froling.

21                   MR. FROLING: No questions.

22                   MS. BAILEY: Mr. Beblowski,  
23       Mr. Jones, Ms. Sullivan. Ms. Longgood.

24                   MS. LONGGOOD: Hi. Yes, I



1           have a few questions.

2                           CROSS-EXAMINATION

3   BY MS. LONGGOOD:

4   Q.   And again, my name is Janice Duly Longgood.  
5        I live at 156 Salmon Brook Road, which is  
6        very, very close to this project. Four of  
7        the turbines are within one mile of my home.  
8        And as I have read your testimony, it stated  
9        that the residential impact where the sound  
10       collector was on Salmon Brook is 800 feet  
11       away from where my driveway goes in. I am  
12       closer to the turbines than where the  
13       sound-collection unit was placed. I am  
14       closer in to the ridge. And it states that I  
15       could have a significant residential impact.

16               Can you explain to me, in your opinion,  
17       what will this be like for me with these  
18       turbines and the noise levels? And again, I  
19       apologize. I'm fairly ignorant about these  
20       kinds of matters.

21   A.   As I understand it, Salmon Brook Road is  
22        Location 3 in the study conducted by Epsilon.  
23        And I have determined that the baseline sound  
24        levels I've defined is about 32 dBA. So it's

1           very, very quiet.

2   Q.    It's extraordinarily quiet.

3   A.    And that if insects were removed from that 32  
4       dBA, that the adjusted background sound level  
5       would be very low, comparable to what we  
6       measured. And as I understand it, the  
7       turbine sound levels are expected to be 42  
8       dBA. That would be quite a large impact.  
9       Now, the background sound level, though, at  
10       this location -- Location 3 is 800 feet  
11       away -- I would expect the background sound  
12       levels at your residence would be about the  
13       same as what -- as they were measured at  
14       Location 3.

15   Q.    Although they were logging during that time.  
16       It's been verified when they were doing that  
17       during the day. I don't know if that would  
18       have been taken into consideration, but --

19   A.    That certainly would have contributed to  
20       background sound levels. But the background  
21       sound levels that Epsilon collected were over  
22       two weeks, and the baseline sound level that  
23       we used in looking at these data were mostly  
24       nighttime sound levels. So I'd expect that

1 logging would not have been an issue here,  
2 that we're still talking about the low sound  
3 levels. And they wouldn't be any lower than  
4 what we've suggested in our first  
5 supplemental prefiled testimony.

6 Q. So if I read this chart correctly, you're  
7 stating that the sound level with AWE would  
8 be 42?

9 A. That is correct, if you're reading chart --  
10 Table 2.

11 Q. Yes, I am. Have you known of any folks that  
12 have had adverse impacts from that kind of  
13 sound level?

14 A. My understanding is that, from the  
15 literature, is that complaints of sound  
16 levels below 32 dBA are rare, and that above  
17 30 dBA, the potential for complaints does  
18 exist. Now, in another document, I think it  
19 was the -- I don't have it in front of me.  
20 But I had looked at a study in the  
21 Netherlands, and from that construed that  
22 there would be a potential for complaints for  
23 sound levels as high as 40 or 42 dBA.

24 Q. Particularly since I've lived in this very

1           quiet environment for 28 years, I'm sure that  
2           this will have a significant impact; right?

3       A.     The statistics say that, yes, some people  
4           will have complaints, yes.

5       Q.     Hmm-hmm. And four of the turbines will be  
6           within a mile, the closest one being 3,000  
7           and something feet from my home and  
8           1,000 feet -- 1,800 feet from the property  
9           line. So, in your opinion, is there a  
10          collective effect of having that many  
11          turbines so close to my residence?

12      A.     I don't think it's a matter of the number.  
13           It's the aggregate sound level at your  
14           residence, which I understand is 42 dBA.  
15           Whether that would be produced by one turbine  
16           or a number of turbines I'm not sure makes a  
17           difference. It's the fact that it's 42 dBA.

18      Q.     Okay. Thank you very much. I appreciate the  
19           information.

20                               MS. BAILEY: Thank you.

21           Mr. Stearns.

22                               MR. STEARNS: No question.

23                               MS. BAILEY: Ms. Pinello or  
24           Mr. Levesque.

1 MR. LEVESQUE: No questions.

2 MS. BAILEY: Ms. Manzelli.

3 MS. MANZELLI: No, thank you.

4 MS. BAILEY: Ms. Allen.

5 MS. ALLEN: No questions.

6 MS. BAILEY: Mr. Block.

7 MR. BLOCK: Yes, thank you.

8 CROSS-EXAMINATION

9 BY MR. BLOCK:

10 Q. Good afternoon, Mr. Tocci.

11 A. Good afternoon.

12 Q. Let me find my notes here.

13 I read in your prefiled testimony, you  
14 made a statement that, on Page 20, right  
15 after that Table 2, says, "I am... of the  
16 opinion that criteria found to be suitable  
17 for residential areas are not acceptable for  
18 wilderness areas valued for their quiet."

19 A. Could you point that out to me, please.

20 Q. It's Paragraph 14 on Page 20 of your  
21 prefiled -- yeah, your supplemental  
22 testimony.

23 A. Yes, I have it here.

24 Q. It's right under Table 2, first sentence

1           there. "I am also of the opinion that  
2           criteria found to be suitable for residential  
3           areas are not acceptable for wilderness areas  
4           valued for their quiet."

5                   Going back to talking about Salmon Brook  
6           Road, where I assume you've visited now --

7   A.    I have not visited Salmon Brook Road.

8   Q.    You have not?

9   A.    No, I have not.

10   Q.   Okay. Based on the studies there, would you  
11       see that the area around Salmon Brook Road --  
12       and some of those areas are -- would you  
13       characterize that as closer to a residential  
14       area or closer to a wilderness area in sound  
15       character?

16   A.   In sound character, I'd say it's closer to a  
17       wilderness area.

18   Q.   And that's due to the low density of houses,  
19       I assume?

20   A.   In part, yes.

21   Q.   Okay. So actually, a wilderness area could  
22       be -- there can be people who live in what  
23       you might call a "wilderness" area.

24   A.   Yes.

1 Q. Would that be -- okay.

2 So the sound levels that I'm seeing here  
3 that you've projected in your Figure 2, if I  
4 read this correctly, it looks after your  
5 adjusted baseline, and particularly Locations  
6 2 and 3, Loveren Mill Road and Salmon Brook  
7 Road, look like they're extremely low; 19 and  
8 17 decibels, respectively?

9 A. Yes.

10 Q. Okay. That does make sense to me.

11 So if I'm reading this correctly, the  
12 final column in that impact, is that to be  
13 interpreted as basically the increase or  
14 difference that would happen after imposing  
15 the wind turbine noise on the -- on that  
16 environment? Is that correct?

17 A. Yes.

18 Q. Okay. So I assume that the higher level you  
19 see on there, the more effect one would  
20 notice.

21 A. Yes.

22 Q. Okay. Have you -- do you have any sense, or  
23 have you read any studies about people who  
24 live in these quiet areas, in terms of their

1 sensitivity to sound, are people who live in  
2 quiet areas more sensitive to sounds than  
3 people who live in, say, a residential or  
4 urban neighborhood?

5 A. I have no data to make that distinction. But  
6 it sounds reasonable if people move there for  
7 a quiet environment.

8 Q. So people might become accustomed to the  
9 quiet, who spend many years in that  
10 situation.

11 A. I imagine they could.

12 Q. Okay. That seems likely to me, too.

13 So you've got -- continuing on that  
14 page, you say that in wilderness areas within  
15 4,000 feet of the facility, wind turbine  
16 sound will exceed the background by 25  
17 decibels, 25 dBA. And then at the very  
18 bottom of that page you said, "Wind turbine  
19 sound would then dominate the acoustical  
20 environment in much of the remote area  
21 surrounding the AWE facilities, thus greatly  
22 diminishing the wilderness experience."

23 A. Yes.

24 Q. So do I understand from that, that it's your



1           opinion that the addition of sound of that  
2           wind turbine in that wilderness area is of  
3           significant concern?

4   A.    Yes, I would say so, at times.    Yes.

5   Q.    One second, please.

6                   (Pause in proceedings)

7   Q.    Do you think that there -- do you know of any  
8           mitigation methods that might be applied to  
9           decrease that sound problem?

10   A.   The only thing I know of are curtailing  
11           operations and possibly feathering blades in  
12           order the reduce the power generation or  
13           noise generation, although I can't say what  
14           that benefit would be.

15   Q.   Okay. But it sounds like either of those  
16           situations would have an effect also on  
17           production output, I assume.

18   A.   I would expect so, yes.

19   Q.   All right. No further questions. Thank you  
20           very much.

21                   MS. BAILEY: Thank you. Mr.  
22           Kimball.

23                   MR. KIMBALL: No questions.

24                   MS. BAILEY: Ms. Linowes.

1 MS. LINOWES: Thank you, Madam  
2 Chairman.

3 CROSS-EXAMINATION

4 BY MS.LINOWES:

5 Q. Good afternoon, Mr. Tocci.

6 A. Good afternoon.

7 Q. I have a number of questions for you. I'm  
8 going to be referencing a number of exhibits,  
9 and I'll just go down the list to make sure  
10 you have them.

11 The first would be your prefiled and  
12 supplemental testimony, PC 2 and 5. I'll be  
13 referencing Mr. O'Neal's report, which is the  
14 sound survey and the modeling, as well as  
15 four exhibits that I submitted as part of the  
16 record; these will be IWAG-N1, N4, N8 and N7.  
17 Okay?

18 A. I assume I have them here, but I don't have  
19 them in view.

20 Q. Okay.

21 (Discussion off the record between Atty.  
22 Roth and Ms. Linowes.)

23 BY MS. LINOWES:

24 Q. Mr. O'Neal's testimony and his report -- I

1           just want to make sure we're clear on what he  
2           set out to do, and so let me just verify this  
3           with you.

4                     There are two elements to his study.  
5           One was to measure the background sound  
6           levels pre-construction -- so, the current  
7           ambient back -- or background levels. Would  
8           you agree that's one component?

9   A.    Yes, I do.

10   Q.   And the second component is to model or  
11        predict the sound levels entered into the  
12        community once the project is operational.  
13        That would be the second element?

14   A.    Yes, it is.

15   Q.    Is there anything else that you recall that  
16        he did as part of his study, or would that  
17        cover it?

18   A.    In general, I would say that covers it.

19   Q.    Okay. Now, your testimony, in reading it, I  
20        just want to understand your intent. Your --  
21        you conducted -- or you evaluated the  
22        pre-construction -- or the background noise  
23        study that he had done, as well as conducted  
24        some background noise levels yourself. Is

1           that correct?

2    A.    Yes, it is.

3    Q.    And you also offer a recommendation for at  
4           least coming to some understanding of what --  
5           how a noise level can be reached -- or  
6           recommended noise level can be reached for  
7           the community post-construction. Is that  
8           about right?

9    A.    I don't quite understand what you mean.  
10          Could you repeat the question, please?

11   Q.    Your recommendation and your testimony, and  
12          I'll get to it later, is something along the  
13          lines of an incremental increase over  
14          background levels; correct?

15   A.    Yes. That's the way I would view an impact  
16          analysis.

17   Q.    But you did not do much work in your  
18          testimony or any of your analysis regarding  
19          the predicted modeling; is that correct?

20   A.    That's correct.

21   Q.    Okay. And does any of your analysis cover  
22          anything -- noise levels impacting anything  
23          other than the human experience?

24   A.    No. All I've covered is the human

1 experience.

2 Q. Okay. Now, have you ever conducted  
3 post-construction noise monitoring at an  
4 operating commercial wind energy facility?

5 A. No, I have not.

6 Q. Have you been asked to conduct  
7 pre-construction noise-level surveys in  
8 advance of a potential wind energy facility,  
9 other than what you did today?

10 A. Yes, we have.

11 Q. Okay. And what projects -- those are the  
12 projects that you list in your testimony?

13 A. That's correct. There may be additional ones  
14 since then.

15 Q. Okay. And have those projects been built?  
16 You want me to go through --

17 A. No, I think maybe the -- why don't I take a  
18 look at the list. And you're citing a list  
19 in my prefiled?

20 Q. Yes, that's correct.

21 (Witness reviews document.)

22 A. Sorry. My prefiled testimony doesn't list  
23 projects. There is another document --

24 Q. It may -- oh, your resume? I remember seeing

1           it. I didn't intend to reference -- get the  
2           list, but it's okay.

3    A.    It's listed in another document, but I don't  
4           have it in front of me, at least as part of  
5           submitted exhibits.

6    Q.    Okay. Well, Groton was one of them; right?

7    A.    Yes, it was.

8    Q.    But none of -- maybe this will help.

9           Of those projects that you remember  
10           conducting pre-construction noise studies, to  
11           your knowledge, have you -- has anyone  
12           conducted a post-construction study on those  
13           projects do you know about -- that you know  
14           about?

15   A.    Not that I can recall.

16   Q.    Okay. Now, are you familiar with the ISO  
17           9613-2 standard?

18   A.    Yes, I am.

19   Q.    And have you -- are you familiar with the  
20           CadnaA software?

21   A.    Yes, I am.

22   Q.    And what is that?

23   A.    CadnaA software is a computer program that  
24           allows the sound pressure level at receptor

1           locations to be determined on the basis of  
2           sound power levels produced by noise sources.

3   Q.   To be determined or to be predicted?

4   A.   No.  The noise source has to be known.  That  
5       data is entered into the model.  The model is  
6       used to predict what the sound pressure level  
7       is at a receptor location.

8   Q.   Okay.  Thank you.  And have you ever used  
9       that software?

10  A.   Yes.

11  Q.   Have you used it to model turbine noise  
12       propagation?

13  A.   It may have been done by others in my firm,  
14       yes.

15  Q.   But have you?

16  A.   We've done several projects.  And there have  
17       been associates of ours that used the  
18       software, but it was not under my direct  
19       supervision.

20  Q.   Okay.  Is that no?

21  A.   So I would say no.

22  Q.   Okay.  Now, I wanted to clear up some  
23       confusion that I think I'm still having.  On  
24       Page 5-1 of Mr. O'Neal's report, if you can

1 get -- bring that up --

2 A. Somebody want to point that out to me?

3 MS. LINOWES: Mike, do you  
4 know the exhibit number?

5 A. I did bring a copy with me, if I'm allowed to  
6 use that.

7 MS. LINOWES: Mike, do you  
8 know the exhibit number? I'm sorry.

9 MR. IACOPINO: AWE 3,  
10 Appendix 13A, electronic Document 25.

11 MS. LINOWES: Thank you.

12 BY MS. LINOWES:

13 Q. Now, on Page 5-1, under Section 5.2, he  
14 states, "An ambient sound level survey was  
15 conducted to characterize the current  
16 acoustical environment under varying wind  
17 conditions in the community." Is that -- do  
18 you see that?

19 A. Yes, I do.

20 Q. And then he goes on to say, "Current noise  
21 sources in the project area include: Noise  
22 from wind blowing through vegetation, birds,  
23 traffic," et cetera.

24 A. Yes.



1 Q. Okay. Now, his study was entirely largely  
2 unattended. And was that the case of your  
3 study, too, or -- you did indicate you  
4 attended it at some point. Was it largely  
5 unattended?

6 A. We did two studies, one unattended and one  
7 nighttime study attended.

8 Q. How long was the attended?

9 A. It was about eight hours, I think.

10 Q. Mr. Tocci, if you conducted an attended  
11 study, why is there a need to do an  
12 unattended study?

13 A. There is a definite need for doing an  
14 unattended study. The purpose of these  
15 studies is to answer the question: How quiet  
16 does it get? Now, that's a matter of leaving  
17 a monitor out for quite a long time without  
18 measuring, gathering enough data. It's  
19 possible that, you know, a full view of how  
20 quiet it gets may not occur. Now, it is  
21 necessary in placing monitors to be -- to  
22 consider the environment, to make sure that  
23 there are no constant noise sources in the  
24 vicinity that might otherwise influence the

1 data. For example: Streams or mechanical  
2 equipment, distant traffic perhaps might be  
3 an issue.

4 Q. Okay. That's very helpful.

5 So you're stating that the purpose, just  
6 to reiterate, when -- is to actually go to  
7 the most quiet point. Discover the most  
8 quiet point, or as quiet as you can find  
9 within an area; is that correct?

10 A. Well, not exactly. I think I would -- that  
11 may be the case. But I would say that when  
12 monitors are placed, they're placed with  
13 regard to where people occupy those areas,  
14 and certainly at a location that would be  
15 distant from any constant noise sources. So  
16 there is a judgment call that needs to be  
17 made.

18 Q. Okay. Then I'd like to draw your attention  
19 to Page 5-4 of Mr. O'Neal's study. And I'm  
20 at the bottom of the page. And if you look  
21 at -- it's 5.6.1. He has Location 1. Oh,  
22 I'll wait until you get there.

23 A. Yes.

24 Q. Okay. Now, he says, "Sound levels at the L1

1 monitor were influenced by vehicular traffic  
2 on Route 9, steady fan or water noise, leaf  
3 rustle, insect noise and bird calls." And  
4 then in the next -- leading into the next  
5 page, he says at the bottom, "The diurnal  
6 fluctuations in sound level... are very  
7 apparent at this location, driven mainly by  
8 engine and tire noise from traffic on  
9 Route 9."

10 A. Yes, I agree with that.

11 Q. So, other than rain events -- I mean, it  
12 appears that he has picked a pretty -- a  
13 fairly noisy area. Would you -- from the  
14 sounds of his description.

15 A. If I could refer to... that's Location 1.  
16 When you say "noisy," that may be relative to  
17 other areas in this location. I would say  
18 it's among the noisier.

19 Q. Okay. Now, on Location L2, the next one,  
20 Loveren Road [sic] --

21 A. Yes.

22 Q. "L2 monitor was influenced by traffic noise  
23 along Route 9, aircraft, birds chirping,  
24 insect noise and rustling vegetation."

1 A. Yes.

2 Q. And then says, "The sound levels at this  
3 location are primarily controlled by the  
4 insect and bird noise in the area, as well as  
5 vehicular traffic..." One of the quieter  
6 areas that was monitored?

7 A. What I want to be sure we all understand is  
8 that, when we characterize background sound  
9 level, we characterize it using the 90th  
10 percentile sound level. So, although you may  
11 have very noisy aircraft flying over at times  
12 or noisy traffic, that may not necessarily  
13 influence that 90th percentile sound level  
14 statistic.

15 Q. Can we know that from what he wrote here?

16 A. Not from what he wrote.

17 Q. Okay.

18 A. It may be apparent in the data.

19 Q. And I will talk to you about that in a  
20 moment.

21 Now, in Location L3 --

22 A. Yes.

23 Q. -- here it appears that he says it was -- the  
24 L3 monitor was influenced by flowing water

1 from a nearby brook, aircraft, distant  
2 traffic noise from Route 9, crackling  
3 branches and bird noise. Would you recommend  
4 someone site a monitor right near a brook, a  
5 flowing brook?

6 A. I'd be concerned about that as causing the  
7 background sound level to be misrepresented  
8 perhaps.

9 Q. Was that --

10 A. For one -- I'm sorry. Let me repeat.

11 I would say that water-flow noise could  
12 create a misrepresentation of the background  
13 sound over a wider area.

14 Q. And that was one of your concerns raised in  
15 the Groton project, wasn't it?

16 A. Yes, it was.

17 Q. Now if I could go to Location L4. Again,  
18 insect noise, distant vehicular traffic,  
19 occasional vehicles passing on Reed Carr  
20 Road. And it also states, "Daytime sound  
21 levels during the first week were influenced  
22 by deck construction at a residence." So,  
23 not necessarily the quietest area?

24 A. Well, again, we're looking at the 90th

1 percentile sound level. And at Location 4,  
2 we had a baseline sound level of 29 dBA. So  
3 I would say that that would be a quiet sound  
4 level. These transient sounds occurred  
5 during the day and did not affect sound  
6 levels at night, although certainly insect  
7 noise would. Vehicular traffic, probably  
8 not. Aircraft, probably not.

9 Q. Now, he's stating that he picked up an L9  
10 that ranged from 23 to 60.

11 A. Yes. That's quiet.

12 Q. Sixty?

13 A. No, 29.

14 Q. Oh, okay. So he said 23 to --

15 A. Twenty-three, yeah.

16 Q. Did I say 29?

17 A. I'm sorry. Yeah.

18 Q. Okay. And then again, similar, L5, where it  
19 states "traffic from Gregg Lake Road,  
20 insects, birds, dogs barking and mechanical  
21 noise from across the lake."

22 So, now the question. I just want to  
23 verify in his -- if you go to Page 5-3, he  
24 has the locations that he selected. And he

1           states under L1, he did capture the broadband  
2           A-weighted noise, as well as the one-third  
3           octave band sound. This be would on L1.

4    A.    Yes.

5    Q.    For L2 and L3, he grabbed just the  
6           A-weighted?

7    A.    Yes, I see that.

8    Q.    L4, he grabbed the A-weighted and one-third  
9           octave band, and on L5 he grabbed just the  
10          A-weighted. Do you see that?

11   A.    Yes, I do.

12   Q.    And just to complete his evaluation, the data  
13          that he collected, he only cited a met -- a  
14          wind measuring device at Location 5. Do you  
15          see that?

16   A.    Yes, I do.

17   Q.    Okay. All right. Now what I would like to  
18          do is call your attention to a document.  
19          Let's see. It will be IWAG-N7. Have you  
20          seen this document before these proceedings?

21   A.    Some of them I have. I don't --

22   Q.    But this one in particular?

23                       MR. ROTH: Do you have it?

24   A.    Can you show it to me? I don't have it in

1 front of me. Is it in the stack?

2 MR. IACOPINO: Which number is  
3 it?

4 MS. LINOWES: IWAG-N7.

5 (Pause in proceedings)

6 MS. LINOWES: Peter, I have a  
7 copy here.

8 MR. ROTH: Yeah, it doesn't  
9 seem to be in this binder.

10 BY MS. LINOWES:

11 Q. Cape Vincent was one of the projects you had  
12 worked on?

13 A. That's right.

14 Q. And do you know Paul Schomer?

15 A. Yes, I do.

16 Q. And had you seen this document?

17 A. I believe I have seen it. But it's been  
18 quite some time since I looked at it.

19 Q. I should tell you it's quite a bit longer  
20 than what I have here. I just took the  
21 beginning portions, and then the ending is  
22 the analysis. I didn't...

23 Okay. I wanted to call your attention  
24 first to a paragraph that Mr. Schomer



1 references. And I asked Mr. O'Neal about  
2 this as well. This is on the page before the  
3 last -- or the third page before the last --

4 MR. IACOPINO: For our  
5 clarification, I have a 52-page document,  
6 okay. So --

7 MS. LINOWES: Oh, okay. I was  
8 saving copying costs.

9 MR. IACOPINO: Do you have  
10 page numbers?

11 MS. LINOWES: Page 34.

12 MR. IACOPINO: Thank you.

13 MS. LINOWES: It should have  
14 an italicized paragraph at the end, on the  
15 bottom of that page.

16 BY MS. LINOWES:

17 Q. So, Mr. Tocci, what Mr. Schomer is doing is  
18 citing a paragraph out of a paper written by  
19 George Hessler. Do you know George Hessler,  
20 or of him?

21 A. Yes, I do.

22 Q. Okay. And I want to first point to the very  
23 last sentence of that italicized paragraph.  
24 And what he is stating there is that -- and I

1 believe this is consistent with what you're  
2 saying -- that every baseline ambient sound  
3 survey, what it should be doing is  
4 identifying the lowest sound level that is  
5 consistently present and available to mask  
6 project noise. Do you see that?

7 A. I do.

8 Q. Okay. So would you agree with that?

9 A. Could I read it again, please?

10 Q. Yes. I read it -- it's a little bit odd, the  
11 wording. But, yeah, if you want to read it  
12 out loud, then --

13 A. Well, if I read the whole thing, it says --

14 (Court Reporter interjects.)

15 A. "To exclude certain contaminating noise and  
16 to correct measured sound levels for  
17 self-induced wind noise, it is necessary to  
18 record not only the A-weighted sound level,  
19 but also the octave band frequency content of  
20 the background sound level. For example:  
21 This approach allows the mathematical  
22 subtraction of high-frequency insect noise  
23 from summertime survey results, yielding a  
24 modified A-weighted sound level that can be

1       used as a year-round design basis. Without  
2       this adjustment, one might easily  
3       overestimate the long-term background level,  
4       particularly the nighttime level that is  
5       present at the site. It is the lowest sound  
6       level that is consistently present and  
7       available to mask project noise that is  
8       sought in every baseline ambient sound  
9       survey." I would agree with that.

10    Q.   And after we went through each location where  
11       Mr. O'Neal sited his monitor and the  
12       information that he was picking up at each  
13       monitor, did he -- do you think he agrees  
14       with this paragraph?

15    A.   I can't speak for Mr. O'Neal.

16    Q.   Did he follow Mr. Hessler's recommendations?

17    A.   No, I don't think he did.

18    Q.   Okay. And the A-weighted sound level he  
19       picked up at all five locations; yet, he only  
20       picked up the octave band, the one-third  
21       octave band at just two of the locations. So  
22       is it possible for him to make corrections at  
23       those locations with regard to insects, wind  
24       noise, wind-induced noise on the monitor, and

1           other corrections? Is it possible at three  
2           of the five locations?

3       A.    I would say at those locations that he had  
4           and went through an octave band monitor, that  
5           he would have been able to make an insect  
6           correction -- correction for insect sound.  
7           I'm not sure about wind sounds.

8       Q.    So at the other three, though, he would not  
9           be able to. Those would be part of the data?

10      A.    That is correct, unless he were to create an  
11           adjustment and apply it.

12      Q.    Okay. Now I want to call your attention now  
13           to Page 4 in that same document. Now, you  
14           had stated that you have seen this document.  
15           You believe you've seen this document. This  
16           document is a critique of a pre-construction  
17           noise survey -- background noise survey taken  
18           by -- that was conducted by George Hessler or  
19           Hessler & Associates. Is that your  
20           understanding as well?

21      A.    Yes, it is.

22      Q.    Okay. So Mr. Schomer, on Page 4, states some  
23           of the concerns that he has with the study  
24           conducted by Hessler & Associates at this

1       other wind project -- proposed wind project.  
2       And the first, which is A on that page,  
3       states that Hessler chooses noisy positions  
4       at the sites, meaning that at each location  
5       where he could have placed his monitor, he  
6       placed it in noisy locations.

7   A.   I see that he has said that.

8   Q.   Is it -- in looking at what Mr. O'Neal did,  
9       was it -- does it appear that Mr. O'Neal may  
10      have done the same thing?

11   A.   Well, in some cases -- again, I have not  
12      visited these locations. But he does cite  
13      sound levels that are constant. And there  
14      may be a concern in those locations that  
15      there could be sources of sound that may vary  
16      through the year or may be such that the  
17      background sound there might only be relevant  
18      to locations close to a river, for example.

19   Q.   He goes on to say, "Hessler chooses noisy  
20      sites, not just locations within an area that  
21      he could put the monitor." But in general,  
22      he chose locations that are noisy. Could it  
23      be said -- can the same thing be said -- and  
24      he says "Hessler neglects" -- this is in the

1 middle of the paragraph -- "neglects to tell  
2 the reader that this site that he" -- one of  
3 the sites is the marshaling yard of heavy  
4 construction equipment for a large water  
5 project and less than 100 feet from part of a  
6 construction site; so the kind of activities  
7 that might inflate the background noise  
8 level."

9 MR. PATCH: I'm going to  
10 object to the question. I think the witness  
11 has already responded that he hasn't visited  
12 the site. So I don't think he's capable of  
13 answering this question. He hasn't visited  
14 the sites that Mr. O'Neal used for his study.

15 MS. LINOWES: Yeah, I'm not  
16 asking him -- I'm asking him based on a  
17 characterization of Mr. O'Neal's own  
18 characterization of the noises at the sites  
19 he's placed the monitor.

20 A. Well --

21 MS. BAILEY: Wait a minute,  
22 please.

23 (Discussion among Subcommittee Members  
24 off the record.)

1 MS. BAILEY: I think this is  
2 in the nature of cross-examination. It is  
3 friendly cross, but I'm going to allow him to  
4 answer the question, to the extent he can  
5 answer it.

6 MS. LINOWES: Madam Chair, I  
7 don't consider my cross-examination friendly.

8 MS. BAILEY: Okay. Sorry.

9 MS. LINOWES: Thank you.

10 MR. IACOPINO: Do you want to  
11 withdraw your question?

12 MS. LINOWES: Sure, I think  
13 I'll withdraw the question, and I'll ask the  
14 next one then.

15 BY MS. LINOWES:

16 Q. The noisiest -- that Hessler chooses the  
17 noisiest time of year to conduct the study --

18 MR. IACOPINO: No, no. This  
19 wouldn't be fair. I'm sorry. I was joking  
20 when I said, "Do you want to withdraw your  
21 question?" It wouldn't be fair to not let  
22 you ask the question that the Chair has  
23 allowed you to ask. I'm sorry. So please  
24 reask your question. I'm sorry to bog things

1 down here.

2 MS. LINOWES: But that's okay.

3 I'll move on.

4 BY MS. LINOWES:

5 Q. I'll just ask you to confirm it in terms of  
6 the time of year. Could there have been  
7 quieter times of the year when Mr. O'Neal  
8 conducted his study?

9 A. Yes, I would expect so.

10 Q. So -- oh, and the same being for Mr. O'Neal.  
11 Did I say Mr. Hessler? I meant to say Mr.  
12 O'Neal.

13 A. I thought you said Mr. O'Neal.

14 Q. I did.

15 MR. ROTH: You said Hessler.

16 MS. LINOWES: Oh, I did? It's  
17 late. It's really late.

18 BY MS. LINOWES:

19 Q. Okay. Just bear with me for one second.

20 Okay. Now I wanted to talk about some  
21 questions that Mr. O'Neal had from the  
22 Committee about that -- let me just find it.  
23 He was asked, when the Committee was  
24 cross-examining him or asking questions of



1 him -- the question presented to him was:  
2 "In your opinion, is it normal in your  
3 industry to take these sound measurements  
4 without correcting for insect noise and to  
5 report them without correcting for insect  
6 noise?

7 And he responded, "It has certainly been  
8 done both ways. We try to acknowledge, and  
9 we do in our report, that there were insects  
10 present. And there were certainly some times  
11 when the insects likely influenced the sound  
12 levels. But they're obviously part of the  
13 landscape... and you may correct for them;  
14 you may not. There doesn't -- you don't have  
15 to do it."

16 Based on what you understand of what you  
17 had stated already in terms of collecting  
18 background noise levels, is it true that the  
19 noise -- the acoustics industry does not  
20 recommend that insects be removed in a study  
21 like this?

22 A. I don't agree with that at all. I think that  
23 when it's possible to extract a clearly  
24 identifiable contributor to the environment

1           that is not a constant part of the  
2           environment, and where the background sound  
3           level that you're -- that is trying to be  
4           characterized is one that represents all the  
5           quietest times of year, as well as noisier  
6           times of year, it seems reasonable that a  
7           correction should be made for insect sound.

8   Q.    So there is a standard.

9   A.    I can't point to a standard that says you  
10         must do that.

11   Q.    I'm sorry.  Okay.  I'll withdraw that  
12         question.  That was not what I meant to ask.

13                 There's an understanding, though, that  
14         if you're looking for a background noise  
15         study, you would do what you just stated.

16   A.    That or re-measure it at a quieter time of  
17         year.

18   Q.    Okay.  Now I wanted to ask you a couple  
19         questions regarding wind-induced noise on the  
20         microphone.

21                 The question had come up -- I had asked  
22         some questions of Mr. O'Neal.  And one of  
23         the -- and I had asked him the size of the  
24         wind screen that he used, and he sort of

1       ballparked it and said about three to four  
2       inches. That sound like a standard-size wind  
3       screen?

4   A.   Yes.

5   Q.   And then there are larger wind screens?

6   A.   There are.

7   Q.   And the larger the wind screens, the better  
8       they are at resisting wind-induced noise?

9   A.   At low frequencies, yes.

10   Q.   And do you -- if you could, explain what  
11       wind-induced noise is and why that's a  
12       problem.

13   A.   Wind blowing over a microphone without a wind  
14       screen produces turbulent buffeting of the  
15       membrane that transduces sound pressure into  
16       electric pressure -- or into electric signal.  
17       A wind screen keeps the air from actually  
18       buffeting against the microphone membrane;  
19       however, there still is low-frequency  
20       turbulence generated as wind blows by the  
21       wind screen. That low-frequency sound is  
22       received by the microphone, which is not able  
23       to distinguish between that and real  
24       low-frequency sound from a distant source.

1           There has been a paper by, I think it's  
2           David Hessler, that showed that the  
3           performance of larger wind screens tends to  
4           be a little bit better in terms of reducing  
5           low-frequency sound produced by air buffeting  
6           in the downstream side of the wind screen.

7       Q.   Now, with that, I have a document that I  
8           submitted as part of evidence -- or as an  
9           exhibit, rather. IWAG-N8, are you familiar  
10          with that document?

11      A.   Not as you name it.

12      Q.   Oh, it's titled, "Experimental Study to  
13           Determine Wind-Induced Noise and Wind Screen  
14           Attenuation Effects on Microphone Response  
15           for Environmental Wind Turbine and Other  
16           Applications."

17                   MR. IACOPINO: Did you provide  
18           copies of that?

19                   MS. LINOWES: Yes, I e-mailed  
20           that and gave you a copy of it. This was on  
21           November 2nd.

22                   MR. PATCH: Could you state  
23           the cite again? Do you have extra copies?  
24           We don't have N8.

1 MS. LINOWES: I don't have  
2 extra copies.

3 MR. ROTH: Oh-oh, you're going  
4 to be in trouble.

5 MS. LINOWES: I will -- it  
6 was -- I will bring extra copies tomorrow. I  
7 apologize. I e-mailed it to all the parties.

8 A. I believe I'm familiar with it. But I don't  
9 have it in front of me at this point.

10 BY MS. LINOWES:

11 Q. I'm really only going to talk about two  
12 paragraphs, if I can proceed.

13 MR. ROTH: Does he need to  
14 read it?

15 MS. LINOWES: No.

16 MR. IACOPINO: Is there not an  
17 original in the report?

18 MS. BAILEY: Off the record  
19 for a minute.

20 (Discussion off the record.)

21 MS. BAILEY: Okay. We're back  
22 on the record.

23 BY MS. LINOWES:

24 Q. Okay. I would like -- do you understand the

1           general study that was conducted?

2    A.    Yes, I do.

3    Q.    Okay. And I wanted you to just go to the  
4           Conclusions and Recommendations, which is the  
5           page before the last. And I'm going to read  
6           you the first paragraph, okay.

7                    It states, "The data show that  
8           reasonably good results when measuring in low  
9           to moderate wind conditions are possible even  
10          with conventional 60-millimeter wind screens,  
11          but that a larger-diameter wind screen offers  
12          significantly better performance in the lower  
13          frequencies." Do you see that?

14   A.    Yes, I do.

15   Q.    Okay. And so the -- can you tell us what  
16          "low to moderate" wind conditions are? What  
17          is that, in general?

18   A.    It defines it earlier in the paper. I have  
19          to look that up.

20   Q.    That's okay. But is it 3 meters per second?

21   A.    You want me to look through the paper to find  
22          it?

23   Q.    No, that's -- so, basically, lower wind  
24          conditions than at an operating wind project

1 at full power.

2 A. Three meters per second would be a relatively  
3 low wind speed.

4 Q. Okay.

5 MR. PATCH: I don't think we  
6 know that it's 3 meters. So I'd just object.  
7 I think the witness offered to look through.  
8 And if there's someplace in the report that  
9 says that, then I wouldn't object, but --

10 BY MS. LINOWES:

11 Q. Then do you want to check that? I believe  
12 it's on the first page of the report.

13 A. It says, "For wind turbine power project  
14 assessments, ambient sound levels when the  
15 wind is blowing in the 3- to  
16 10-meter-per-second range, measured at  
17 10 meters above the surface, is very relevant  
18 because that is when typical wind turbines  
19 first begin to generate significant noise."  
20 Does that answer your question?

21 Q. I'm not sure. I don't know if he's stating  
22 what "low to moderate" wind speeds are then.  
23 He's just stating the range at which the  
24 turbines operate in.

1 A. Okay.

2 Q. So what would -- as an acoustician, what  
3 would you characterize as "low to moderate"?

4 A. Let me just continue. It says here,  
5 "Consequently, background sound levels that  
6 occur during moderate winds are of the most  
7 interest. Reference 1 offers techniques for  
8 measuring wind turbine sources using a ground  
9 plane microphone setup to eliminate  
10 wind-induced noise, but background baseline  
11 measurements are made above grade with wind."

12 So far, he has not indicated what  
13 "moderate" means, other than to say that wind  
14 turbines typically begin their generation  
15 between 3 and 10 meters per second.

16 Q. Okay. So, then it goes on to the second  
17 paragraph under the Conclusions and  
18 Recommendations, and it talks about a special  
19 case. It says, "In the special case of  
20 background sound level surveys for wind  
21 turbine projects, where the objective is to  
22 determine the environmental sound  
23 level/masking level as a function of wind  
24 speed, the suggested practice, based on this



1           lab study, is to use a large 175-meter wind  
2           screen and mount the microphone at a maximum  
3           elevation of about 1 meter above grade." Do  
4           you see that?

5       A.    I do.

6       Q.    Now, the character -- if you were to talk  
7           about what Mr. O'Neal was doing, wasn't his  
8           study to look at the background sound level  
9           surveys for wind turbine projects? Wasn't he  
10          trying to recreate -- at least understand  
11          this special case?

12      A.    Well, I can't exactly speak for Mr. O'Neal.  
13           But the data that he gathered in his report  
14           was, I believe, 10 meters above grade at the  
15           ridgeline where winds could be considerably  
16           higher than where sound measurements were  
17           being conducted.

18                    So this concept that you note here  
19           really applies to what noise might be  
20           produced at the microphone for a wind speed  
21           at that microphone location.

22      Q.    So if you could look to Page 6-2 of Mr.  
23           O'Neal's report.

24                    (Witness reviews document.)

1 Q. It appears where he's talking about the  
2 worst-case reference sound data... at  
3 10-meter reference height for the Antrim  
4 turbines... do you see that?

5 A. Yes, I do.

6 Q. "...indicates that 7-meter-per-second winds  
7 will produce the worst-case sound levels."  
8 And then in the middle of that second  
9 paragraph he talks about 10 to 13 hours per  
10 location where the -- of 9.3 meters per  
11 second or higher wind speeds. Do you see  
12 that? So he was collecting data during high  
13 wind conditions to try to understand a  
14 worst-case scenario, similar to what is  
15 described here as the special case.

16 A. I do see -- I do see that sentence. And if I  
17 could read that, it says there were 10 to 13  
18 hours per location of 9.3-meter-per-second  
19 wind speeds at a 57-meter height during the  
20 background measurement program, excluding  
21 precipitation.

22 Q. And then he goes on. He says he created two  
23 tables, an Leq and L90 sound levels, based on  
24 what he registered as worst-case wind speed.

1 Do you see that?

2 A. I see the table. Allow me to read the  
3 sentence that ties that together. It says,  
4 "The minimum, maximum, average and median  
5 background sound levels for each location  
6 under the highest wind turbine  
7 sound-producing conditions without  
8 precipitation are summarized in Tables 6-1  
9 and 6-2."

10 Q. So does that sound like that special case  
11 that Mr. Hessler is talking about which says,  
12 "In the special case of background sound  
13 level surveys for wind turbine projects,  
14 where the objective is to determine the  
15 environmental sound level masking level as a  
16 function of wind speed," and then he goes on  
17 to talk about the suggested practice?

18 A. Well, it is complicated. There were a couple  
19 factors to consider here. One is that the  
20 wind speeds being measured were being  
21 measured at 10 meters above grade at the  
22 ridgeline, and those sound levels were  
23 collected in this table at the time that the  
24 ridgeline wind velocity was above 9.3 meters

1 per second.

2 Well, the data that we presented in our  
3 work -- or in my work, showed that there was  
4 an awful poor correlation between wind speed  
5 at the ridgeline and background sound levels,  
6 both in the data that we collected and the  
7 data that he collected. So I'm not sure that  
8 wind is a big contributor to the data in  
9 Table 6.1 and 6.2.

10 Q. I'm not -- I'm trying to understand -- okay.  
11 What do you mean by "wind"?

12 MR. PATCH: Ma'am Chair, I'd  
13 just like to note an objection. I mean, it  
14 appears that Ms. Linowes is cross-examining  
15 this witness about our witness's testimony.  
16 I haven't heard questions about this  
17 witness's testimony, and so it seems as  
18 though it's not appropriate for her to spend  
19 a lot of time asking Mr. Tocci questions  
20 about Mr. O'Neal's study and his testimony.  
21 It seems as though she should be asking  
22 questions of this witness, you know, related  
23 to his testimony.

24 MR. ROTH: As much as I'd like

1 the witness not to endure any further  
2 cross-examination from anybody, I nonetheless  
3 think it's fair for Ms. Linowes to ask Mr.  
4 Tocci, a sound expert, to critique Mr.  
5 O'Neal's work. Seems to me a reasonable path  
6 for cross-examination.

7 MS. BAILEY: Do you have  
8 anything to add, Ms. Linowes?

9 MS. LINOWES: That's exactly  
10 what I'm trying to do. I think there's a lot  
11 of information about noise being brought  
12 here. He has already made comments that  
13 rather enhanced the record with regard to the  
14 background noise study. So I'm trying to get  
15 a better understanding of the overall  
16 background noise level and whether it was  
17 done -- whether the procedures that were  
18 followed are correct.

19 MS. BAILEY: Do you have  
20 questions about his testimony as well?

21 MS. LINOWES: I do have some  
22 questions about his testimony.

23 MS. BAILEY: Okay. Just one  
24 second, please.

1 (Discussion among Subcommittee Members  
2 off the record.)

3 MS. BAILEY: I think the  
4 questions are fair. I'm going to overrule  
5 the objection. Go ahead.

6 MS. LINOWES: Thank you, Madam  
7 Chairman.

8 BY MS. LINOWES:

9 Q. Mr. Tocci, you just -- you talked about  
10 something that I did not quite follow when  
11 you -- and I know that it was in your  
12 testimony -- that there was -- I don't  
13 remember where you said it -- not disconnect,  
14 but there was some difference or no  
15 connection between wind speeds at 10 meters  
16 above ground level and the noise that you  
17 were collecting.

18 Did you have a wind-monitoring device  
19 near your monitors?

20 A. No, we did not.

21 Q. So what -- how do you know that? Was it from  
22 your attendant noise study or -- or if you  
23 weren't at the location, how do you know?

24 A. In our supplementary testimony -- in my

1 supplementary testimony, I had plotted sound  
2 levels, background sound levels, that both  
3 Epsilon Associates and we, my firm, had  
4 measured as a function of the  
5 10-meter-above-grade ridgeline wind velocity,  
6 and it showed very poor correlation. Now,  
7 why --

8 Q. And what would you have expected? I'm not  
9 sure I understand the correlation that you  
10 were looking for or nor looking for.

11 A. What happens, many times people try to tie  
12 background sound levels at a receptor  
13 location to wind speed as measured at a  
14 turbine location. That certainly would be  
15 awfully helpful to have that information, so  
16 that we have a good idea about what the  
17 background sound level is when a wind  
18 condition is known at the wind turbine. The  
19 data suggests that knowing the wind speed at  
20 a turbine tells you nothing about what the  
21 sound level -- the background sound level  
22 might be at the receptor location, and that  
23 complicates the picture considerably.

24 Q. No, I'm actually looking for a much more

1       simple question [sic], and that is whether or  
2       not wind-induced contamina -- wind-induced  
3       data -- or wind noise on the microphone that  
4       is contaminating the data. If that's a  
5       non-issue, I'll just move on. But if you  
6       didn't have a wind device -- a monitoring  
7       device at your receptor, you may not know  
8       either.

9     A.    I think it's not a significant factor for two  
10        reasons: One, many of these microphones were  
11        in relatively sheltered locations; and  
12        second, again, we were looking for the lowest  
13        background sound levels typically achieved in  
14        a 24-hour period over the several 24-hour  
15        periods measured, most likely when wind was  
16        at very low velocity even at the ridgeline.

17    Q.    Which microphones -- excuse me. Which  
18        microphones were isolated? Because you had  
19        stated you did not visit the other sites.  
20        Are you talking about your own?

21    A.    That is correct. I did not even visit my  
22        own. That was done by other staff members of  
23        my firm. But I assume that the description  
24        for these appeared that they were not open



1 areas.

2 Q. For which ones?

3 A. Well, let's read them through them all --

4 Q. You're talking about Mr. O'Neal's?

5 A. Mr. O'Neal's and our --

6 Q. But you didn't see them --

7 A. No, I did not see them --

8 Q. So you don't really know --

9 (Court Reporter interjects.)

10 MS. BAILEY: Ms. Linowes,  
11 you've got to remember the court reporter,  
12 please.

13 BY MS. LINOWES:

14 Q. Okay. I'll move on.

15 Now, Mr. Tocci, I want to look at the  
16 table that you had referenced earlier. This  
17 is in your supplemental testimony. I'll get  
18 you the page in a second. But it's at the  
19 end of your supplemental testimony that Ms.  
20 Longgood and also Mr. Block had asked you  
21 about. It's on Page 20 in the  
22 October 11th --

23 A. Yes, I have it.

24 Q. Okay. Now, before I ask you questions about

1           the numbers that are here, you make -- you  
2           used the term "annoyed" in your commentary.  
3           Do you see that?

4   A.    I do.

5   Q.    Okay. Now, I'm wondering, as an acoustician,  
6           can you give us either a quantification or a  
7           qualification of the term "annoyed"? Because  
8           I think that in a layperson's mind that might  
9           mean something different from what you might  
10          be thinking. Can you tell us what "annoyed"  
11          means?

12   A.    "Annoyed," as it's usually used in surveys,  
13          is a self-reported characteristic or a  
14          self-reported reaction to sound by  
15          individuals in a community. So it may not  
16          mean the same thing to any two persons, but  
17          it is -- and for that reason it's quite  
18          subjective. And I can't tie a specific  
19          number in any way to the term "annoyed".

20   Q.    Do you know Dr. Alice Suter?

21   A.    Yes, I do.

22   Q.    You know of her, or you actually know her?

23   A.    I've met her, yes.

24   Q.    She actually defined the term, and I'm

1           wondering if you would allow me to read to  
2           you what she has written.

3    A.    Sure.

4    Q.    Okay.  She wrote, "'Annoyance' has been the  
5           term used to describe the community's  
6           collective feelings about noise ever since  
7           the early noise surveys in the 1950s and  
8           1960s, although some have suggested that this  
9           term tends to minimize the impact."

10               Does that sound -- that sounds familiar?  
11           Have you ever read that?

12   A.    I think I have read that.

13   Q.    And she goes on to say, "While 'aversion' or  
14           'distress' might be more appropriate  
15           descriptors, their use would make comparisons  
16           to previous research difficult."  And then  
17           finally she says, "It should be clear,  
18           however, that annoyance can connote more than  
19           a slight irritation.  It can mean a  
20           significant degradation in the quality of  
21           life.  This represents a degradation of  
22           health in accordance with the World Health  
23           Organization's definition of health, meaning  
24           total physical and mental well-being, as well

1 as the absence of disease." That's what she  
2 says "annoyance" can mean.

3 A. Yes.

4 Q. Do you agree with that?

5 A. Yes, in part. Most community survey data  
6 that I have seen uses the term, or tries to  
7 collect the reaction of communities using the  
8 terms "annoyance" or "annoyed" and "highly  
9 annoyed."

10 Q. Okay. So when you say, "significant  
11 residential impact, 25-percent chance of  
12 residents annoyed" -- and this is on Location  
13 2 --

14 A. Yes.

15 Q. -- and you also use it elsewhere -- it could  
16 mean a significant impact on those people;  
17 correct?

18 A. That term, as it was used, the data that was  
19 used was taken from the Netherlands study by  
20 Pedersen. So those terms need to be looked  
21 at in the context of that particular study.

22 Q. You're using them. But can you help -- can  
23 you define them, or you can't define them?

24 A. I don't think I can define them. I think

1       that, again, that's a self-reported  
2       characteristic that was collected in the  
3       survey conducted by Pedersen.

4   Q.   All right.  So now I want to ask you about  
5       these numbers that you have here.  On the  
6       baseline you have for each location -- I'm  
7       going to ignore the two that you had  
8       introduced, the Gregg Lake and Willard Pond.  
9       I don't understand where these numbers came  
10      from.  These numbers do not correspond to any  
11      numbers that I could see from Table 6-2 of  
12      Epsilon's report.  Maybe I misread that.  
13      Your footnote says they're from Table 6-2.

14  A.   Which column are you referring to?

15  Q.   Baseline.

16  A.   Baseline.  No, that doesn't directly come  
17      from the Epsilon report.  Epsilon had  
18      provided to me the noise data that they  
19      collected, all of the data samples, and then  
20      I used that data sample set and calculated or  
21      determined my own baseline.  And that's  
22      explained here in the -- on Page 19.

23  Q.   So this data on Location 1, he had collected  
24      octave data.  Did you subtract out the

1 insects?

2 A. No, I did not.

3 Q. So your statement here, going across Line 1,  
4 is you took his data, including the insects,  
5 including the traffic noise and whatever else  
6 was included there. So you did not remove  
7 the insect data, and you proceeded to say  
8 that there will be no residential impact  
9 between the base -- because the baseline  
10 would equal the post-construction operating  
11 wind noise -- wind turbine emissions. Is  
12 that what you did?

13 A. That's right. I had no information, or at  
14 the time wasn't aware of any information that  
15 I had that would allow me to subtract insect  
16 noise. And I think I described that as  
17 "insect or other indigenous sound adjustment  
18 could not be determined from the data  
19 presented." So I wasn't able to do that. Or  
20 maybe I overlooked something. But I was not  
21 able to make that correction.

22 Q. Should anyone who resides near this location  
23 take comfort in the fact that you're saying  
24 that there will be no residential impact in

1           this location?

2       A.    I would suggest that, as we had done quite a  
3           while ago, that background sound should be  
4           reassessed during times of when there is no  
5           insect noise present in order to cover that  
6           circumstance.

7       Q.    So, can you answer my question?

8       A.    Could you repeat the question, please?

9       Q.    Anyone who lives at Location 1, should they  
10           take comfort in the fact that you are stating  
11           there will be no residential impact in your  
12           testimony?

13      A.    Not necessarily. I would say no, because  
14           there was no insect-removal adjustment made.

15      Q.    Okay. Looking at line -- Location 2, your  
16           baseline again, based on the data that you  
17           were given by Epsilon --

18      A.    Yes.

19      Q.    -- there was no octave data at Location 2.  
20           How did you qualify making this adjustment?

21      A.    What I did was look at the data that was  
22           contained in the report prepared by -- the  
23           sound-level assessment report prepared by  
24           Epsilon. And one thing was puzzling about

1       the data. The data had reversed diurnal  
2       pattern -- in other words, it was noisier  
3       during the night than it was during the day.  
4       And I simply said that, well, all of that  
5       difference would be the result of insect  
6       sound. So I simply made an estimate using  
7       that data and said, well, what is a  
8       reasonable nighttime sound level, by looking  
9       at the daytime sound level and estimating  
10      what a nighttime sound level might be. And I  
11      thought that the 15-decibel reduction that I  
12      applied to account for removing insect sound  
13      was probably a modest reduction.

14   Q.   You didn't notice that same kind of  
15       diurnal/nocturnal difference at Location 1?

16   A.   No, I did not.

17   Q.   But I take it you noticed it at Location 3?

18   A.   Yes, I did.

19   Q.   Now, there was no octave data at Location 3  
20       either; is that correct?

21   A.   I'd have to go back and look at the report  
22       and see. I don't recall.

23   Q.   Now, at Location 4 there was octave data.  
24       You made no adjustment.



1 A. That's correct. I did not.

2 Q. And so you're saying your Location 4, you're  
3 seeing -- you came up with a baseline of 29,  
4 no adjustment compared to AWE's -- I take it  
5 their predicted noise level at 39 dBA?

6 A. That's correct.

7 Q. But you don't -- this is comparable to  
8 Location 1.

9 A. It is. And again, there was no insect sound  
10 observable in the A-weighted data.

11 Q. Did it occur to you to call Epsilon and ask  
12 them? Or perhaps you did. Maybe you did.  
13 I'm sorry. I don't want to --

14 A. I have not spoken to them about insect  
15 data -- the insect noise in their data.

16 Q. So this document table that you put together  
17 for October 11th, when did you conduct your  
18 own noise-level studies? You did those  
19 before -- that was all part of your  
20 supplemental testimony.

21 A. Yes, it was.

22 Q. And yet, you proceeded to produce this table  
23 without looking for additional information,  
24 after having been out there collecting your

1           own data? I guess I'm confused why you did  
2           that. How is this table informative to  
3           anyone?

4    A.   Well, it is informative. It has the data  
5           that we collected at night. It showed that  
6           Locations 1 and 4 and 5, there was no  
7           evidence of a reverse diurnal pattern that  
8           was evident at Locations 2 and 3.

9    Q.   But if you had understood that insect data  
10           was dominating those times of day, and if you  
11           understood that he had the octave data, why  
12           not just get that data?

13   A.   I was -- I neglected to get that data. I may  
14           have it, I may not. I'd have to look for it.

15   Q.   So -- okay. Now, when you state under your  
16           Comments -- I'm going to look at Location 3  
17           for a second -- "significant residential  
18           impact," and then you state "25 percent and  
19           18 percent," you're saying that's based on  
20           that paper?

21   A.   That's right.

22   Q.   The Pedersen paper?

23   A.   Indirectly what I did was I used the Pedersen  
24           paper to estimate the possible likelihood of

1 residents being "annoyed" or "very annoyed,"  
2 and applied that to ranges of sound that were  
3 determined for Antrim.

4 Q. Okay. And now, Mr. Tocci, you said that you  
5 have not run the CadnaA software to do  
6 predictive modeling --

7 A. No, not for Antrim.

8 Q. -- on wind turbines.

9 A. Not for Antrim.

10 Q. And you're comfortable with the modeling  
11 that's been done, the results?

12 A. I would say I'd be comfortable with it, yes.

13 Q. And -- okay. I'll get to some of those other  
14 questions about modeling with Mr. James.

15 Now, I just have another quick set of  
16 questions and then I'm done.

17 In cross-examination by the Committee in  
18 the transcript, Mr. O'Neal was asked about  
19 the noise levels. And he goes on to say that  
20 the noise levels that are being predicted are  
21 outside the house. So at 40 decibels, 35  
22 decibels, you should subtract 10 to 15  
23 additional decibels to estimate what it will  
24 be inside someone's home. Windows open, you

1       can subtract 10; windows closed, especially  
2       here in New Hampshire, at least 15; so, 40  
3       decibels becomes 25 to 30 in the home. So my  
4       question to you is: Does that level of  
5       attenuation apply to all sounds in the  
6       spectrum, from low to high frequency?

7   A.   No, it doesn't.

8   Q.   Can you elaborate? What would be the  
9       difference?

10  A.   Low-frequency sound transmission into a  
11       building tends to be greater. In other  
12       words, the noise reduction capability of a  
13       building is a little bit less at low  
14       frequencies than it is at high frequencies  
15       for closed-window conditions. Open-window  
16       conditions are a little more complicated than  
17       that.

18  Q.   Now, just so we're clear, we're talking about  
19       low-frequency, audible noise.

20  A.   That is correct.

21  Q.   Hmm-hmm. Okay. And we have often heard --  
22       wind developers will often say that when  
23       you're outside, the wind is blowing, turbines  
24       are operating, the sound of the wind will

1 mask the sound of the turbines. When you're  
2 inside, does the sound -- you don't have the  
3 wind blowing in a quiet bedroom. So you  
4 can -- can you hear that noise when you're in  
5 the bedroom, even if it's not necessarily a  
6 low frequency?

7 A. Well, it depends upon how loud it is outdoors  
8 and what the noise-reduction capabilities of  
9 the building facade are. And if it's loud  
10 enough, yes, you would hear it inside.

11 Q. Okay. Are you aware that -- you know some of  
12 the work that Rob Brandt and Stephen Ambrose  
13 did down in Falmouth. You've read their  
14 report.

15 A. Yes, I have.

16 Q. And are you aware that they found cases where  
17 houses that had great rooms and large open  
18 areas tended to have more of a problem with  
19 sound turbine noise than those which had more  
20 walls and closed-in areas?

21 A. Yes, I understand that's what he has said.

22 Q. Can you explain why that might be the case?

23 A. Be a bit speculative. But I had discussed  
24 this with Stephen Ambrose and had suggested

1           that it may be standing waves inside the  
2           building that might be causing this  
3           low-frequency sound level exhibiting itself  
4           as sort of similar to motion sickness.

5   Q.    I'm sorry. I don't understand what you're  
6           saying.

7   A.    Okay. It appears that in larger spaces, the  
8           acoustical characteristics of such to create  
9           a standing wave that is excited by  
10          low-frequency turbine sound and that that  
11          low-frequency sound doesn't exhibit itself  
12          necessarily as an audible effect, but rather  
13          than as one that produces a feeling of nausea  
14          that's similar to motion sickness.

15   Q.    Okay. And that could happen while you're  
16          inside the house.

17   A.    That's correct.

18   Q.    And now a couple other questions and I'm  
19          done.

20                The noise that's coming from an elevated  
21                source -- so we have a turbine that is quite  
22                a bit taller than the house -- the noise is  
23                coming in, but it's not penetrating  
24                necessarily through the wall; it's coming in

1 through the roof. Is there a difference in  
2 how that might enter the house, or are the --  
3 how it might be attenuated?

4 A. Well, every facade component has a different  
5 sound-transmission capability, and so it  
6 would matter a very small amount.

7 Q. Including through a fireplace or a chimney?

8 A. Yes.

9 Q. Open spaces?

10 A. Could be issues.

11 Q. So this is a noise, actually, depending on  
12 the location, the entry point could be  
13 different than if it were -- the expectation  
14 is it's coming from the walls -- through the  
15 walls.

16 A. If I understand correctly, you're wondering  
17 if noise sources low to the ground exposing a  
18 wall surface, as opposed to being above the  
19 building and exposing the roof and chimney,  
20 would there be a difference. There could be  
21 a difference, yes.

22 Q. Okay. And then two last questions, and I'm  
23 done.

24 Okay. I want to reference IWAG-N4. And

1           if you need a copy of that, I can get a copy  
2           for you.

3                   (Pause in proceedings)

4                   MS. LINOWES: I have one here  
5           if you need it, Peter.

6                   MR. ROTH: I think it's here.  
7           "Low-frequency Noise and Annoyance"?

8                   MS. LINOWES: Correct.

9 BY MS. LINOWES:

10 Q. Mr. Tocci, do you know H.G. Leventhal, or of  
11 him?

12 A. I know of him.

13 Q. Okay.

14                   MR. ROTH: The document he has  
15 is only one page, by the way.

16                   MS. LINOWES: Oh.

17                   (Mr. Roth hands full document to  
18 witness.)

19 BY MS. LINOWES:

20 Q. Now, the turbines -- we've talked in the past  
21 at technical sessions -- I'll just ask you to  
22 just restate, that the larger the turbines  
23 get, the longer their blades are. I believe  
24 that you and others have agreed that the low



1 frequency, not necessarily the inaudible,  
2 just the low frequency of the sound may be --  
3 the noise may be -- I'm sorry. Let me  
4 rephrase.

5 The noise emanating from a larger  
6 turbine with larger blades may be in the  
7 lower frequencies than some of the older  
8 turbines with the shorter blades. Is that --  
9 do you -- is that your understanding?

10 A. If I could clarify that? It's generally the  
11 longer the blade, the lower the RPM or the  
12 rate of rotation; the shorter the blade, the  
13 higher the rate of rotation. Yes.

14 Q. So the rate -- the lower -- the sound  
15 emanating from the turbines tends to be in  
16 the lower frequencies.

17 A. If I can clarify again? A turbine would  
18 produce blade-passage frequency -- that is,  
19 at its lowest rate, its lowest frequency  
20 would be related to the number of blades and  
21 the rate of rotation.

22 Q. Okay. Thank you. I think that was a "Yes."

23 A. I think so.

24 Q. I think you said "Yes."

1           Okay. And this report, on the first  
2           page under Introduction, he states,  
3           "Low-frequency noise, considered as the  
4           frequency range from 10 hertz to 200 hertz,  
5           causes extreme distress to a number of people  
6           who are sensitive to its effects." Are  
7           you -- do you agree with that?

8   A.   At a high enough level, yes, I would.

9   Q.   At a high enough level what?

10  A.   High enough sound level in that frequency  
11       band, frequency range.

12  Q.   Okay. And then he also states, "Attempts to  
13       assess low-frequency noise" -- I'm sorry.  
14       This is on the second page, the second  
15       paragraph. "Attempts to assess low-frequency  
16       noise by conventional wide-band noise methods  
17       often fail, illustrating the inadequacy of  
18       these methods for low frequency" -- "often  
19       fail, so illustrating the inadequacy of these  
20       methods for low frequencies."

21  A.   Yes, he says that.

22  Q.   Okay. So, and then says, "In particular, the  
23       regulatory dominance of A-weighted levels  
24       leads to dismissal of valid problems with low

1 frequency, so compounding the difficulties of  
2 some complaints."

3 Is it possible that a wind project can  
4 be operational -- can be operating entirely  
5 within compliance, as in not above 45  
6 decibels A-weighted, not above 50 decibels  
7 A-weighted, but still have a significant  
8 impact on people living nearby because of the  
9 low frequencies?

10 A. For the A-weighted limits that you've cited,  
11 45 and 50 dBA, I'd say there is a possibility  
12 that low-frequency sound could be problematic  
13 in those communities.

14 Q. And yet go unnoticed because the sound  
15 measurements were done A-weighted.

16 A. It would be perceived perhaps by persons who  
17 would then complain about it. But it may not  
18 be adequately controlled or identified  
19 through an A-weighted sound measurement.

20 Q. Last question. When Mr. O'Neal was on the  
21 witness stand, I had asked him if he could --  
22 if there was anything that existed in nature  
23 that was 107 decibels, which was the loudest  
24 noise level coming from the Acciona turbine.

1       He said "nothing in nature." So I asked, was  
2       there something mechanical or man-made, and  
3       he had said what came to mind to him was a  
4       cooling tower on top of a library.

5               Is that the first thing you think of  
6       when you think about 107 decibels sound power  
7       level?

8    A.   Well, 107-decibel sound power level is not  
9       particularly loud, necessarily. It's all  
10       relative. Cooling tower probably doesn't get  
11       quite that loud. But don't confuse sound  
12       power level with sound pressure level.

13   Q.   I understand. I asked him to map it to an  
14       existing thing that makes that -- that has  
15       that sound power level.

16               Can you give us something so we  
17       understand, so people in this room can  
18       understand what 107-decibel sound power level  
19       sounds like -- might sound like?

20   A.   Sure. Let me give an example here. If I  
21       remember correctly, a pretty well-enclosed  
22       emergency generator operating might have a  
23       sound power level of 107 dB. Now --

24   Q.   What is that? What is that?

1     A.     Emergency generator.  It's a diesel engine  
2           driving an electric generator.  It's used to  
3           generate sound power for -- I'm sorry -- it's  
4           used to generate electricity for facilities  
5           during times when there are power outages.  I  
6           use that only as an example.  Certainly,  
7           without any enclosure, the sound power levels  
8           are considerably higher.  But the point is,  
9           an emergency generator at 107 sound power  
10          level, you still might be walking in that  
11          area, within say 100 feet of it, and would  
12          perceive a sound level that's considerably  
13          higher than you would for a 107 power -- 107  
14          dBA sound power level of a turbine located  
15          hundreds or thousands of feet away on the top  
16          of a mountain ridge.  So you have to be a  
17          little careful about making comparisons like  
18          that, because what people perceive is sound  
19          pressure level.  Sound power levels is the  
20          capacity of a source generating sound energy.  
21          Did I answer your question?

22     Q.     Not at all.  But I'll move on.  Thank you.

23                   MS. BAILEY:  Okay.  Before we  
24           get started with Mr. Patch, does everybody

1           just want to take a five-minute stand-up  
2           break? Because we have about another hour to  
3           go and -- let's make this a short break,  
4           okay. Thank you.

5                       (Recess taken at 5:53 p.m., and the  
6                       hearing resumed at 6:05 p.m.)

7                       MS. BAILEY: Okay. We're back  
8           on the record, and we're going to start with  
9           cross-examination by Mr. Patch.

10                      CROSS-EXAMINATION

11   BY MR. PATCH:

12   Q.   Mr. Tocci, I have a couple follow-up  
13           questions based on some of your responses to  
14           questions you've already been asked on cross.

15               First of all, Ms. Longgood asked you a  
16           question. I think it was basically to the  
17           effect that, would she hear some noise from  
18           all of the turbines. I don't remember if you  
19           remember her asking a question related to  
20           that.

21   A.   I do.

22   Q.   And the predicted modeling that Epsilon did  
23           actually makes a very conservative  
24           assumption, doesn't it?

1 A. In what way?

2 Q. Well, I'm looking at 7.2 of their report,  
3 Page 7-2. And it says, "Sound levels were  
4 computed assuming that the receptors are  
5 always located directly downwind from all  
6 turbines simultaneously." Do you remember  
7 reviewing that in the report?

8 A. Yes, I do.

9 Q. And isn't that a pretty conservative  
10 assumption, because does that ever actually  
11 happen?

12 A. No, it doesn't happen. It's the requirement  
13 of ISO 9613-2.

14 Q. Okay. But it's still a pretty conservative  
15 assumption, isn't it?

16 A. It is conservative with respect to wind  
17 direction.

18 Q. You had an exchange with Ms. Linowes that I  
19 found to be very confusing. Maybe I'm the  
20 only one that found that. But I want to go  
21 back and revisit that. And she ended up  
22 saying that she took that as a "Yes" answer  
23 to her question, and I wasn't sure there  
24 was -- and this was actually an exchange that

1 related to essentially the larger -- or the  
2 longer the blades, the higher the low  
3 frequency. And I wonder if you could just  
4 explain again what it was you were trying to  
5 say about that particular issue.

6 A. No, it was not the higher the low frequency.  
7 It was the longer the blades, the slower the  
8 rotation rate, the lower the blade passage  
9 frequency. Whether it's higher or lower is  
10 another matter altogether.

11 Q. And so what's the impact on low frequency,  
12 then, of longer blades, lower RPM?

13 A. Longer blades, lower RPM, would suggest that  
14 low frequencies are being generated that may  
15 be well out of the audible range, but may  
16 have some other anatomical responses that are  
17 as yet not well quantified in the literature.

18 Q. I want to go back to the chart that she asked  
19 you some questions about. I think it's on  
20 Page 19 of your supplemental testimony.

21 MR. ROTH: Page 20?

22 MR. PATCH: Page 20. Sorry.

23 BY MR. PATCH:

24 Q. And I want to make sure I understand how that



1 right-hand, far right column entitled,  
2 "Comment" was arrived at, because it has some  
3 very specific percentages in there. And it  
4 refers to "annoyance." And I think you said  
5 "annoyance" generally tends to be  
6 self-reported. So I'm just having a hard  
7 time understanding. If "annoyance" is  
8 self-reported, then how do you get to the  
9 percentages that you have in that right-hand  
10 column? The whole thing is just very  
11 confusing to me, and I thought you could  
12 maybe try to explain that.

13 A. Sure. I don't know if you have this, but on  
14 Page 6 of my response to the Applicant's  
15 first set of consolidated requests, I have a  
16 discussion of a paper by Pedersen called,  
17 "Pedersen 2009." It's a paper discussing the  
18 impact of sound produced by wind farms in the  
19 Netherlands. That table -- do you have that  
20 available?

21 Q. I do.

22 A. That table reports, in Column A, contour  
23 ranges below 30 dBA, 30 to 35, 35 to 40, and  
24 it says "Contour ranges of Antrim Wind sound

1       levels." Then I have on Column B the number  
2       of structures in the contour range. Then I  
3       have Column C, the corresponding LDN ranges  
4       that correspond to the sound levels produced  
5       by Antrim. Now, obviously there is an  
6       assumption there that Antrim Wind wind  
7       turbines are operating constantly in order to  
8       determine the corresponding LDN ranges.

9               Now, the reason why this is important is  
10       because that allows me to use the results of  
11       the Pedersen paper to indicate what the  
12       percent "annoyed" and percent "very annoyed"  
13       are in Columns D and C.

14               MR. IACOPINO: Before you do  
15       that, can you explain to us again what you're  
16       looking at? What document?

17               THE WITNESS: Okay. I'm  
18       looking at a document that I prepared  
19       entitled, "Gregory C. Tocci Response to  
20       Applicant's First Set of Consolidated Data  
21       Requests Propounded on Witnesses for Counsel  
22       for the Public."

23               MR. IACOPINO: Does this have  
24       an exhibit number or --

1 MR. ROTH: That was not  
2 provided as an exhibit.

3 MR. IACOPINO: Proceed.

4 MR. ROTH: I can do so if you  
5 wish, but not tonight.

6 MR. IACOPINO: Why don't we  
7 proceed.

8 A. The percentages that are reported in the  
9 table are those taken from the ranges of  
10 sound level in Column A and the percentages  
11 in Columns D and C. So, for example: When a  
12 sound level falls between 30 and 35 dBA, the  
13 range of percent "annoyed" or "very annoyed"  
14 is 8 to 20 -- 8 to 2 -- 2 to 8 percent.

15 Q. I mean, as you say in that response, though,  
16 the percentages that Pedersen came up with  
17 were based on a 37-percent response rate from  
18 those to whom surveys were sent.

19 A. That's right.

20 Q. So maybe, I guess, that calculates out to  
21 about 63 percent that didn't respond. Maybe  
22 because they weren't annoyed?

23 A. I had mentioned that it is unlikely to think  
24 that they weren't annoyed entirely. And so

1        what I said is that perhaps the percentages  
2        reported in D and E to account for those that  
3        did not respond might be reduced by  
4        70 percent.

5    Q.    So that would -- so then you would have to  
6        take the numbers, the percentages that you  
7        provided in that Comment column on Page 20  
8        and reduce those by 70 percent? Or did you  
9        already do that?

10   A.    No, I have not done that.

11   Q.    And didn't that study also --

12   A.    No, I'm sorry. Not reduce it by 70 percent.  
13        Multiply it by .7. So it would be reducing  
14        it by 30 percent.

15   Q.    But in other words, it would have to be  
16        reduced to reflect that. But that's just a  
17        rough calculation you've done.

18   A.    It is.

19   Q.    And wasn't there something in that study,  
20        too, that said that people who actually saw  
21        the wind turbines were more apt to be  
22        annoyed? Didn't it say that in that study?

23   A.    I did.

24   Q.    Now, on that same table on Page 20, you had

1 indicated, I think, the Baseline column, the  
2 first column after the Locations, that those  
3 numbers -- the footnote says "From Table 6-2  
4 of the Epsilon November 2011 report." And as  
5 Ms. Linowes already asked you, those aren't  
6 actually the numbers from that table in the  
7 Epsilon report that you indicated; right?

8 A. No, not exactly. It's the data from the  
9 Epsilon report, which was the data that was  
10 shown plotted in the Epsilon report. I used  
11 that data in a spreadsheet form to compute  
12 the second column in Table 2.

13 Q. And so how did you get that -- I guess I  
14 don't understand how you came up with these  
15 numbers then. You took the data that was the  
16 basis for Table 6-2, and then you did some  
17 calculation and came up with those baseline  
18 numbers that you have here.

19 A. Sure. The baseline numbers are explained on  
20 Page 19. It says, "To accommodate scatter  
21 observed in measured data, the baseline sound  
22 level is defined as the 90th percentile of  
23 the 10-minute interval, insect-corrected,  
24 background sound levels measured when the

1 average 57-meter above-grade-level wind speed  
2 exceeds 9.3 meters per second."

3 Q. So that explains how you got the numbers in  
4 that baseline column?

5 A. It does.

6 Q. Insect-corrected. But I thought from the  
7 next column that some of them -- it says  
8 "insect-removal adjustment, zero."

9 (Witness reviews document.)

10 A. In the Locations 1, 4 and 5, I did not see a  
11 reverse diurnal pattern that suggested insect  
12 noise was a significant contributor at those  
13 locations.

14 Q. For at least those locations, it wasn't  
15 insect-corrected then.

16 A. I did not insect-correct at those locations,  
17 no.

18 Q. That table, again on Page 20 of your  
19 testimony, I don't see anywhere in your  
20 testimony that you actually reference it.  
21 You sort of interpret it. So I was just  
22 trying to understand what the purpose of the  
23 table was.

24 A. The purpose of the table was to provide some

1 subjective response that residents might have  
2 to wind turbine sound at those locations, the  
3 locations indicated.

4 Q. Okay. I want to shift gears a bit here.

5 In your supplemental testimony, PC 5,  
6 Page 9, you say that the measurements you did  
7 in August show that insects -- "insect noise  
8 raises sound levels at Gregg Lake and Willard  
9 Pond by 20 to 25 dBA at night, and that  
10 insect noise tends to go away during the  
11 day." Do I have that correct?

12 A. That's correct.

13 Q. If that's the case, then why aren't the day  
14 numbers that you're testing show the  
15 appropriate background numbers to use?

16 A. Could you clarify the question? I don't  
17 quite understand it.

18 Q. Well, I mean, you seem to be suggesting that  
19 insect noise was really only an issue at  
20 night. So then, shouldn't the day numbers  
21 that you accumulated be the ones that would  
22 be the appropriate background numbers to use?

23 A. If I could -- I'm not sure I understand the  
24 question. You may be right, but I don't

1 quite understand the question.

2 Q. Your daytime numbers basically don't have any  
3 insect contamination, do they?

4 A. They might have some.

5 Q. But I thought you said in your testimony that  
6 it was basically a night issue, not a day  
7 issue.

8 A. It's mostly a night issue, yes, but not  
9 entirely.

10 Q. Then maybe you want to explain what you mean  
11 by "not entirely."

12 A. If you look at... well, in our own data, I'd  
13 just like to point out, for example, in  
14 Figure 2A, if you look at midnight,  
15 consistently sound levels at midnight are  
16 considerably higher than during the day.  
17 That doesn't necessarily mean there are no  
18 insects during the day. But certainly,  
19 insects sound predominates at night.

20 Q. One of the basic premises of your  
21 supplemental testimony seems to be that  
22 ambient noise levels in this area get down to  
23 14 to 15 dBA -- for example, on Page 9, where  
24 you say, "In the absence of insect noise,



1 background sound levels would average 15

2 dBA." Do I have that correct?

3 A. Yes.

4 Q. Are you saying that that happens

5 consistently, that the ambient noise levels

6 in this area, and I'd suggest during the day,

7 get down to 14 to 15 dBA consistently?

8 A. The data that's presented here is for

9 nighttime sound levels. What happens during

10 the day, we've not done insect-corrected

11 sound data during the day. So I can't say

12 that extends into the day. But the data we

13 presented, computations we did were only for

14 nighttime data that we collected on that one

15 occasion.

16 Q. So you're saying consistently at night, then,

17 the background levels get down to 14, 15 dBA?

18 A. By "consistent," I'm referring to the fact

19 that from 10-minute sample to 10-minute

20 sample, sound levels were consistently 14 to

21 15 dBA.

22 Q. Have you actually ever measured such low

23 levels? I mean, this is just an estimate

24 that you're doing; right?

1     A.    Well, this is measurements that were actual  
2            measurements with insect-correction applied,  
3            a small amount of noise reduction applied.  
4            But yes, on occasions we've measured sound  
5            levels as low as 17 dBA outdoors. But it's  
6            not often.

7     Q.    And so 15 would be a pretty rare occurrence,  
8            wouldn't it?

9     A.    I would think so. But it was something we  
10           found to be consistently the case, 10-minute  
11           sample to 10-minute sample, on the night we  
12           monitored.

13    Q.    I mean, 15 is like a completely pristine  
14           forest with no insect noise, isn't it?

15    A.    I would say so, yes.

16    Q.    Have you ever recommended 15 dBA as a  
17           baseline sound level in any projects you've  
18           worked on?

19    A.    Not that I can recall.

20    Q.    On Page 18 of your testimony you say, "In  
21           Epsilon's data, it appears that insects  
22           raised background sound levels by at least 15  
23           dBA."

24    A.    Yes.

1 Q. How do you know that? How do you know it's  
2 15?

3 A. That's an estimate based on...

4 (Witness reviews document.)

5 A. If you turn to page -- well, it's Figure A-2  
6 of the Epsilon report. Figure A-2 reports --

7 MR. ROTH: Mr. Tocci, can you  
8 give us a moment to find it?

9 BY MR. PATCH:

10 Q. Do you have a page number for that?

11 A. There is no page number.

12 MR. ROTH: The colored charts  
13 in the back of the --

14 MR. PATCH: It's in the back  
15 of the report?

16 MR. ROTH: Yeah, the  
17 continuous sound level measurements in  
18 Appendix A of the report.

19 MR. PATCH: All right. Okay.

20 CHAIRMAN IGNATIUS: Page 34 in  
21 the electronic version.

22 A. Let's look at data that occurred at midnight  
23 on September 18, 2011. I'm sorry.  
24 September 19. At midnight, sound levels

1       there appear to be about 10 to 15 dBA louder  
2       than they are during the day or early  
3       morning, at about 6, 7 a.m. in the morning.  
4       And that difference in sound level I think is  
5       attributable to insect sound. And that's  
6       what we found in our measurements at Gregg  
7       Lake and at Willard Pond. So it is on the  
8       basis of observing the difference between  
9       midnight and 6 a.m. that we assumed that  
10      there was about a 15 dBA increase in  
11      background sound associated with insects  
12      alone. The same is generally true for many  
13      of the days in Figure A-3, which is for  
14      Location L3.

15   BY MR. PATCH:

16   Q.   I'm going to refer to Page 19 of your  
17       supplemental testimony. In here you refer to  
18       the findings of the Pedersen 2009 study. And  
19       you say, "Basically, no complaints of sound  
20       by residents were recorded for wind turbine  
21       sound below 30 dBA"; correct?

22   A.   I recall that, yes.

23   Q.   And in that text on Page 19, above that  
24       reference to the Pedersen study, you list

1       some of the criteria that you think the  
2       Committee should adopt. And this criteria is  
3       different than the criteria this Committee  
4       has adopted for the other wind projects that  
5       it has approved in the past, where it has  
6       adopted sound criteria; is that fair?

7     A.   Can you point out where in the testimony I  
8       recommend these criteria?

9     Q.   Well, there are no lines, but it's on  
10       Page 19. It's basically the three bullets.

11    A.   Okay. Yes.

12    Q.   I mean, that's not criteria that this  
13       Committee has ever adopted before, is it?

14    A.   Not to my knowledge.

15                   MR. ROTH: Objection. I don't  
16       know that he is -- he's only participated in  
17       one other proceeding, and so I don't know  
18       that he can speak to any of the others.

19    A.   I don't know the answer to that question. I  
20       haven't seen it myself.

21    BY MR. PATCH:

22    Q.   But you know insofar as Groton is concerned,  
23       don't you?

24    A.   My understanding at Groton is that the

1           recommendations I had were criteria I don't  
2           believe were accepted.

3   Q.   And they were similar to this, weren't they?

4   A.   I believe they were.

5   Q.   As I understand it, you are proposing that a  
6           baseline be established and that wind turbine  
7           sound should not be allowed to be more than a  
8           defined margin above that baseline; is that  
9           correct?

10  A.   That's what I'm suggesting, yes.

11  Q.   And then measurements would be taken at  
12           residential receptor locations, and if they  
13           did not exceed the baseline by more than 5  
14           dBA, then no sound impact would be expected;  
15           if they exceeded by between 5 and 10 dBA,  
16           then that would be a modest noise impact; and  
17           if it was more than 10, that would be a  
18           significant impact under your proposal.

19  A.   That's correct.

20  Q.   In the next sentence after you list these  
21           criteria, you say that the criteria should be  
22           applicable to residences where AWE sound does  
23           not exceed 30 dBA.

24  A.   That's correct.

1 Q. I guess I don't quite understand that. These  
2 criteria would only apply when sound levels  
3 from the project do not exceed 30 dBA?

4 A. No, they would apply to the project when  
5 sound levels exceed 30 dBA. Below 30 dBA is  
6 presumed, on the basis of Pedersen and  
7 others, that sound levels would be  
8 acceptable, irrespective of background sound  
9 level.

10 Q. So that sentence needs to be corrected,  
11 doesn't it? "The above criteria applicable  
12 to residences where AWE sound" --

13 A. Oh, I'm sorry.

14 Q. -- "does not exceed 30 dBA."

15 A. You're correct. It should read "the above  
16 criteria applicable to residences where AWE  
17 sound exceeds 30 dBA."

18 Q. On Page 21 of your supplemental testimony,  
19 near the very end, you say that background  
20 levels on the northwest side of Willard Pond  
21 would be as low as 15 dBA without insect  
22 sound, which I guess means some time other  
23 than summer nights.

24 A. That is correct.

1 Q. Or as you've already testified, I think,  
2 maybe it isn't just summer nights, because  
3 there's actually insect sounds going on on  
4 summer days as well, isn't there?

5 A. Yes, I would expect so.

6 Q. And then you say that along these trails, the  
7 project sound levels will range from 30 to 35  
8 dBA, which is clearly far quieter than any  
9 standard this Committee's adopted in the  
10 past; is that correct?

11 A. I believe so.

12 Q. And then you go on to say --

13 MR. ROTH: Same objection with  
14 respect to the limitations of what he knows  
15 about what this Committee has done in the  
16 past.

17 MR. PATCH: Well, I guess I  
18 would ask the Committee to take official  
19 notice of -- and maybe you already have, now  
20 that I think of it -- but of the prior orders  
21 that the Committee --

22 MS. BAILEY: We have.

23 MR. PATCH: I think you did  
24 the Lempster order and the Groton order,



1           which are the relevant ones. I don't think  
2           the GRP order actually had sound levels in  
3           it.

4                       MR. ROTH: I have no objection  
5           to that. But I would point out that the  
6           Groton order does include some of Mr. Tocci's  
7           recommendations with respect to the Baker  
8           River Campground.

9                       MR. PATCH: That would be  
10          appropriate on redirect. I don't think it's  
11          appropriate for Mr. Roth, at this point in  
12          time, to offer that into the record.

13                      MS. BAILEY: I agree. So the  
14          Committee has taken administrative -- or  
15          judicial notice of those orders.

16                      MR. PATCH: Okay. Thank you.

17 BY MR. PATCH:

18 Q.     And then that same point in the testimony  
19         where you're talking about Willard Pond, you  
20         go on to say that this suggests that the wind  
21         turbine sound will be audible. Is that what  
22         you say at that point?

23 A.     I say that along those trails, AWE's facility  
24         sound levels will range between 30 and 35

1 dBA, suggesting that wind turbine sounds will  
2 be audible.

3 Q. Is audibility a criteria that you're  
4 suggesting that this Committee adopt? That's  
5 a pretty qualitative criteria, isn't it,  
6 audibility?

7 A. It is not. I'm not suggesting that. I'm  
8 simply saying, later on, later in the  
9 sentence, "thus, also detracting from  
10 wilderness experience there as well." That's  
11 my comment.

12 Q. I mean, it wouldn't really be fair to have an  
13 audibility criteria. If you did that, you  
14 would have effectively -- if you were to use  
15 that, not just in this particular project,  
16 but for other projects, audibility as a  
17 criteria, then, in effect, you'd have no  
18 human development, as such.

19 MR. ROTH: Objection. I think  
20 what the sentence says is that he's talking  
21 about detracting from a wilderness  
22 experience. This report -- and the whole  
23 purpose of this proceeding is to establish  
24 whether there will be unreasonable adverse

1 effect on aesthetics, I suppose, is the noise  
2 criteria. And to the extent that people  
3 using a wilderness trail, you know, are  
4 affected in some way by audibility of wind  
5 turbine noise, it seems to me that that's a  
6 criteria of some sort. We're here to assess  
7 impacts, not simply to impose a criteria or a  
8 strict numerical limitation.

9 MS. BAILEY: Do you think that  
10 the witness could say that?

11 MR. ROTH: Maybe. Did you get  
12 all that?

13 THE WITNESS: Yes, I did.

14 MS. BAILEY: Mr. Roth, you  
15 need to let the witness testify, really,  
16 please.

17 A. Yes. I'm not proposing here that there be a  
18 numerical limit applied to wind turbine sound  
19 that would cause it to be inaudible. I'm  
20 simply saying that audibility is a  
21 characteristic of a wilderness area. And by  
22 virtue of wind turbine sound being audible,  
23 it would affect that wilderness character.

24 Q. I mean, there are planes that fly overhead at

1           that same location, aren't there?

2    A.    Yes, I understand there are.

3    Q.    And aren't there electric boats that can use  
4           the pond or people that use the pond, or car  
5           noises of cars that bring in kayaks? Aren't  
6           there audible noises in that area?

7    A.    I would imagine so, yes.

8    Q.    In our July prefiled testimony, you cite the  
9           experience at the Mars Hill project in Maine.  
10          And I think you've had a couple of questions  
11          related to this already. But I just want to  
12          clarify. Isn't it true that some of the  
13          homes in Maine are less than a thousand feet  
14          away from the wind turbines; whereas with  
15          this project, the nearest would be at least  
16          2600 feet or a half-mile away?

17   A.    Yes, that's my understanding.

18   Q.    And then you also in your testimony cite the  
19          experience with wind turbines in Falmouth.  
20          And the homes there are within 1300 feet,  
21          aren't they?

22   A.    I think I say that. If I could look that up?

23                   MR. ROTH: Doug, is there  
24           someplace in his testimony that he says that,

1           that you can point him to?

2                           MR. PATCH: I'll try to find  
3           it.

4 BY MR. PATCH:

5 Q.    In the interest of saving time, would you  
6       agree to accept that, subject to check? It  
7       didn't seem as though you disagreed they were  
8       about 1300 feet away.

9 A.    Frankly, I don't recall. I thought they may  
10       have been a little bit further than that, but  
11       as close as 1300 feet.

12 Q.    Okay. Then why don't we move on.

13                I mean, you've had a couple of questions  
14       about the difference between pitch-controlled  
15       and stall-controlled wind turbines, in terms  
16       of sound levels?

17 A.    Yes, I have.

18 Q.    And pitch-controlled turbines basically reach  
19       their maximum sound level at a certain wind  
20       speed. And that's what we're talking about  
21       in this case with the Acciona; correct?

22 A.    That's correct.

23 Q.    And that's the case, I believe, at Mars Hill.  
24       But the stall control increased almost -- I'm

1           going to say this word wrong because I can  
2           never pronounce it right -- linearly -- maybe  
3           I said it right -- linearly with wind speed?

4   A.    It does increase with wind speed.

5   Q.    Okay.  On a linear basis?

6   A.    Yes.  That would -- I don't have -- I've  
7           never seen characteristics for that wind  
8           turbine.  I can't answer that.  But I would  
9           assume that would be the case.

10   Q.   And since that's the type of wind turbine at  
11          Falmouth, do you think that that's part of  
12          the reason why they've had a number of  
13          complaints, in addition to the fact that the  
14          residences are located as close as they are?

15   A.    I don't know.  I'd have to look to the wind  
16          turbine characteristics.  I can't answer  
17          that.

18   Q.    In terms of Gregg Lake and Willard Pond, the  
19          two areas where you did your sound level  
20          measurements in August, aren't they actually  
21          used most frequently during times when there  
22          is insect noise, during the summer month?

23   A.    During the summer months.  I imagine they  
24          might be used during the winter months as

1 well.

2 Q. But more frequently in the summer,  
3 presumably, if they're lakes.

4 A. Presumably, yes.

5 Q. In your prefiled testimony, PC 2, Page 6,  
6 Paragraph 11, you discuss a European study.  
7 I guess we've actually already covered that.  
8 This is the study where -- that points out  
9 that having wind turbines visible from a  
10 house significantly increases the risk of  
11 annoyance in some people. I mean, we've  
12 already talked about that I think.

13 A. Yes, but I would rather quote that directly.  
14 I'm not sure the term "significantly" is  
15 used.

16 Q. Okay. But it increases the risk of  
17 annoyance.

18 In the report attached to your July 31st  
19 prefiled testimony -- actually, I'm sorry.  
20 Mr. James -- I'm talking now about Mr. James.  
21 And the report attached to his July 31  
22 prefiled testimony --

23 MR. ROTH: Doug, is that  
24 exhibit available to him? And can you

1           identify it more specifically so I can go try  
2           and find it over there if it's around?

3   BY MR. PATCH:

4   Q.   Do you have Mr. James' testimony, by any  
5        chance?

6   A.   I do not have it with me.

7                   MR. ROTH:  Is it there on the  
8        table, Mike?

9                   MR. IACOPINO:  Checking right  
10       now.  Yeah, it should be.  NB 1.  There's  
11       also NB 8, which is his December 10th  
12       testimony.  July 30 is NB 1.

13                  MR. ROTH:  Is there another  
14       one of these books?  This seems to start with  
15       34.  Is this your book?

16                  MS. GOLDWASSER:  Yes.

17                  MR. ROTH:  This is yours?  Oh,  
18       I'm sorry.

19                  (Pause in proceedings)

20                  MS. BAILEY:  We're going to go  
21       back on the record, because I asked the  
22       reporter to let that discussion about where  
23       we are in the exhibits be off the record.  So  
24       we're going to go back on the record now.  Go



1           ahead, Mr. Patch.

2   BY MR. PATCH:

3   Q.   In my question I referred to the report  
4           attached to his July 31 prefiled testimony.  
5           I did that because he has like a very brief  
6           prefiled testimony, and then he has a report  
7           that I think goes on for at least eight  
8           pages.

9           But on Page 3 and 8 of that report, he  
10          discusses sound emissions from wind turbines  
11          that are not audible, or low-frequency  
12          sounds. And he says that it has been  
13          demonstrated that they can cause disturbances  
14          to our organs. Do you recall that?

15   A.   I see here, the third paragraph on Page 3, a  
16          discussion of -- it says, "It must be  
17          understood that these complaints have two  
18          distinct aspects..." and he goes into a  
19          variety of anatomical complaints.

20                  MR. ROTH: Excuse me. I guess  
21          I don't know if this is an objection or  
22          clarification. But I guess I have not heard  
23          the witness indicate that he has previously  
24          seen this report.

1 BY MR. PATCH:

2 Q. Have you seen this report?

3 A. I have seen the report in the past and  
4 skimmed it at that time.

5 Q. Do you agree with the concerns that Mr. James  
6 expresses about low-frequency sounds?

7 A. Could you point out what aspects of the  
8 document or phrases in the document that I  
9 should be pointed to?

10 Q. Well, the problem is he doesn't have line  
11 numbers on there. It's pretty dense. But I  
12 can try to find it. But I note that he says  
13 that it has been demonstrated that they can  
14 cause disturbances to organs. Do you want me  
15 to try to help you find that?

16 A. Yes, for the purposes of understanding the  
17 context that he says that. That's all right.  
18 I take it on Page 3 --

19 Q. Yes.

20 MR. ROTH: About halfway  
21 through the last paragraph I think is where  
22 the discussion ensues.

23 (Witness reviews document.)

24 A. I'm sorry. If you could point that out to

1 me, that would be appreciated.

2 MS. BAILEY: This can be off  
3 the record.

4 (Pause in proceedings)

5 MS. BAILEY: Okay. Back on  
6 the record.

7 A. Okay. The sentence reads, "These symptoms  
8 are not a result of the audible sounds being  
9 processed by auditory functions of the  
10 cochlea, but are instead from infrasound and  
11 low-frequency sound mediated by the cochlear  
12 vestibular organs." I have -- I am aware of  
13 other experts having made that same claim.

14 BY MR. PATCH:

15 Q. Do you agree with that?

16 A. Would it -- this appears to me to be  
17 information that I would accept by another  
18 expert. But I'm not an expert in this area  
19 to be able to say that, in fact, is the case.  
20 But I know of it to have been claimed by  
21 others.

22 Q. And you were Public Counsel's witness in the  
23 Groton Wind hearings before this Committee;  
24 correct?

1 A. Yes, I was.

2 Q. And do you recall your testimony in that  
3 docket, "Modern upwind-styled wind turbines  
4 avoid the propensity to generate the  
5 significant levels of low-frequency sound  
6 common in older turbine arrangements"?

7 A. Yes, I do.

8 MR. PATCH: And just for the  
9 record, that was Day 3, the afternoon of Day  
10 3 transcript, Page 86.

11 BY MR. PATCH:

12 Q. And do you recall your testimony in that  
13 docket, to the effect of, "Designing wind  
14 turbines so that the blades are upstream of  
15 the tower support has mostly eliminated  
16 low-frequency excitation in newer wind  
17 turbines"?

18 A. Yes, as compared to older turbines.

19 MR. PATCH: And again, that's  
20 Day 3, Pages 86 and 87.

21 A. Yes.

22 BY MR. PATCH:

23 Q. And do you recall your testimony in that  
24 docket about a paper by Bel Acoustic

1 Consulting, by a George Bellhouse?

2 MR. ROTH: I guess I have to  
3 object. He's asking the witness to remember  
4 testimony that was, when, three years ago?  
5 Two years ago? And he doesn't have a copy of  
6 the testimony in front of him. He was not  
7 asked prior to this hearing to review the  
8 testimony. So he's going, you know,  
9 basically just from memory. And I just don't  
10 think it's fair to go this route here and  
11 expect him to draw conclusions about a paper  
12 that he may have spoken about, whenever that  
13 was, two or three years ago.

14 MR. PATCH: Well, the witness  
15 said that he remembered saying that. I mean,  
16 if he didn't remember, I've got the testimony  
17 here and I was going to show it to him. But  
18 if he remembers it, seems to me it's saving  
19 the Committee time by not having to show him.

20 MS. BAILEY: I agree. He says  
21 he remembers it. So if he doesn't remember  
22 it, he can be refreshed.

23 BY MR. PATCH:

24 Q. Do you recall your testimony in that docket

1           about a paper by Bel Acoustic Consulting,  
2           part of a literature review provided by  
3           Public Counsel?

4   A.   No, I don't recall that.

5   Q.   Okay. This is actually the afternoon  
6           session, as I indicated, of Day 3. And it  
7           says, "Witness: Tocci," and it's -- the  
8           question I'm asking you now is, are you  
9           familiar with a paper by G. Bellhouse on  
10          low-frequency noise and infrasound from wind  
11          turbine generators? It was part of a  
12          literature review provided by Public Counsel.

13                   MR. ROTH: I'm going to -- I  
14           have to object right now. I'm not sure what  
15           he's showing him, whether that's the  
16           transcript of the testimony or something they  
17           retyped. And, you know, I got my knuckles  
18           wrapped this morning for showing up with  
19           exhibits that weren't marked and weren't  
20           provided to the other parties. And here we  
21           have exactly the same thing -- you know,  
22           including a snarky scolding from Attorney  
23           Geiger about it. This is why we don't  
24           have -- this is why we mark things in

1 advance. So I object to this particular  
2 approach.

3 MS. GEIGER: I don't think  
4 he's marking it. I think he's just referring  
5 to it.

6 MR. PATCH: Yeah, I'm not  
7 asking it to be marked. I've already asked  
8 to take official notice. We have certain  
9 portions of the record and --

10 MR. IACOPINO: Mr. Patch, you  
11 should show it to the other parties so they  
12 know what you're referring to.

13 (Atty. Patch complies.)

14 MR. BLOCK: Madam Chairman,  
15 I'd like to also submit an objection, because  
16 it seems to be approaching some of the issues  
17 that our client has brought up. And I would  
18 like to have received a copy of this also.

19 MR. IACOPINO: You should take  
20 a look at it while he has it there, too,  
21 Mr. Block, and any other parties that want to  
22 look at it.

23 Mr. Patch, wait a minute a  
24 moment while Mr. Block reviews.

1 MR. PATCH: I will. Just  
2 trying to set it up so...

3 MS. BAILEY: Mr. Roth, I  
4 believe that Mr. Patch is attempting to  
5 impeach the witness's testimony by a prior  
6 inconsistent statement. He's not offering  
7 this as an exhibit.

8 MR. ROTH: I'm not sure  
9 what -- it's not clear to me what he's doing  
10 yet. I'm just concerned that the exhibit was  
11 not seen by me and not provided to other  
12 parties. And so --

13 MS. BAILEY: It's not an  
14 exhibit, though. Next question.

15 BY MR. PATCH:

16 Q. I'm interested in the response that you gave  
17 to a question at the bottom on Page 88, where  
18 you quote the last statement or last sentence  
19 of the abstract by Bel Acoustic Consulting.  
20 And I wonder if you could read that into the  
21 record. It begins at Line 22 and carries  
22 over until Line 1 on the next page.

23 A. It says here, this is a -- it says -- the  
24 last statement or last sentence of that



1       abstract is, "There is no evidence to  
2       indicate that low-frequency sound or  
3       infrasound from current models of wind  
4       turbine generators should cause concern."

5       Q.     Okay.   Thank you.

6               Insofar as the so-called Wind Turbine  
7       Syndrome, as the Committee noted in the  
8       Groton order at Page 81, you testified that  
9       none of the literature demonstrates a  
10       correlation between incidences of Wind  
11       Turbine Syndrome with sound levels at  
12       receptor locations in proximity to wind  
13       turbines.   Do you recall that?   I can show  
14       you that.   The Committee has taken official  
15       notice of that particular order, and I can  
16       show you that statement in the order in which  
17       the Committee essentially restates your  
18       testimony.   But do you recall making that --

19       A.     I don't recall, offhand.   I'd be pleased to  
20       look at it.

21               MR. ROTH:   If Attorney Patch  
22       wants to just ask him about Wind Turbine  
23       Syndrome, maybe that's the most direct route.

24       BY MR. PATCH:

1 Q. I'm sorry. I'm going to move on from that.  
2 It doesn't appear to be where my notes say it  
3 is, and I don't want to hold the Committee  
4 up.

5 I'm showing you what I would represent  
6 to you is the May 6, 2011 order of this  
7 Committee in the Groton Wind project. And  
8 I'm showing you Page 81. And I'm just going  
9 to read it to you and ask you to confirm that  
10 this is what it says.

11 It says, "However, according to Mr.  
12 Tocci, none of the literature demonstrates a  
13 correlation between incidences of Wind  
14 Turbine Syndrome with sound levels at  
15 receptor locations in proximity to wind  
16 turbines."

17 A. Yes, that's what it says.

18 Q. And similarly, and I can bring this, I guess,  
19 to your attention as well. In terms of  
20 vibroacoustic disease, you said, in that  
21 case, that sound levels produced by wind  
22 turbines simply do not rise to the level  
23 where it could have an adverse effect on the  
24 connective tissue of the heart and lungs. Do

1           you recall saying that?

2       A.    I don't. I would be pleased to read a record  
3           of that.

4       Q.    Okay. And again, I'm looking at Page 81 of  
5           that order, and I'm looking at a description  
6           of your testimony. And it says, "However,  
7           according to Mr. Tocci, the sound level  
8           produced by the wind turbines simply does not  
9           rise to the level where it could have adverse  
10          effect on the connective tissue."

11      A.    I see that it says that there. I don't know  
12          at what point I may have said or written  
13          that.

14      Q.    Well, there is a cite to the transcript of  
15          November 3rd, Afternoon Session, at Page 50,  
16          in the order. So, presumably that's where it  
17          was said.

18               And this Committee, in the Groton case,  
19          imposed noise restrictions or noise  
20          conditions. Do you recall specifically what  
21          those were?

22      A.    No, I don't.

23      Q.    If I represented to you that it was 55 dBA,  
24          or 5 dBA greater than ambient, whichever is

1 greater at the outside of the facade at any  
2 residence during the day, and 45, or 5  
3 greater than ambient at night, from 10 p.m.  
4 to 6 a.m., does that sound like that's the  
5 case? And I can show you the order if you  
6 dispute that.

7 A. I've never seen the order afterwards, so I'd  
8 be pleased to look at it.

9 Q. Okay. I'm looking at Page 86 of the order.  
10 "We condition the Certificate upon a  
11 requirement that the sound level from the  
12 Project shall not exceed 40 dBA, or 5 dBA  
13 greater than ambient." This is for the  
14 boundaries of the campground that was owned  
15 by Ms. Lewis. But then the general  
16 requirements are noted above: "Sound levels  
17 generated by the facility shall not exceed 55  
18 dBA, or 5 dBA greater than ambient, whichever  
19 is greater, at the outside facade of any  
20 residence during the daytime. And at night,  
21 from 10 p.m. until 6 a.m., the sound levels  
22 generated by the facility shall not exceed 45  
23 dBA, or 5 dBA greater than ambient, whichever  
24 is greater, at the facade of any residence."

1 Did I read that correctly?

2 A. Yes, you did.

3 Q. You had a few questions about the different  
4 locations that Epsilon had used for their --  
5 for the study that they did of the noise  
6 levels. Do you remember those questions?

7 A. I recall that I was questioned about those  
8 locations, yes.

9 Q. And the Location No. 1 I believe is along  
10 Route 9. And there was some implications, I  
11 think from the questions from Ms. Linowes,  
12 that there were, you know, certain noises at  
13 that particular location. Do you remember  
14 those questions?

15 A. In general. If I could turn -- could you  
16 refer to a page in the report?

17 Q. I think it's Figure 7-1, actually, in the  
18 report.

19 MR. ROTH: I believe that Ms.  
20 Linowes's questioning was about text on  
21 Page 5-4 and 5-5 and 5-6.

22 MS. BAILEY: In the Epsilon  
23 report?

24 MR. ROTH: In the Epsilon

1 report.

2 MR. PATCH: Yeah, 5-4.

3 BY MR. PATCH:

4 Q. I think 5-4 is the page --

5 A. Yes.

6 Q. -- where there was a discussion about the  
7 different locations and some of the noises  
8 that were found to be present at those  
9 different locations.

10 A. Yes.

11 Q. As an example: Location L1, do you believe  
12 that this location represents sound levels  
13 for residences along Route 9? I mean, steady  
14 fan or water noise, leave rustle, insect  
15 noise, bird calls, vehicular traffic, isn't  
16 that pretty consistent with the noises that  
17 would typically be present along Route 9?

18 A. Well, that might be case. But remember, I  
19 haven't seen -- I haven't been to the site.  
20 But the way it's described, I assume that  
21 Epsilon had selected locations that are  
22 representative, and I've just taken that for  
23 face value.

24 Q. Okay. Well, Location 3, I think there was an

1       implication that -- well, first there's a  
2       reference to a nearby brook. And there was  
3       an implication that somehow the results of  
4       that were skewed by the brook. Do you  
5       remember questions like that from Ms.  
6       Linowes?

7   A.   I remember similar questions.

8   Q.   If there was a brook and there was a steady,  
9       you know, source of water, wouldn't that be a  
10       primary source of sound? Wouldn't you expect  
11       some levels to be sort of flat and steady as  
12       a result of that?

13  A.   I would.

14  Q.   So could you take a look at Appendix A then.

15  A.   Yes, I have it here.

16  Q.   Figure A-3.

17  A.   Yes, I have it here.

18  Q.   Do you see a lot of flat lines in there that  
19       suggests steady water noise?

20  A.   No, I don't.

21  Q.   I think in response to a question from Ms.  
22       Linowes you had suggested that winds were  
23       measured at 10 meters on the ridge?

24  A.   That's my recollection, yes.

1 Q. Isn't it true, if you look at Page 6-2 of the  
2 report, the Epsilon report, that the  
3 measurements were actually taken from a -- at  
4 the 57-meter height AGL at the meteorological  
5 tower?

6 (Witness reviews document.)

7 A. Reading the second paragraph on Page 6-2, it  
8 says, "A wind speed of 9.9 meters per second  
9 at hub height, 92 meters AGL, using the IEC  
10 procedure described above, corresponds to a  
11 wind speed at the 57-meter height AGL..." It  
12 seems to imply that measurements were made.

13 At a previous paragraph it says,  
14 "Worst-case reference sound data provided at  
15 a 10-meter reference height..." It's not  
16 clear -- it would appear to me that wind  
17 speed measurement was at 10-meter height.  
18 But it clearly wasn't measured at 57 meters  
19 height, because it says that it was  
20 computed -- appears to be computed at a  
21 57-meter height. So I guess it's not clear  
22 at what height the wind speed was measured  
23 at.

24 Q. Doesn't it actually say that the sound data



1 provided was at a 10-meter reference height?

2 A. If I could read it, maybe that would help  
3 clarify it.

4 Q. Sure. Take a minute, please.

5 A. "Worst-case reference sound data provided at  
6 a 10-meter reference height for the Antrim  
7 wind turbines... indicates that  
8 7-meters-per-second winds will produce the  
9 worst-case sound levels, 107.4 dBA... This  
10 corresponds to hub-height wind speed of 9.9  
11 meters per second... and above using the IEC  
12 logarithmic profile."

13 All right. So could you repeat your  
14 question, please?

15 Q. Well, I mean, as it says there, it  
16 corresponds to a wind speed at the 57-meter  
17 height AGL at the meteorological tower. Is  
18 that correct?

19 A. Yes, it does.

20 Q. That's all the questions I have. Thank you.

21 (Discussion among Subcommittee Members  
22 off the record.)

23 MS. BAILEY: Questions from  
24 the Committee?

1                   MR. BLOCK: Can I ask the  
2                   Chair a question, please? Is it possible for  
3                   myself and for Mr. James to be provided with  
4                   all the documents that Mr. Patch referenced  
5                   there? We do not have that stuff. And for  
6                   us to be able to research that and find that  
7                   before the morning is a little --

8                   MR. IACOPINO: Actually, I  
9                   believe they're all on the web site under  
10                  "Transcripts."

11                  MR. BLOCK: Transcripts? I  
12                  just looked on the web site. I don't find  
13                  them on the web site, on the SEC web site. I  
14                  don't find the transcripts there yet.

15                  MS. BAILEY: We're talking  
16                  about transcripts from the Groton case.

17                  MR. BLOCK: I looked on the  
18                  Groton page there.

19                  MR. FROLING: I did find them  
20                  on the web site.

21                  MR. PATCH: I know they're on  
22                  the web site, but I'd be happy to provide the  
23                  hard copy I have to Mr. Block.

24                  MR. IACOPINO: Thank you.

1 MS. BAILEY: Okay. Yeah, we  
2 can do that after the Committee asks  
3 questions of Mr. Tocci.

4 MR. BLOCK: Thank you.

5 MS. BAILEY: Okay. Who has  
6 questions? Ms. Lyons.

7 INTERROGATORIES BY MS. LYONS:

8 Q. Good evening.

9 A. Good evening.

10 Q. Very early on in your testimony, probably  
11 within the first five minutes, you were  
12 talking about constant noise sources, like  
13 machinery, streams, roadways. How are those  
14 different than insect noises that could be  
15 often happening? Why would you correct for  
16 insect noises and not these other noises?

17 A. Reason why we correct for insect noise is  
18 because it's so easily identifiable in the  
19 measured spectrum. If you look at, I believe  
20 it's my first supplemental testimony, on Page  
21 6 and Page 7, Figures 3-A and 3-B show very  
22 significant peaks occurring above 2,000  
23 hertz. And by virtue of that insect noise  
24 being so identifiable and concentrated at

1       those frequencies, it is fairly easy to make  
2       that correction. To make other kinds of  
3       corrections -- for example, traffic noise or  
4       other kinds of noise sources that produce  
5       sound energy over a much wider spectrum -- is  
6       much more difficult to do and so it is  
7       customarily not done.

8       Q.   Why would it be considered a correction if it  
9       is part of a typical sound in that time  
10      period?

11      A.   It's a correction in the sense that it is  
12      typical of that time. It will always occur  
13      during that time of year. But at other times  
14      of the year, that insect sound wouldn't be  
15      present, or would be at a lower level or  
16      perhaps a higher level.

17      Q.   Why are we -- why would you layer that  
18      background sound at another time period?  
19      Wouldn't each time period be in itself what  
20      the sound is rather than correcting for a  
21      sound that is not occurring?

22      A.   It depends upon how you look at it. When we  
23      do environmental impact analyses, usually we  
24      look for the quieter times of year. Not

1 necessarily the quietest, but the quieter  
2 times of the year. So that would be after  
3 the freeze in the fall and extending to,  
4 depending upon the part of New England,  
5 perhaps as late as May before insect sound  
6 begins. So there would be several months  
7 where insect sound would be absent.

8 Background sounds would be typically much  
9 more quieter.

10 Q. Isn't that a little bit, then, skewing,  
11 because you could have a loud time of the  
12 year, and that's the background for that time  
13 period, and then the increase in sound that's  
14 potentially with the wind turbine, wouldn't  
15 it be less of an increase? Because we're  
16 always basing it on the quietest time of the  
17 year. But is that not the average?

18 A. Let me -- there are maybe two ways of  
19 answering that. First, the -- where insects  
20 would be present all the time, 365 days a  
21 year, then obviously you leave it in. But  
22 there are substantial times of the year,  
23 several months, where insect sound is absent.  
24 And so with respect to a person's perception

1 of sound, it would be greater during those  
2 quieter months than it would be during the  
3 summer.

4 But second, if you notice, most of the  
5 analysis has been done on an A-weighted sound  
6 level basis. In other words, we report  
7 A-weighted sound levels both for background  
8 and for sound produced by the wind turbine  
9 facility. That doesn't really present the  
10 full picture of how people will perceive wind  
11 turbine sound. The mass -- the insect sound,  
12 though it's at a very high level during the  
13 summer, won't necessarily cover up, so to  
14 speak, wind turbine sound, because wind  
15 turbine sound would be at a lower frequency.  
16 And so it would still be perceptible and not  
17 really masked entirely by insect sound.

18 So, part of the reason for removing the  
19 insect sound is to arrive at an A-weighted  
20 sound level that, when compared to wind  
21 turbine sound level, would give a better  
22 perception about the potential impact of wind  
23 turbine sound.

24 Q. Thank you.

1 MS. BAILEY: Chairman

2 Ignatius.

3 CHAIRMAN IGNATIUS: Thank you.

4 INTERROGATORIES BY CHAIRMAN IGNATIUS:

5 Q. Mr. Tocci, I've read your testimony and  
6 obviously listened today, and I still am not  
7 sure I understand your recommendations.

8 I know on Pages 19 and 20 of your  
9 supplemental testimony that you really get to  
10 the heart, I think, of what your  
11 recommendations are by calculating a baseline  
12 and then setting some standards for when the  
13 baseline -- when the -- I'm sorry -- when the  
14 wind facility is higher than 30 dBA, then you  
15 go to a three-step test of how much higher it  
16 would be. And yet, I can't figure out what  
17 you do with those things. How do you measure  
18 them is one question. But secondly, if you  
19 find that it is greater than 30 within those  
20 three different bands, then what happens?

21 A. Well, one of the ways of looking at it is --  
22 in the Groton decision, for example, the way  
23 the Groton decision was provided was that  
24 during the day, sound levels would not exceed

1       either 55, or 5 dBA above ambient, the higher  
2       of those two. For the campground, it was a  
3       lower -- I believe it was 40, and 5 dBA above  
4       that background.

5               Well, in a sense, what I'm arguing here  
6       is that background should be the background  
7       that is occurring at night. And so it's  
8       essentially the same way of framing it, only  
9       with a lower level. Instead of 55 during the  
10      day and 45 at night, it would be closer to  
11      30, and/or 5 dBA above background, the  
12      greater of the two.

13             In order to provide some, you know,  
14      perception of how people would perceive it,  
15      to give some description to it, I have --  
16      basically, instead of just having the single  
17      5 dB margin, I've included two other margins,  
18      5, 10, and then more than 10, as a way of  
19      providing some perspective on how people  
20      would perceive wind turbine sound.

21   Q.    So the three bands you described is to give  
22          an idea of what the reception of those sounds  
23          might be.

24   A.    That's correct.



1 Q. All right. The actual recommendation of what  
2 you're asking the Committee to make a  
3 condition, if it were to approve this  
4 project, is that you would have a limit --  
5 well, tell me. I don't want do it for you  
6 because I'm going to get it wrong. Tell me  
7 what the limits would be and over that  
8 there's some sort of consequences.

9 A. I would suggest that it would be either -- it  
10 would be the greater of 30 dBA, or 10 dBA  
11 above the baseline background, with insect  
12 correction applied. Now, in lieu of applying  
13 an insect correction, which has been somewhat  
14 argued here, what we might do is reassess the  
15 baseline at a time during the year when  
16 insects would be absent. So it would be that  
17 background plus 10 dBA, or 30 dBA, whichever  
18 of the two is greatest.

19 Q. And that would be applied year-round or only  
20 for the months you have no significant insect  
21 activity?

22 A. I would say it would be applied year-round.  
23 However -- I would say it would be applied  
24 year-round. And the reason for that is,

1       assuming that a wind turbine -- whatever  
2       sound it produces during the summer would  
3       also be produced during the winter. So if  
4       the criteria is met during the summer, it  
5       certainly would be met during the winter.  
6       Now, that's with the winter, the non-insect  
7       background sound. And in a sense, we might  
8       be, in doing that, applying more of a limit  
9       than might be needed during the summer  
10      because of insect sound in the background.  
11      But in designing a wind farm and evaluating  
12      its economies, I think it's necessary to say  
13      what is the most stringent condition under  
14      which we need to operate, and that I would  
15      assume would be times of the year when there  
16      is no insect sound.

17    Q.   Well, let's look at your chart on Page 20,  
18       because I'm just -- I'm not following the  
19       steps that one goes through. And I'm a  
20       regulator, so I want to figure out what are  
21       people supposed to do and what am I supposed  
22       to do about it if they don't follow the  
23       rules.

24               So let's not look at Location 1, because

1           that's a more complicated one. Let's take  
2           Location 2. Your recommendation, you had  
3           said, would be to take -- the limit would be  
4           30 dBA, or 10 dBA over the baseline?

5   A.   That's correct.

6   Q.   So you've already demonstrated from your  
7           calculations that it exceeds that because  
8           it's 35 from the facility.

9   A.   That's right.

10   Q.   So, does that mean it shuts down? What does  
11           that mean then? What --

12   A.   Well, let me -- the first columns, 2 and 3,  
13           that's Baseline and Insect Removal.  
14           Unfortunately, we're talking about a time of  
15           year when insects are an issue, and that is  
16           an added complication of how to remove insect  
17           sound. But the 34 minus 15 is 19, that would  
18           be a baseline without insect sound. That's  
19           what you would expect to find as a baseline  
20           during the winter, for example. Now, it  
21           would be totally appropriate to go back and  
22           make measurements during that time of year in  
23           order not to -- in order to be sure that it's  
24           fair to the facility. But the 19 plus 10 is

1           29, and 29 then would be the applicable  
2           limit.

3       Q.    And the calculations made by Mr. O'Neal is  
4           that, at that location, 35 would be the  
5           level.

6       A.    Yeah, 35 is -- so, 35 would be -- the  
7           expected facility sound level would be about  
8           6 dBA higher than what we are -- what I am  
9           suggesting here as a limit.

10      Q.    And are the AWE numbers adjusted for insect  
11           removal already?

12      A.    The AWE numbers are sound produced by the  
13           wind turbine alone. It's not background.  
14           It's just wind turbine sound.

15      Q.    All right. Thank you.

16                So in that Location No. 2, it would be  
17           out of compliance under either of your tests;  
18           either the baseline plus 10, which will get  
19           you to 29, or if you said if it was just 30.  
20           So what would be the consequence?

21      A.    Here there would be a -- there would be --  
22           it's the baseline plus 10 is 29. But it's  
23           below 30, so 30 becomes the limit. Now we're  
24           5 dB above the limit. So there would be an

1           impact. I can't say what the consequence  
2           would be, in terms of what action would need  
3           to be taken, but it would have to be  
4           recognized that there's a potential for a  
5           noise impact.

6   Q.   Well, you said in your testimony that there's  
7           very little one can do to mitigate. You  
8           described some, at least to the low  
9           frequency, and maybe I'm overstating that,  
10          that you can change a bit, but it doesn't  
11          have much sound reduction. Is that fair?

12  A.   That's right. There is very little that I  
13          believe can be done with respect to lowering  
14          sound produced by a wind turbine facility.

15  Q.   So what would a -- here's my concern: If I  
16          look at this chart, it looks like, if I'm  
17          understanding your calculations, in most  
18          every case the proposed facility would be out  
19          of compliance.

20  A.   In many cases, yes.

21  Q.   And so it then forces one to ask: All right.  
22          If it's going to be out of compliance, not in  
23          the rare instance, but in most everything on  
24          this page, then are there mitigation steps

1           that could be taken to bring it into  
2           compliance? And if there are not, then why  
3           would we be permitting this at all?

4    A.    That's a question I have. I'm just  
5           indicating that the reaction of people to  
6           sound, that this is a potential for being  
7           problematic during quiet periods of time --  
8           quiet periods of the day and night.

9    Q.    And when you said "the reactions of people to  
10          the sound," is that referring back to what  
11          you described as "self-reporting" of people  
12          who described "annoyance" that really  
13          couldn't be quantified, but to each person  
14          means something that's important to them?

15   A.    There's a certain, I believe, probability on  
16          the basis of that Netherlands study that a  
17          certain portion of people would say that they  
18          were "annoyed," yes.

19   Q.    All right. Thank you. Nothing else.

20   INTERROGATORIES BY MS. BAILEY:

21   Q.    Okay. I'm looking at the table that you were  
22          just on in your supplemental testimony, and  
23          I'm looking at the second column. And let's  
24          look at Location 3. The second column is

1       Baseline. And the footnote says that  
2       comes -- that number comes from Table 6-2 in  
3       the Epsilon report. Can we look at the  
4       Epsilon table -- can we look at the table in  
5       the Epsilon report?

6   A.   Yes.

7   Q.   Where does the number 32 come from in  
8       Location 3?

9               (Witness reviews document.)

10  A.   Unfortunately, it's not spelled out. I  
11       referred to the Epsilon report, but it  
12       essentially is data in Figure A-3. So --

13  Q.   So the footnote is incorrect.

14  A.   The footnote is correct, but the actual data  
15       is in a spreadsheet that -- this is a plot of  
16       the data in the spreadsheet.

17  Q.   Well, the footnote says, "From Table 6-2 of  
18       the Epsilon report."

19  A.   Let me go to that.

20               (Witness reviews document.)

21  A.   I see the problem. Table 6-2 reports a  
22       minimal L90 of 24. I'm reporting a baseline  
23       of 32, a higher sound level.

24  Q.   And you're saying you're getting that from

1 table --

2 A. Yes, it's incorrect. The 32 comes from an  
3 explanation.

4 Q. From an explanation of what?

5 A. I'll need to clarify this. On Page 19  
6 there's a sentence that says, "To accommodate  
7 scatter observed in measured data, the  
8 baseline sound level is defined as the 90th  
9 percentile of the 10-minute interval,  
10 insect-corrected, background sound levels...  
11 measured when the average 57-meter AGL wind  
12 speed exceeds 9.3 meters per second."

13 Now, for Location 3, what we do is go to  
14 Figure 6c in the first supplemental prefiled  
15 testimony --

16 Q. Okay. Hold on.

17 MR. ROTH: I'm sorry, Greg.  
18 Where are you at?

19 THE WITNESS: Yes, Page 13 of  
20 the supplemental prefiled testimony.

21 MR. ROTH: Yours.

22 THE WITNESS: Yes.

23 BY MS. BAILEY:

24 Q. Which is the testimony that you're reading



1 from.

2 A. That's right.

3 Q. So the testimony -- the table is in the first  
4 supplemental prefiled testimony.

5 A. It is. And the data to which I'm referring  
6 now for where that 32 dBA comes from is on  
7 Figure 6c on Page 13.

8 Q. Okay. So the baseline data in the table is  
9 coming from your supplemental testimony, not  
10 the Epsilon report.

11 A. That's right.

12 Q. Okay. And that's on Page 13 of the  
13 supplemental testimony?

14 A. Page 13.

15 Q. That would explain why I couldn't find it in  
16 the Epsilon report. Okay.

17 A. If I could explain Figure 6c?

18 Q. Figure 6c?

19 A. Page 13.

20 Q. That's that scatter chart?

21 A. That's right.

22 Q. Okay. I'm there.

23 A. Okay. The horizontal axis is wind velocity  
24 in meters per second; that's the 57 AGL wind

1 speed. The vertical axis is the 90th  
2 percentile sound pressure level measured for  
3 each 10-minute interval by Epsilon. Now,  
4 notice the data scatters considerably.

5 What I've done is recognize, first, that  
6 there is a slight tendency for sound  
7 levels -- background sound levels to increase  
8 with increasing wind speed at the ridgeline.  
9 So what I've done is considered only the data  
10 at where sound levels -- where wind speeds  
11 are at 9.3 meters per second and higher. And  
12 what I've done is taken the 90th percentile  
13 of that, of those data points, with wind  
14 speeds at 9.3 meters per second or higher.  
15 It's the green line with a number 32.4 next  
16 to it. That 32.4 is the baseline that I've  
17 reported in my Table 2 of the prefiled  
18 testimony.

19 In essence, the suggestion I have is  
20 that the limit on the facility noise be no  
21 more than 10 dB above that baseline.

22 Q. Well, no, that's not what I heard you tell  
23 Chairman Ignatius. You said it could be no  
24 more than 10 dB above that corrected for

1           insect and a whole bunch of other things.

2    A.   Right. This data in the Location 3 is not  
3       corrected. And so, going back to Table 2 --  
4       I spoke out of turn here.

5           Going back to Table 2, the first column,  
6       Baseline, for Location 3 is 32. Then I  
7       looked at the data on Figure A-3 and arrived  
8       at an insect correction -- an estimated  
9       insect correction of 15 decibels. I  
10      subtracted the 15 decibels from the 32 to  
11      arrive at an adjusted, insect-corrected  
12      baseline of 17. Now it's 17 plus 10 is 27.  
13      But that's below 30. So the limit ends up  
14      being 30 for wind turbine sound, and the  
15      estimated facility sound is 42; 12 dB higher  
16      than the 30 dB suggested limit here.

17   Q.   So what does that mean?

18   A.   Well, that's the -- there's a potential for  
19       significant residential impact; 25-percent  
20       chance of residence "annoyed"; 18-percent  
21       chance of "very annoyed." Those percentages  
22       might be a little lower for reasons that were  
23       cited earlier, that the Netherlands study was  
24       only 35 -- 37 percent of the people

1       responding, but that it would be perhaps  
2       20 percent, 15 percent. So there would be a  
3       probability that, I believe, that there would  
4       be people that would complain.

5   Q.   And if you adjusted that 25 percent,  
6       multiplying by .7, you get 17-1/2 percent.

7   A.   That's -- yes, you're right. No. Wait a  
8       minute.

9   Q.   It seems to me like you're just playing with  
10       numbers and mooshing around math to get the  
11       result. I mean, I can do the same kind of  
12       math. You didn't do it correctly, or you  
13       didn't do it based on the footnote that you  
14       have in there. The footnote is completely  
15       wrong; correct?

16   A.   The footnote is not correct with respect to  
17       where the baseline data came from. The  
18       baseline data came from my analysis of the  
19       Epsilon data in determining a baseline for  
20       sound levels, background sound levels that  
21       occurred when wind speeds were at 9.3 meters  
22       per second or higher.

23   Q.   Okay. Thank you.

24                   MS. BAILEY: Mr. Iacopino --

1 well, are there any other Committee  
2 questions? Mr. Stewart.

3 MR. STEWART: I just have one.

4 Thank you.

5 INTERROGATORIES BY DIR. STEWART:

6 Q. Has anything changed substantially in the  
7 public health literature or knowledge of the  
8 effects of sound since you worked on the  
9 Groton project? So in other words, in the  
10 last two years, anything substantially  
11 changed in terms of the research on the  
12 effects of sound on -- you know, from these  
13 projects?

14 A. I believe when I worked on the Groton, and  
15 this is just my recollection, the latest  
16 papers were in 2008. And since then, there  
17 seemed to be more papers claiming impacts of  
18 low-frequency sound. The problem is that  
19 there are no population surveys like the  
20 Netherlands study. The Netherlands study was  
21 very helpful. That came out in 2009. That  
22 was a survey of, you know, a reasonable  
23 number of people. The Falmouth work I think  
24 was helpful, although, as pointed out, that

1 was for a different kind of turbine.

2 There are too many complaints coming  
3 from wind turbine facilities to say that  
4 there's nothing there. There have been years  
5 and years of papers claiming that  
6 low-frequency sound is not an issue. It's at  
7 very low levels. Oddly enough, there's been  
8 very little reported at blade passage  
9 frequency, where some of the motion sickness  
10 is believed to occur.

11 So I know it is an issue in the  
12 profession to say that there's something  
13 there, but it has not been studied. And  
14 unlike noise sources in the past, where there  
15 was -- the Environmental Protection Agency  
16 assessed noise impacts and then provided  
17 regulations that protected the public, but in  
18 the end protected the industry as well. That  
19 kind of -- there is no agency looking at this  
20 in any great detail. There are just these  
21 complaints that keep coming up, again, mostly  
22 from residences located really close to these  
23 facilities. But there's enough of an issue  
24 there to call into question that

1 low-frequency sound could be an issue and  
2 that the usual ways of evaluating noise,  
3 using A-weighted sound levels and so forth,  
4 may fall short of trying to identify those  
5 issues.

6 Q. Okay. Thank you.

7 INTERROGATORIES BY MR. IACOPINO:

8 Q. If I understand what you just said, you're  
9 saying that there's a question. But I mean,  
10 as far as you're concerned, in your opinion,  
11 is there evidence to demonstrate that either  
12 vibroacoustic disease or Wind Turbine  
13 Syndrome is caused by the operation of wind  
14 turbines?

15 A. All that is clear to me is that there's  
16 individual cases called out, but no  
17 understanding as to why it occurs or what --  
18 or how to make an association between a  
19 measurable sound level and a response that  
20 would be described as "Wind Turbine  
21 Syndrome." That relationship, to my  
22 knowledge, doesn't exist.

23 Q. So your opinion hasn't changed since Groton  
24 with respect to that issue.

1 A. I don't think so, no.

2 Q. All right. During your cross-examination by  
3 Mr. Patch, he asked you about whether or not  
4 the analysis that is performed by the  
5 Applicant -- by Epsilon, assuming that all  
6 the turbines are blowing in the same  
7 direction at the same time in order to come  
8 to the sound measurements -- or the expected  
9 sound measurements, he asked you if that was  
10 conservative. And you responded, "It's  
11 conservative with respect to wind direction."

12 A. Yes.

13 Q. And I noted that you added that last clause  
14 on there. Is it your position that the  
15 results of using that type -- those types of  
16 assumptions do not result in conservative  
17 results -- in other words, a conservative  
18 expected sound level?

19 A. There were other points that were brought out  
20 in the report that reflect a conservative  
21 estimate of sound levels, two of them in  
22 particular. One of them is no foliage was  
23 included in any of the propagation  
24 algorithms. Second, they assumed hard ground



1        everywhere, which was shown in a previous  
2        paper by Kalisky and others, that that is the  
3        appropriate way, the appropriate setting in  
4        the 9613 algorithm.

5                So I think the way Cadna was used and  
6        the modeling that was done was correct, with  
7        the possible exception that, you know, we  
8        have not seen a report for what the sound  
9        power level is of the wind turbines. We've  
10       simply accepted their assertion that the  
11       sound power level produced by the wind  
12       turbines is 107 dBA.

13    Q.    As reported by the manufacturer.

14    A.    As they reported it on the basis of their  
15       estimates.

16    Q.    Okay. But in general, then, that analysis  
17       that was used by Epsilon -- what did you call  
18       it? The 913?

19    A.    ISO 9613.2, yes.

20    Q.    So you would agree, then, that that does  
21       yield a generally conservative estimate of  
22       what the sound levels are going to be.

23    A.    I would say so, yes.

24    Q.    Are you aware of any wind energy production

1 facility that is limited under any standard  
2 to 30 dBA?

3 A. No, I am not.

4 Q. How many miles per hour is 9.3 meters per  
5 second?

6 A. May I use a calculator? I think it's  
7 18 miles an hour, but that's my recollection.

8 Q. It seems to me that you ignored an awful lot  
9 of data points by choosing that sort of  
10 cutoff to adjust Epsilon's numbers. Can you  
11 explain why you would ignore that many data  
12 points?

13 A. Below 9.3 meters per second, the wind turbine  
14 would be producing less sound power than 107  
15 dB, so that the relative difference between  
16 wind turbine sound and background sound would  
17 be decreasing. It would be less impact.

18 Q. Okay. That explains it'd be less impact.  
19 But why did you ignore those data points?

20 A. We're evaluating -- I evaluated impact for  
21 the condition of maximum turbine sound  
22 pressure level at receptor locations.

23 Q. Okay. I don't have any other questions.

24 MS. BAILEY: Can we do

1 redirect, please?

2 MR. ROTH: Can I have a few  
3 minutes to --

4 MS. BAILEY: Sure.

5 MR. ROTH: May I have five  
6 minutes?

7 MS. BAILEY: Yes. We'll go  
8 until quarter of eight p.m., for the record.

9 (Whereby a recess was taken at 7:42 p.m.,  
10 and the hearing resumed at 7:51 p.m.)

11 MS. BAILEY: Let's go. We're  
12 back on the record. Mr. Roth.

13 REDIRECT EXAMINATION

14 BY MR. ROTH:

15 Q. Okay. Mr. Tocci, during Ms. Linowes'  
16 cross-examination, she asked you about the  
17 phenomena where noise -- where outside noise  
18 can be reflected in a great room or a large  
19 room in a house. Do you remember that?

20 A. Yes, I do.

21 Q. And you referred to a "standing wave." Do  
22 you remember that?

23 A. Yes, I do.

24 Q. What's a standing wave? Can you give a

1           little bit more, sort of a description of the  
2           standing wave and the phenomena that Ms.  
3           Linowes was asking about?

4    A.    Yes.   Spaces that are devoid of  
5           sound-absorbed materials -- you'd find that,  
6           for example, in a bathroom or a tunnel or  
7           other places that are hard-surfaced -- what  
8           will happen is at certain frequencies, that  
9           space will build up sound energy to amplify  
10          sound at that frequency.  And this most often  
11          occurs at low frequencies and has been -- we  
12          have noticed in certain places, certain  
13          buildings, where low-frequency sound levels  
14          outdoors are actually lower than they are  
15          indoors.  That's a standing wave effect.  In  
16          other words, the sound transmits inside the  
17          space.  It builds up and amplifies a little  
18          bit higher than it actually is outdoors.  
19          That would be a standing wave effect.

20   Q.    Okay.  Thank you.

21                During the Committee's questioning, it  
22                was suggested that 9.3 -- using 9.3 meters  
23                per second leaves out a lot of information, I  
24                guess was the suggestion.  Why did you use

1           9.3 meters per second?

2    A.    Because that is the wind speed, as I  
3           understand it, that the highest wind turbine  
4           sound level will occur -- highest sound power  
5           level will occur.

6    Q.    And where does that come from?

7    A.    That was provided to us in the Epsilon  
8           report.

9    Q.    And did Epsilon use that same figure in their  
10           assumptions in modeling?

11   A.    I believe they did.

12   Q.    Okay. Now, there was a suggestion during  
13           questioning by the Committee that, if they  
14           accept your methodology and criteria, that in  
15           many instances and in many of the locations  
16           that were chosen, the project would be out of  
17           compliance. Do you remember that?

18   A.    I do.

19   Q.    And the question I have for you is: Isn't it  
20           true that the Antrim Wind base number, in  
21           terms of the sound -- or not the base, but  
22           the sound of the turbine is a worst-case  
23           figure?

24   A.    Yes, it is.

1 Q. And what does that mean for this particular  
2 problem?

3 A. Well, the way the criteria have been  
4 developed and wind sound power level -- sound  
5 pressure levels have been developed are the  
6 extremes. It's the loudest sound pressure  
7 level that would otherwise occur and compared  
8 to the lowest background sound level that  
9 would occur. So if you were to permit  
10 yourself a dynamic sound pressure level that  
11 goes up and down, along with the fact that  
12 turbine sound levels are going to go up and  
13 down as well, it is entirely possible that,  
14 you know, substantial periods where, if you  
15 were able to stop the turbine, measure  
16 background and turn it back on, you may find  
17 it to be within the criteria that I have  
18 suggested.

19 Q. So is that another way of saying that the  
20 project isn't always going to be out of  
21 compliance?

22 A. That's correct.

23 Q. Would you determine whether the project is --  
24 how would you determine whether the project

1 is out of compliance at any given moment  
2 during operation?

3 A. There are a couple of ways that it gets done.  
4 One is to find a proxy location far from the  
5 facility where background sound level has  
6 been previously shown to be able to be  
7 related to a receptor location close to the  
8 to the facility. So you'd measure background  
9 sound there while the facility is running,  
10 and presumably, if that is within the  
11 criteria, then compliance would be met. The  
12 other way to do it is to shut the wind  
13 turbine facility down, measure background and  
14 turn it back on.

15 Q. So it's going to be subject to somebody  
16 making a complaint and then there being  
17 measurements?

18 A. That's correct.

19 Q. And when we were here a couple weeks ago, Mr.  
20 O'Neal testified about -- I believe he  
21 testified about mitigation measures. And in  
22 your testimony a few minutes ago, I think I  
23 got the impression that you believe that  
24 mitigation is not possible. Can you square

1           that and perhaps correct what I think is a  
2           misimpression?

3    A.    Could you repeat that again?

4    Q.    Well, let me -- yeah, I know.  It's late.

5           Mr. O'Neal testified that you could  
6           mitigate sound exceedences by things like  
7           thermal pane windows, additional insulation,  
8           that sort of thing.

9    A.    Yes.  And those are controls applied at  
10          receptor locations as a means of reducing  
11          sound transmission from outside residences to  
12          the interior of residences.  That would be  
13          done by enhancing the sound isolation  
14          performance of windows, walls if necessary.  
15          And in order to allow windows to be closed  
16          during periods when it might want -- they  
17          might otherwise be open, mechanical  
18          ventilation could also be used.

19   Q.    Okay.  So it's possible, then, that if it  
20          were determined, in the worst-case scenario  
21          set forth in your chart here, that the  
22          facility was out of compliance, the response  
23          could be mitigation; correct?

24   A.    It could.  Mitigation at receptor locations.



1 Q. Thank you. That's all I have.

2 MS. BAILEY: Okay. Thank you  
3 very much. At this point, I think we'll  
4 close the hearing for today and see you back  
5 here in 12-1/2 hours.

6 (WHEREUPON the hearing was adjourned at  
7 7:58 p.m.)

8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

## C E R T I F I C A T E

I, Susan J. Robidas, a Licensed  
Shorthand Court Reporter and Notary Public  
of the State of New Hampshire, do hereby  
certify that the foregoing is a true and  
accurate transcript of my stenographic  
notes of these proceedings taken at the  
place and on the date hereinbefore set  
forth, to the best of my skill and ability  
under the conditions present at the time.

I further certify that I am neither  
attorney or counsel for, nor related to or  
employed by any of the parties to the  
action; and further, that I am not a  
relative or employee of any attorney or  
counsel employed in this case, nor am I  
financially interested in this action.

---

Susan J. Robidas, LCR/RPR  
Licensed Shorthand Court Reporter  
Registered Professional Reporter  
N.H. LCR No. 44 (RSA 310-A:173)

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

	<b>Acciona (2)</b> 179:24;205:21	<b>189:6;190:20; 193:22;200:3;201:2; 206:20;207:7,19; 214:5;221:17;224:3, 24;226:8;252:14,18</b>	<b>aesthetics (4)</b> 24:3;27:17;75:10; 203:1	<b>agrees (1)</b> 139:13
<b>[</b>				<b>agricultural (1)</b> 16:13
<b>[sic] (3)</b> 22:1;131:20;160:1			<b>affect (3)</b> 84:19;134:5; 203:23	<b>ahead (2)</b> 158:5;209:1
<b>A</b>	<b>accommodate (2)</b> 189:20;240:6	<b>ad (1)</b> 13:5	<b>affected (5)</b> 23:24;53:11;84:22, 23;203:4	<b>air (2)</b> 147:17;148:5
<b>A-2 (2)</b> 195:5,6	<b>accordance (1)</b> 163:22	<b>adapt (1)</b> 80:12	<b>affecting (2)</b> 48:13,14	<b>aircraft (4)</b> 131:23;132:11; 133:1;134:8
<b>A-3 (4)</b> 196:13;223:16; 239:12;243:7	<b>according (4)</b> 6:5;36:16;218:11; 219:7	<b>add (4)</b> 16:11;67:18,19; 157:8	<b>affects (1)</b> 69:22	<b>algorithm (1)</b> 249:4
<b>ability (1)</b> 98:23	<b>account (2)</b> 168:12;188:2	<b>added (4)</b> 36:23;43:22; 235:16;248:13	<b>after-construction (1)</b> 77:20	<b>algorithms (1)</b> 248:24
<b>able (16)</b> 19:10;26:19;28:4; 50:3;76:18;79:1; 88:10;140:5,9; 147:22;166:19,21; 211:19;226:6; 254:15;255:6	<b>accumulated (1)</b> 191:21	<b>adding (1)</b> 95:17	<b>afternoon (15)</b> 28:19,20;46:15,16; 55:20,21;71:3; 106:12;117:10,11; 122:5,6;212:9;214:5; 219:15	<b>Alice (1)</b> 162:20
<b>above (31)</b> 16:20;20:14;21:12; 70:3;75:4;115:16; 151:17;152:11; 153:3,14;155:21,24; 158:16;175:18; 179:5,6;196:23; 198:8;199:11,15; 220:16;224:10; 225:11;227:22; 232:1,3,11;233:11; 236:24;242:21,24	<b>achieve (1)</b> 56:21	<b>addition (6)</b> 36:23;44:5,52:3; 95:16;121:1;206:13	<b>afterwards (1)</b> 220:7	<b>Allen (2)</b> 117:4,5
<b>above-grade-level (1)</b> 190:1	<b>achieved (1)</b> 160:13	<b>additional (9)</b> 5:14;23:20,24; 36:10;78:13;125:13; 169:23;171:23;256:7	<b>Again (25)</b> 18:13;32:1;52:22; 68:16;89:2;113:4,18; 133:17,24;134:18; 138:9;141:11; 148:23;160:12; 165:1;167:16;169:9; 177:17;184:4; 186:15;190:18; 212:19;219:4; 246:21;256:3	<b>allow (6)</b> 18:24;143:3;155:2; 163:1;166:15;256:15
<b>absence (2)</b> 164:1;192:24	<b>achieves (1)</b> 38:23	<b>address (4)</b> 5:16;14:7,19;19:24	<b>allows (5)</b> 12:4;14:8;126:24; 138:21;186:10	<b>almost (4)</b> 55:24;73:11;85:2; 205:24
<b>absent (3)</b> 229:7,23;233:16	<b>acknowledge (1)</b> 145:8	<b>addressed (1)</b> 10:24	<b>alone (2)</b> 196:12;236:13	<b>along (14)</b> 10:9;19:2;22:18; 43:13,20;91:17; 124:12;131:23; 200:6;201:23;221:9; 222:13,17;254:11
<b>absolute (1)</b> 30:8	<b>Acoustic (3)</b> 212:24;214:1; 216:19	<b>addressing (2)</b> 56:14,14	<b>against (2)</b> 22:13;147:18	<b>alteration (2)</b> 21:21;76:11
<b>absolutely (1)</b> 51:22	<b>Acoustical (5)</b> 107:10,12;120:19; 128:16;174:8	<b>adequate (2)</b> 42:18;60:22	<b>agencies (1)</b> 72:5	<b>altered (2)</b> 20:18;75:12
<b>abstract (2)</b> 216:19;217:1	<b>acoustician (2)</b> 152:2;162:5	<b>adequately (1)</b> 179:18	<b>agency (6)</b> 40:14;58:17,22; 65:3;246:15,19	<b>although (9)</b> 26:13;40:1;109:17; 114:15;121:13; 132:10;134:6;163:8; 245:24
<b>ACC (2)</b> 15:23;17:7	<b>acoustics (2)</b> 106:24;145:19	<b>adjacent (3)</b> 22:22;48:15,16	<b>aggregate (1)</b> 116:13	<b>altogether (1)</b> 184:10
<b>accept (3)</b> 205:6;211:17; 253:14	<b>acreage (2)</b> 14:17,18	<b>adjoined (1)</b> 257:6	<b>AGL (6)</b> 224:4,9,11;225:17; 240:11;241:24	<b>always (9)</b> 27:2;32:19;48:24; 80:5;100:11;183:5; 228:12;229:16; 254:20
<b>acceptability (1)</b> 81:10	<b>acres (13)</b> 6:17,20;7:20;9:23; 13:24;14:3;42:12,22; 43:24;44:7,46:4; 92:9,19	<b>adjust (1)</b> 250:10	<b>ago (8)</b> 42:4;111:8;167:3; 213:4,5,13;255:19,22	<b>ambient (13)</b> 123:7;128:14; 138:2;139:8;151:14; 192:22;193:5; 219:24;220:3,13,18, 23;232:1
<b>acceptable (5)</b> 26:16;80:19; 117:17;118:3;199:8	<b>across (4)</b> 41:15;54:18; 134:21;166:3	<b>adjusted (5)</b> 114:4;119:5; 236:10;243:11;244:5	<b>agree (22)</b> 6:11;11:24;22:3; 40:16;86:14,16;90:4; 110:14;112:6;123:8; 131:10;138:8;139:9; 145:22;164:4;178:7; 201:13;205:6;210:5; 211:15;213:20; 249:20	<b>Ambrose (2)</b>
<b>acceptance (1)</b> 80:8	<b>action (2)</b> 99:7;237:2	<b>adjustment (8)</b> 139:2;140:11; 166:17;167:14,20; 168:24;169:4;190:8	<b>agreed (2)</b> 9:24;176:24	
<b>accepted (2)</b> 198:2;249:10	<b>activities (1)</b> 142:6	<b>administrative (1)</b> 201:14	<b>agreement (6)</b> 7:14,17,19,24; 8:18;44:16	
<b>access (5)</b> 47:15,16;77:23; 78:1,10	<b>activity (1)</b> 233:21	<b>adopt (3)</b> 60:21;197:2;202:4		
	<b>actual (5)</b> 55:12;77:14;194:1; 233:1;239:14	<b>adopted (5)</b> 60:17;197:4,6,13; 200:9		
	<b>actually (38)</b> 54:18;75:15;76:9, 19;84:5;85:4;88:1; 91:3;92:23;100:24; 101:1,19;118:21; 130:6;147:17; 159:24;162:22,24; 175:11;182:23; 183:10,24;188:20;	<b>advance (2)</b> 125:8;215:1		
		<b>adverse (9)</b> 20:6;24:2,10; 27:16;28:11;115:12; 202:24;218:23;219:9		
		<b>aesthetic (5)</b> 25:5;26:20;40:13; 84:10,14		

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

173:12,24 <b>amend (1)</b> 107:24 <b>amended (1)</b> 73:19 <b>America (1)</b> 107:10 <b>among (5)</b> 85:10;131:18; 142:23;158:1;225:21 <b>amount (10)</b> 14:18;15:10;35:5; 61:11;75:11;77:12; 105:20;111:22; 175:6;194:3 <b>amplifies (1)</b> 252:17 <b>amplify (1)</b> 252:9 <b>analyses (1)</b> 228:23 <b>analysis (14)</b> 23:19;25:24;52:15; 53:2;76:22;77:14; 124:16,18,21;136:22; 230:5;244:18;248:4; 249:16 <b>anatomical (2)</b> 184:16;209:19 <b>ancient (1)</b> 67:6 <b>and/or (4)</b> 20:2;35:13;40:20; 232:11 <b>annoyance (10)</b> 163:18;164:2,8; 176:7;185:4,5,7; 207:11,17;238:12	108:20;110:2,7,19, 24;111:14;154:3; 171:3,7,9;185:24; 186:5,6;225:6; 253:20 <b>Antrim's (1)</b> 6:5 <b>anyplace (1)</b> 98:14 <b>apart (2)</b> 32:1;112:12 <b>apologize (3)</b> 8:20;113:19;149:7 <b>Appalachian (2)</b> 48:6;50:6 <b>apparent (2)</b> 131:7;132:18 <b>apparently (1)</b> 58:24 <b>appeal (1)</b> 91:18 <b>appear (6)</b> 9:12;36:18;141:9; 196:1;218:2;224:16 <b>appeared (2)</b> 81:9;160:24 <b>appears (9)</b> 8:7;131:12;132:23; 154:1;156:14;174:7; 194:21;211:16; 224:20 <b>appendix (4)</b> 55:14;128:10; 195:18;223:14 <b>applicable (5)</b> 108:20;198:22; 199:11,16;236:1 <b>Applicant (6)</b> 7:11;8:15;12:8; 62:22;63:2;248:5 <b>Applicant's (3)</b> 14:24;185:14; 186:20 <b>Application (4)</b> 8:3;26:10,13;73:19 <b>Applications (1)</b> 148:16 <b>applied (13)</b> 87:10,11;121:8; 168:12;171:2;194:2, 3;203:18;233:12,19, 22,23;256:9 <b>applies (1)</b> 153:19 <b>apply (5)</b> 48:13;140:11; 172:5;199:2,4 <b>applying (4)</b> 87:16;89:7;233:12; 234:8 <b>appreciate (1)</b> 116:18 <b>appreciated (1)</b>	211:1 <b>approach (5)</b> 48:23;53:4;105:18; 138:21;215:2 <b>approaching (1)</b> 215:16 <b>appropriate (11)</b> 32:6;33:8;156:18; 163:14;191:15,22; 201:10,11;235:21; 249:3,3 <b>appropriately (1)</b> 65:24 <b>approve (1)</b> 233:3 <b>approved (4)</b> 29:24;30:7,13; 197:5 <b>approximately (4)</b> 6:16;9:14;23:20; 112:1 <b>apt (1)</b> 188:21 <b>Aquifers (1)</b> 16:12 <b>arbitrary (1)</b> 46:4 <b>architect (1)</b> 12:10 <b>area (83)</b> 6:4;7:20,21;10:1; 11:5,8,11,12,15,16, 17,23;15:7,13;16:15; 17:2,3,4,5;21:7; 22:16;24:17;25:1,12, 19,22;33:12,18;34:9, 15;35:10,13,19; 36:24;37:4;38:3,4, 10;39:18;41:1,14; 43:24;45:3,6;47:10; 48:12;51:1;57:9; 59:20;71:11;75:14; 82:13,16;85:12; 86:15;97:6;99:1,8; 103:18;105:20; 112:10,14;118:11,14, 14,17,21,23;120:20; 121:2;128:21;130:9; 131:13;132:4; 133:13,23;141:20; 181:11;192:22; 193:6;203:21;204:6; 211:18 <b>areas (46)</b> 5:20,24;6:14,17, 18;9:13,19;10:6,9,16; 14:15;16:12,19; 19:24;20:24;21:11, 14;34:4;35:7;37:7; 46:24;47:13;48:8,8; 49:20;51:6;75:2; 83:6;100:1,6;112:14; 117:17,18;118:3,3,	12;119:24;120:2,14; 130:13;131:17; 132:6;161:1;173:18, 20;206:19 <b>argue (1)</b> 64:5 <b>argued (1)</b> 233:14 <b>arguing (1)</b> 232:5 <b>argument (1)</b> 91:2 <b>around (11)</b> 9:22;24:3;34:1; 41:21;45:6;52:1; 60:6;98:14;118:11; 208:2;244:10 <b>arrangements (1)</b> 212:6 <b>arrive (2)</b> 230:19;243:11 <b>arrived (2)</b> 185:2;243:7 <b>articulate (1)</b> 86:24 <b>articulated (1)</b> 56:8 <b>articulating (1)</b> 89:24 <b>artists (1)</b> 67:8 <b>aside (1)</b> 92:21 <b>aspect (1)</b> 95:19 <b>aspects (2)</b> 209:18;210:7 <b>asserting (1)</b> 74:19 <b>assertion (1)</b> 249:10 <b>asserts (1)</b> 108:18 <b>assess (4)</b> 81:21;178:13,15; 203:6 <b>assessed (1)</b> 246:16 <b>assessing (1)</b> 88:16 <b>assessment (6)</b> 21:9;82:5;83:22; 86:13;90:13;167:23 <b>assessments (4)</b> 86:10;88:20,21; 151:14 <b>assigned (1)</b> 86:7 <b>associated (1)</b> 196:11 <b>Associates (5)</b> 106:21;127:17; 140:19,24;159:3	<b>association (1)</b> 247:18 <b>assume (11)</b> 45:12;60:15;118:6, 19;119:18;121:17; 122:18;160:23; 206:9;222:20;234:15 <b>assumed (2)</b> 196:9;248:24 <b>assuming (3)</b> 183:4;234:1;248:5 <b>assumption (4)</b> 182:24;183:10,15; 186:6 <b>assumptions (2)</b> 248:16;253:10 <b>attached (3)</b> 207:18,21;209:4 <b>attempt (2)</b> 15:5;49:5 <b>attempting (1)</b> 216:4 <b>Attempts (2)</b> 178:12,15 <b>attendant (1)</b> 158:22 <b>attended (5)</b> 111:19;129:4,7,8, 10 <b>attention (8)</b> 51:15;108:8; 111:10;130:18; 135:18;136:23; 140:12;218:19 <b>attenuated (1)</b> 175:3 <b>Attenuation (2)</b> 148:14;172:5 <b>attitudes (2)</b> 81:7,8 <b>Attorney (4)</b> 102:23;104:17; 214:22;217:21 <b>attributable (1)</b> 196:5 <b>attribute (1)</b> 57:2 <b>attributed (1)</b> 74:15 <b>attributes (4)</b> 69:10;82:14;83:2; 84:14 <b>Atty (2)</b> 122:21;215:13 <b>audibility (6)</b> 202:3,6,13,16; 203:4,20 <b>audible (9)</b> 172:19;174:12; 184:15;201:21; 202:2;203:22;204:6; 209:11;211:8 <b>auditory (1)</b>
'				
<b>'Annoyance' (1)</b> 163:4				
<b>A</b>				
<b>annoyed (20)</b> 162:2,7,10,12,19; 164:8,9,12;171:1,1; 186:12,12;187:13,13, 22,24;188:22; 238:18;243:20,21 <b>answered (1)</b> 108:4 <b>Antrim (47)</b> 6:12;7:5;8:8,13; 9:1,2,5,9,14,24;10:2; 11:4,20,23;12:3,20; 15:23;16:15,22; 18:10,14;24:3;32:7; 34:14;56:16,17; 77:22;99:6,15,20; 100:8;104:12;				

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

211:9 <b>Audubon (4)</b> 39:3;40:3;101:9,17 <b>August (2)</b> 191:7;206:20 <b>authority (1)</b> 100:9 <b>available (5)</b> 112:18;138:5; 139:7;185:20;207:24 <b>average (5)</b> 155:4;190:1;193:1; 229:17;240:11 <b>aversion' (1)</b> 163:13 <b>avoid (3)</b> 49:21;100:4;212:4 <b>aware (15)</b> 9:8,23;18:1;55:7; 59:10;77:24;80:22, 23;97:13;103:10; 166:14;173:11,16; 211:12;249:24 <b>away (15)</b> 24:8,14;36:19; 45:16;50:12;64:23; 66:19;75:3;113:11; 114:11;181:15; 191:10;204:14,16; 205:8 <b>AWE (11)</b> 6:9;8;6;71:9; 115:7;120:21;128:9; 198:22;199:12,16; 236:10,12 <b>A-weighted (18)</b> 135:2,6,8,10; 138:18,24;139:18; 169:10;178:23; 179:6,7,10,15,19; 230:5,7,19;247:3 <b>AWE's (2)</b> 169:4;201:23 <b>awful (2)</b> 156:4;250:8 <b>awfully (1)</b> 159:15 <b>axis (2)</b> 241:23;242:1	255:14;257:4 <b>background (69)</b> 114:4,9,11,20,20; 120:16;123:5,7,22, 24;124:14;132:8; 133:7,12;138:20; 139:3;140:17; 141:17;142:7; 145:18;146:2,14; 152:5,10,20;153:8; 154:20;155:5,12; 156:5;157:14,16; 159:2,12,17,21; 160:13;167:3; 189:24;191:15,22; 193:1,17;194:22; 196:11;199:8,19; 228:18;229:8,12; 230:7;232:4,6,6,11; 233:11,17;234:7,10; 236:13;240:10; 242:7;244:20; 250:16;254:8,16; 255:5,8,13 <b>Bailey (70)</b> 4:6;5:4;13:16; 26:3;28:15;37:9; 41:19;46:13;52:11; 55:19;59:4,11,13; 63:16,20,24;64:12; 70:24;79:3;94:2,5; 102:7,11,16;105:24; 112:19,22;116:20,23; 117:2,4,6;121:21,24; 142:21;143:1,8; 149:18,21;157:7,19, 23;158:3;161:10; 181:23;182:7; 200:22;201:13; 203:9,14;208:20; 211:2,5;213:20; 216:3,13;221:22; 225:23;226:15; 227:1,5;231:1; 238:20;240:23; 244:24;250:24; 251:4,7,11;257:2 <b>Baker (1)</b> 201:7 <b>Bald (3)</b> 40:24;41:11; 103:13 <b>ball (2)</b> 31:17,18 <b>ballparked (1)</b> 147:1 <b>band (7)</b> 135:3,9;138:19; 139:20,21;140:4; 178:11 <b>bands (2)</b> 231:20;232:21 <b>bank (1)</b>	97:6 <b>barking (1)</b> 134:20 <b>base (4)</b> 97:16;166:9; 253:20,21 <b>based (26)</b> 34:10;66:15,24; 79:11,18;81:21; 83:23;84:1,16;86:23; 99:17,21;104:14; 105:19;110:21; 118:10;142:16; 145:16;152:24; 154:23;167:16; 170:19;182:13; 187:17;195:3;244:13 <b>baseline (45)</b> 112:4;113:23; 114:22;119:5;134:2; 138:2;139:8;152:10; 165:6,15,16,21; 166:9;167:16;169:3; 189:1,17,19,21; 190:4;194:17;198:6, 8,13;231:11,13; 233:11,15;235:4,13, 18,19;236:18,22; 239:1,22;240:8; 241:8;242:16,21; 243:6,12;244:17,18, 19 <b>bases (1)</b> 14:6 <b>basic (7)</b> 66:8;67:21;68:14, 19;69:19;85:2; 192:20 <b>Basically (16)</b> 8:23;28:8;38:12; 42:6;67:14;86:11; 119:13;150:23; 182:16;192:2,6; 196:19;197:10; 205:18;213:9;232:16 <b>basing (1)</b> 229:16 <b>basis (12)</b> 14:5;46:5;67:23; 127:1;139:1;189:16; 196:8;199:6;206:5; 230:6;238:16;249:14 <b>bathroom (1)</b> 252:6 <b>bear (3)</b> 26:7;109:16; 144:19 <b>beauty (1)</b> 37:4 <b>Beblowski (1)</b> 112:22 <b>become (3)</b> 80:19;91:13;120:8	<b>becomes (7)</b> 20:13;39:12;84:12; 91:9;95:6;172:3; 236:23 <b>becoming (1)</b> 34:5 <b>bedroom (2)</b> 173:3,5 <b>begin (5)</b> 8:6;69:19;98:18; 151:19;152:14 <b>beginning (2)</b> 82:2;136:21 <b>begins (3)</b> 25:19;216:21; 229:6 <b>Bel (3)</b> 212:24;214:1; 216:19 <b>belief (1)</b> 107:19 <b>Bellhouse (2)</b> 213:1;214:9 <b>below (8)</b> 76:3;115:16; 185:23;196:21; 199:5;236:23; 243:13;250:13 <b>benefit (4)</b> 15:4;23:15;40:15; 121:14 <b>benefits (1)</b> 26:23 <b>besides (1)</b> 41:11 <b>best (2)</b> 86:24;107:18 <b>better (7)</b> 44:11;62:13;147:7; 148:4;150:12; 157:15;230:21 <b>beyond (1)</b> 51:19 <b>bias (1)</b> 50:6 <b>big (4)</b> 43:6;64:17;72:24; 156:8 <b>bigger (2)</b> 39:6;70:21 <b>biggest (1)</b> 50:16 <b>binder (1)</b> 136:9 <b>bird (4)</b> 131:3;132:4;133:3; 222:15 <b>birds (3)</b> 128:22;131:23; 134:20 <b>bit (20)</b> 36:19;38:1;46:18; 57:6;65:22;67:14;	69:16;96:14;136:19; 138:10;148:4; 172:13;173:23; 174:22;191:4; 205:10;229:10; 237:10;252:1,18 <b>blade (5)</b> 109:4;177:11,12; 184:8;246:8 <b>blade-passage (1)</b> 177:18 <b>blades (12)</b> 108:23;109:5; 121:11;176:23; 177:6,8,20;184:2,7, 12,13;212:14 <b>Block (12)</b> 117:6,7,9;161:20; 215:14,21,24;226:1, 11,17,23;227:4 <b>blocks (3)</b> 34:7,11;59:2 <b>Blocks' (1)</b> 59:5 <b>blow (1)</b> 59:8 <b>blowing (6)</b> 128:22;147:13; 151:15;172:23; 173:3;248:6 <b>blows (1)</b> 147:20 <b>Board (5)</b> 44:14;99:14,15; 100:9;107:7 <b>board-certified (1)</b> 107:5 <b>boats (2)</b> 36:13;204:3 <b>body (1)</b> 99:12 <b>bog (1)</b> 143:24 <b>Boisvert (4)</b> 52:11,12,21,23 <b>book (1)</b> 208:15 <b>books (2)</b> 70:11;208:14 <b>both (10)</b> 10:20;27:8;36:22; 40:4;75:21;92:24; 145:8;156:6;159:2; 230:7 <b>bottom (6)</b> 17:9;120:18; 130:20;131:5; 137:15;216:17 <b>boundaries (2)</b> 60:5;220:14 <b>branches (1)</b> 133:3 <b>Brandt (1)</b>
<b>B</b>				
<b>back (29)</b> 5:4;11:21;35:24; 53:22;67:6;87:4; 90:24;102:11,16; 118:5;123:7;149:21; 168:21;182:7; 183:21;184:18; 195:13,14;208:21,24; 211:5;235:21; 238:10;243:3,5; 251:12;254:16;				

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

173:12 <b>break (8)</b> 5:10;10:5;93:20, 23;94:3;102:8;182:2, 3 <b>brief (2)</b> 102:20;209:5 <b>briefly (1)</b> 103:24 <b>bring (7)</b> 55:24;128:1,5; 149:6;204:5;218:18; 238:1 <b>broad (2)</b> 57:9,14 <b>broadband (1)</b> 135:1 <b>broaden (1)</b> 38:4 <b>Brook (13)</b> 113:5,10,21;118:5, 7,11;119:6;133:1,4,5; 223:2,4,8 <b>brought (5)</b> 12:10;77:7;157:11; 215:17;248:19 <b>buffeting (3)</b> 147:14,18;148:5 <b>build (2)</b> 63:1;252:9 <b>building (14)</b> 14:9;18:6;22:1; 44:2;63:6;74:17,17; 93:12;94:20;172:11, 13;173:9;174:2; 175:19 <b>buildings (4)</b> 51:21;52:5;53:14; 252:13 <b>builds (1)</b> 252:17 <b>built (9)</b> 18:2,5;19:1;22:16; 63:15;85:7,9;94:23; 125:15 <b>built-up (1)</b> 112:9 <b>bullet (1)</b> 17:16 <b>bullets (1)</b> 197:10 <b>bunch (2)</b> 83:19;243:1	187:20 <b>calculating (1)</b> 231:11 <b>calculation (2)</b> 188:17;189:17 <b>calculations (3)</b> 235:7;236:3; 237:17 <b>calculator (1)</b> 250:6 <b>California (2)</b> 70:15;79:21 <b>call (16)</b> 37:6;39:22;49:1; 82:8;98:5;106:4; 108:7;111:10; 118:23;130:16; 135:18;136:23; 140:12;169:11; 246:24;249:17 <b>called (3)</b> 70:12;185:16; 247:16 <b>calls (2)</b> 131:3;222:15 <b>came (15)</b> 36:11;45:1;71:12; 87:7;89:9,20;165:9; 169:3;180:3;187:16; 189:14,17;244:17,18; 245:21 <b>camera (1)</b> 62:8 <b>Campground (3)</b> 201:8;220:14; 232:2 <b>can (103)</b> 11:5;21:13,13; 24:13;30:8;33:15; 37:18;50:24;51:7; 52:16,19;53:16;59:4, 8,14;60:7;66:10; 68:15;69:19;82:3; 83:18;84:7;85:3; 86:14,15,24;88:5; 90:1,23;93:22,22; 106:5;107:1,23; 111:16;113:16; 118:22;124:5,6; 126:15;127:24; 130:8;132:15; 135:24;138:24; 141:23;143:4; 149:12;150:15; 162:6,10;163:18,19; 164:2,22,22,24; 167:7;172:1,8;173:4, 4,22;176:1;177:17; 179:3,4;180:16,17; 186:15;187:4; 194:19;195:7;197:7, 18;204:3;205:1; 206:1;207:24;208:1;	209:13;210:12,13; 211:2;213:22; 217:13,15;218:18; 220:5;226:1;227:2; 237:7,10,13;239:3,4; 244:11;250:10,24; 251:2,18,24;255:24 <b>canoes (1)</b> 36:13 <b>capabilities (1)</b> 173:8 <b>capability (2)</b> 172:12;175:5 <b>capable (1)</b> 142:12 <b>capacity (1)</b> 181:20 <b>Cape (1)</b> 136:11 <b>capture (1)</b> 135:1 <b>car (1)</b> 204:4 <b>care (1)</b> 84:12 <b>careful (1)</b> 181:17 <b>carefully (1)</b> 20:21 <b>caretaker (1)</b> 101:16 <b>Carr (1)</b> 133:19 <b>carries (1)</b> 216:21 <b>cars (1)</b> 204:5 <b>case (33)</b> 34:18;42:16,22; 54:5,23;80:16;105:8, 16;107:14;108:16; 109:2;110:11;129:2; 130:11;152:19,19; 153:11;154:15; 155:10,12;173:22; 191:13;194:10; 205:21,23;206:9; 211:19;218:21; 219:18;220:5; 222:18;226:16; 237:18 <b>cases (6)</b> 31:23;86:7;141:11; 173:16;237:20; 247:16 <b>categories (1)</b> 68:1 <b>cause (5)</b> 75:20;203:19; 209:13;210:14;217:4 <b>caused (1)</b> 247:13 <b>causes (1)</b>	178:5 <b>causing (2)</b> 133:6;174:2 <b>cautioned (1)</b> 106:8 <b>Cavanaugh (1)</b> 106:20 <b>cell (4)</b> 49:21;61:21;69:13; 98:17 <b>Cemetery (1)</b> 54:8 <b>Center (9)</b> 7:12,17,23;8:18; 40:3;51:17,20;85:9; 92:21 <b>centers (4)</b> 35:3;51:8,12;97:22 <b>certain (16)</b> 34:24;49:1,14,24; 83:2;109:5,8;138:15; 205:19;215:8; 221:12;238:15,17; 252:8,12,12 <b>certainly (33)</b> 9:21;10:24;14:7,8; 21:6;24:13;38:9; 39:5;40:24;41:3; 54:12;56:23;58:10; 60:5;80:17;86:15; 93:7;94:24;97:14; 102:5;103:9;104:7; 105:17;109:15; 114:19;130:14; 134:6;145:7,10; 159:14;181:6; 192:18;234:5 <b>certainty (4)</b> 13:1;29:20;30:8; 45:4 <b>Certificate (1)</b> 220:10 <b>certification (1)</b> 107:8 <b>cetera (2)</b> 18:7;128:23 <b>Chair (4)</b> 143:6,22;156:12; 226:2 <b>Chairman (18)</b> 4:5;26:6;28:15,17, 18;58:23;63:10;64:2, 9;93:16;122:2;158:7; 195:20;215:14; 231:1,3,4;242:23 <b>chance (4)</b> 164:11;208:5; 243:20,21 <b>change (5)</b> 22:7;79:15;80:7, 11;237:10 <b>changed (5)</b> 20:18;67:13;245:6,	11;247:23 <b>changes (4)</b> 28:10;66:10;80:2,9 <b>changing (1)</b> 53:15 <b>character (8)</b> 22:7;82:13;85:12; 86:15;118:15,16; 153:6;203:23 <b>characteristic (5)</b> 109:14;112:14; 162:13;165:2;203:21 <b>characteristics (7)</b> 31:20;43:8,16; 109:22;174:8;206:7, 16 <b>characterization (2)</b> 142:17,18 <b>characterize (5)</b> 118:13;128:15; 132:8,9;152:3 <b>characterized (2)</b> 33:13;146:4 <b>chart (10)</b> 6:20,21;100:20; 115:6,9;184:18; 234:17;237:16; 241:20;256:21 <b>charts (2)</b> 100:21;195:12 <b>check (2)</b> 151:11;205:6 <b>Checking (1)</b> 208:9 <b>chimney (2)</b> 175:7,19 <b>chirping (1)</b> 131:23 <b>chooses (3)</b> 141:3,19;143:16 <b>choosing (1)</b> 250:9 <b>chose (1)</b> 141:22 <b>chosen (4)</b> 46:9,10,10;253:16 <b>circumstance (2)</b> 112:7;167:6 <b>cite (7)</b> 11:5;15:11;141:12; 148:23;204:8,18; 219:14 <b>cited (4)</b> 111:1;135:13; 179:10;243:23 <b>cities (1)</b> 67:10 <b>citing (2)</b> 125:18;137:18 <b>citizens (2)</b> 40:15;49:8 <b>claim (1)</b> 211:13
<b>C</b>				
<b>Cadna (1)</b> 249:5 <b>CadnaA (3)</b> 126:20,23;171:5 <b>calculated (1)</b> 165:20 <b>calculates (1)</b>				

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>claimed (1)</b> 211:20	57:14;72:7	13:5;17:11;23:13;	111:3	104:21;105:9;112:6
<b>claiming (2)</b> 245:17;246:5	<b>cochlea (1)</b> 211:10	26:4;48:12;51:4;	<b>compliance (10)</b> 179:5;236:17;	<b>conclusions (7)</b> 88:6;104:14;105:5;
<b>clarification (5)</b> 7:7;11:19;32:3;	<b>cochlear (1)</b> 211:11	63:12;104:11;	237:19;22;238:2;	15;150:4;152:17;
137:5;209:22	<b>code (1)</b> 99:19	106:16;107:1;	253:17;254:21;	213:11
<b>clarifications (1)</b> 28:21	<b>collect (1)</b> 164:7	144:22;23;171:17;	255:1;11;256:22	<b>condition (11)</b> 21:20;69:2,24;
<b>clarify (11)</b> 10:22;29:17;82:11;	<b>collected (11)</b> 111:19;114:21;	197:2,3,13;200:15;	<b>complicated (4)</b> 111:5;155:18;	84:19;95:12,22;
108:16;111:12;	135:13;155:23;	18,21;201:14;202:4;	172:16;235:1	159:18;220:10;
177:10;17;191:16;	156:6,7;165:2,19,23;	211:23;213:19;	<b>complicates (1)</b> 159:23	233:3;234:13;250:21
204:12;225:3;240:5	170:5;193:14	217:7,14,17;218:3,7;	<b>complication (1)</b> 235:16	<b>conditions (13)</b> 62:24;69:22;
<b>classification (6)</b> 47:8;87:12;88:13,	<b>collecting (4)</b> 145:17;154:12;	219:18;225:24;	<b>complies (1)</b> 215:13	109:19,21;128:17;
14;89:8;90:9	158:17;169:24	227:2;233:2;245:1;	<b>component (4)</b> 53:9;123:8,10;	150:9,16,24;154:13;
<b>classifications (2)</b> 46:20,21	<b>collective (2)</b> 116:10;163:6	253:13	175:4	155:7;172:15,16;
<b>classify (2)</b> 46:23;57:17	<b>collector (1)</b> 113:10	<b>Committee's (2)</b> 200:9;252:21	<b>compounding (1)</b> 179:1	219:20
<b>clause (1)</b> 248:13	<b>color (1)</b> 69:4	<b>common (3)</b> 68:1,4;212:6	<b>computations (1)</b> 193:13	<b>conduct (3)</b> 125:6;143:17;
<b>clear (10)</b> 66:7;101:9;123:1;	<b>colored (1)</b> 195:12	<b>Commonwealth (1)</b> 107:4	<b>compute (1)</b> 189:11	169:17
127:22;163:17;	<b>column (17)</b> 119:12;165:14;	<b>communities (2)</b> 164:7;179:13	<b>computed (3)</b> 183:4;224:20,20	<b>conducted (13)</b> 113:22;123:21,23;
172:18;216:9;	185:1,10,22;186:1,3;	<b>community (6)</b> 51:21;123:12;	<b>computer (1)</b> 126:23	125:2;126:12;
224:16,21;247:15	187:10;188:7;189:1,	124:7;128:17;	<b>conceded (1)</b> 89:6	128:15;129:10;
<b>cleared (1)</b> 101:19	2,12;190:4,7;238:23,	162:15;164:5	<b>conceive (1)</b> 28:1	140:18,24;144:8;
<b>clearing (4)</b> 20:1,4;78:13;	24;243:5	<b>community's (1)</b> 163:5	<b>concentrated (1)</b> 227:24	150:1;153:17;165:3
101:11	<b>Columns (3)</b> 186:13;187:11;	<b>company (1)</b> 81:4	<b>concern (29)</b> 20:20;22:17;24:15;	<b>conducting (1)</b> 126:10
<b>clearly (5)</b> 56:17;87:21;	235:12	<b>comparability (1)</b> 110:1	26:14;29:18,23;30:6;	<b>confident (2)</b> 105:4,5
145:23;200:8;224:18	<b>combination (2)</b> 35:5,12	<b>comparable (5)</b> 73:7,23;104:3;	31:1;35:21;36:21;	<b>configuration (2)</b> 63:5;110:2
<b>client (1)</b> 215:17	<b>comfort (2)</b> 166:23;167:10	114:5;169:7	50:16;53:13;54:22;	<b>confines (1)</b> 101:10
<b>close (15)</b> 20:9;24:23;36:4;	<b>comfortable (2)</b> 171:10,12	<b>compare (2)</b> 64:20;78:19	55:1;56:9;75:9;	<b>confirm (2)</b> 144:5;218:9
61:12;84:23;98:12;	<b>coming (12)</b> 61:12;97:6;103:5;	<b>compared (7)</b> 65:11;74:1;77:17;	76:11;83:3,15;85:6;	<b>confuse (1)</b> 180:11
106:13;113:6;	124:4;174:20,23,24;	169:4;212:18;	91:6,7;92:6;95:5,15;	<b>confused (1)</b> 170:1
116:11;141:18;	175:14;179:24;	230:20;254:7	121:3;141:14;217:4;	<b>confusing (2)</b> 183:19;185:11
205:11;206:14;	241:9;246:2,21	<b>comparison (2)</b> 14:10;76:14	237:15	<b>confusion (2)</b> 8:20;127:23
246:22;255:7;257:4	<b>comment (5)</b> 43:3;109:1;185:2;	<b>comparisons (2)</b> 163:15;181:17	<b>concerned (9)</b> 7:2,3;22:9;32:22;	<b>connection (2)</b> 91:12;158:15
<b>closed (2)</b> 172:1;256:15	188:7;202:11	<b>compensate (1)</b> 44:9	53:24;133:6;197:22;	<b>connective (2)</b> 218:24;219:10
<b>closed-in (1)</b> 173:20	<b>commentary (1)</b> 162:2	<b>compensation (1)</b> 92:1	216:10;247:10	<b>connote (1)</b> 163:18
<b>closed-window (1)</b> 172:15	<b>comments (2)</b> 157:12;170:16	<b>complain (2)</b> 179:17;244:4	<b>concerns (17)</b> 10:23;11:3;20:12;	<b>consequence (2)</b> 236:20;237:1
<b>closer (6)</b> 113:12,14;118:13,	<b>commercial (1)</b> 125:4	<b>complaint (1)</b> 255:16	21:5;30:17;54:4;	<b>consequences (1)</b> 233:8
14,16;232:10	<b>Commission (11)</b> 8:12;9:2;15:24;	<b>complaints (12)</b> 109:14;115:15,17,	56:14,15,18;94:13;	<b>Consequently (1)</b> 152:5
<b>closest (1)</b> 116:6	19:4,16,17;98:22,24;	22;116:4;179:2;	96:7,10;97:20,23;	<b>conservation (55)</b> 5:13,15;6:5,6,12;
<b>Club (1)</b> 45:14	99:4,7,11	196:19;206:13;	133:14;140:23;210:5	7:3,8,8,12,16;8:2,8,
<b>clues (1)</b> 85:15	<b>commissions (1)</b> 19:9	209:17,19;246:2,21	<b>conclude (1)</b> 23:22	12,13,16,24;9:1,2;
<b>cluster (1)</b> 100:2	<b>commitment (1)</b> 7:11	<b>complete (1)</b> 135:12	<b>concluded (1)</b> 26:13	10:20,23;11:13;12:1,
<b>coalition (2)</b>	<b>committee (34)</b>	<b>complex (1)</b> 31:21	<b>conclusion (12)</b> 24:1;64:8;87:3,4,7;	5,22;14:24;15:10,17,
		<b>complexity (1)</b>	88:9,11;89:18,21;	18,24;17:13,17,21;
				18:22;26:19;27:9;

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

34:12;40:19;41:13; 42:12,20;43:13,22; 44:3,18;45:1;56:3, 11;71:11,16;72:13; 92:10;94:14;99:4,6; 100:2	<b>construed (1)</b> 115:21	<b>conventional (2)</b> 150:10;178:16	97:2,2,8	<b>cultural (2)</b> 23:21;85:14
<b>consult (1)</b> 93:22	<b>consult (1)</b> 93:22	<b>conversation (1)</b> 66:13	<b>Couple (17)</b> 28:21;41:16;53:18; 71:4;96:15,20; 108:13;111:8,10; 146:18;155:18; 174:18;182:12; 204:10;205:13; 255:3,19	<b>curious (2)</b> 37:20;71:20
<b>consultant (2)</b> 106:21,22	<b>consultant (2)</b> 106:21,22	<b>cooling (2)</b> 180:4,10		<b>current (4)</b> 123:6;128:15,20; 217:3
<b>conservative (10)</b> 182:23;183:9,14, 16;248:10,11,16,17, 20;249:21	<b>Consultants (1)</b> 107:12	<b>copies (4)</b> 148:18,23;149:2,6	<b>course (8)</b> 16:19;30:3;32:18; 45:9;61:9;69:5;73:8; 81:17	<b>curtailing (1)</b> 121:10
<b>conserve (4)</b> 7:19;9:24;14:1; 18:5	<b>Consulting (4)</b> 106:24;213:1; 214:1;216:19	<b>copy (9)</b> 15:23;128:5;136:7; 148:20;176:1,1; 213:5;215:18;226:23	<b>courses (1)</b> 79:6	<b>cusp (1)</b> 89:10
<b>conserved (8)</b> 10:8,18;11:9; 14:23;15:2,3;44:8; 46:8	<b>contained (1)</b> 167:22	<b>copying (1)</b> 137:8	<b>Court (8)</b> 26:11;38:16;73:15; 94:4;106:8;138:14; 161:9,11	<b>customarily (1)</b> 228:7
<b>conserving (2)</b> 7:4;27:11	<b>contamina (1)</b> 160:2	<b>corrected (4)</b> 111:18;199:10; 242:24;243:3	<b>cover (4)</b> 123:17;124:21; 167:5;230:13	<b>cut (9)</b> 20:2,4,18;21:11,11, 16;76:5,7,10
<b>consider (9)</b> 21:1;40:18;58:3; 70:18;103:7;104:11; 129:22;143:7;155:19	<b>contaminating (2)</b> 138:15;160:4	<b>correcting (3)</b> 145:4,5;228:20	<b>covered (2)</b> 124:24;207:7	<b>cutoff (1)</b> 250:10
<b>considerable (1)</b> 103:18	<b>contamination (1)</b> 192:3	<b>correction (11)</b> 140:6,6;146:7; 166:21;228:2,8,11; 233:12,13;243:8,9	<b>covers (1)</b> 123:18	
<b>considerably (6)</b> 153:15;159:23; 181:8,12;192:16; 242:4	<b>CONT'D (1)</b> 4:1	<b>corrections (3)</b> 139:22;140:1; 228:3	<b>crackling (1)</b> 133:2	<b>D</b>
<b>consideration (4)</b> 43:19;72:20;83:12; 114:18	<b>content (1)</b> 138:19	<b>correctly (12)</b> 39:20;74:19;93:4; 110:10,20;115:6; 119:4,11;175:16; 180:21;221:1;244:12	<b>crane (2)</b> 78:12,14	<b>dam (2)</b> 47:19;59:18
<b>considerations (4)</b> 25:13;41:10;68:22; 84:11	<b>contested (1)</b> 12:23	<b>correlation (7)</b> 11:2;32:19;156:4; 159:6,9;217:10; 218:13	<b>create (4)</b> 101:15;133:12; 140:10;174:8	<b>data (80)</b> 111:19;114:23; 120:5;127:5;129:18; 130:1;132:18; 135:12;140:9;150:7; 153:13;154:2,12; 156:2,6,7,8;159:19; 160:3,4;164:5,18; 165:18,19,20,23,24; 166:4,7,18;167:16, 19,21;168:1,1,7,19, 23;169:10,15,15; 170:1,4,9,11,12,13; 186:20;189:8,9,11, 15,21;192:12;193:8, 11,12,14;194:21; 195:22;224:14,24; 225:5;239:12,14,16; 240:7;241:5,8;242:4, 9,13;243:2,7;244:17, 18,19;250:9,11,19
<b>considered (9)</b> 20:8;40:7;52:15; 71:10;103:1,3;178:3; 228:8;242:9	<b>contiguous (1)</b> 34:7	<b>correspond (2)</b> 165:10;186:4	<b>created (3)</b> 8:21;42:14;154:22	<b>date (2)</b> 30:9;70:9
<b>consistent (4)</b> 95:21;138:1; 193:18;222:16	<b>continuing (1)</b> 120:13	<b>corresponding (2)</b> 186:3,8	<b>creates (2)</b> 20:19;24:21	<b>dated (1)</b> 8:14
<b>consistently (9)</b> 80:13;138:5;139:6; 192:15;193:5,7,16, 20;194:10	<b>continuous (1)</b> 195:17	<b>corresponds (3)</b> 224:10;225:10,16	<b>Criteria (43)</b> 16:6,10;42:1,2; 55:3,16;71:12;84:16; 85:19;86:12,17; 87:10,16;88:10;89:7, 15;90:8;117:16; 118:2;197:1,2,3,6,8, 12;198:1,21,21; 199:2,11,16;202:3,5, 13,17;203:2,6,7; 234:4;253:14;254:3, 17;255:11	<b>David (1)</b> 148:2
<b>consolidated (2)</b> 185:15;186:20	<b>contour (3)</b> 185:22,24;186:2	<b>Corridor (4)</b> 33:11;34:9,15;56:3	<b>critical (1)</b> 51:22	<b>day (25)</b> 64:21;90:9;114:17; 134:5;168:3;170:10; 191:11,13,20;192:6, 16,18;193:6,10,11, 12;196:2;212:9,9,20; 214:6;220:2;231:24; 232:10;238:8
<b>constant (6)</b> 109:10;129:23; 130:15;141:13; 146:1;227:12	<b>contours (2)</b> 22:14,15	<b>corridors (2)</b> 16:13,17	<b>critique (2)</b> 140:16;157:4	<b>days (5)</b> 32:18;67:6;196:13; 200:4;229:20
<b>constantly (1)</b> 186:7	<b>contrast (3)</b> 69:1,3,21	<b>cost (1)</b> 63:6	<b>cross (2)</b> 143:3;182:14	<b>Daytime (4)</b> 133:20;168:9;
<b>constitutes (1)</b> 24:9	<b>contrasting (1)</b> 69:7	<b>costs (1)</b> 137:8	<b>cross-examination (17)</b> 5:6,8;71:8;86:1; 112:18;113:2;117:8; 122:3;143:2,7;157:2, 6;171:17;182:9,10; 248:2;251:16	
<b>constructed (1)</b> 75:22	<b>contribute (1)</b> 57:3	<b>Council (1)</b> 107:11	<b>cross-examining (2)</b> 144:24;156:14	
<b>construction (13)</b> 21:18;74:5,17; 76:15,18,24;77:5,15; 81:11;96:4;133:22; 142:4,6	<b>contributed (1)</b> 114:19	<b>Counsel (4)</b> 23:10;186:21; 214:3,12		
	<b>contributor (3)</b> 145:24;156:8; 190:12	<b>Counsel's (1)</b> 211:22		
	<b>Control (3)</b> 107:9;109:1; 205:24	<b>count (1)</b> 6:18		
	<b>control/stall (1)</b> 108:24	<b>counted (1)</b> 35:11		
	<b>controlled (2)</b> 132:3;179:18	<b>countrysides (1)</b> 67:10		
	<b>controls (1)</b> 256:9	<b>County (3)</b>		



**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

192:2;220:20 <b>dB (8)</b> 180:23;232:17; 236:24;242:21,24; 243:15,16;250:15 <b>dBA (62)</b> 112:1;113:24; 114:4,8;115:16,17, 23;116:14,17; 120:17;134:2;169:5; 179:11;181:14; 185:23;187:12; 191:9;192:23;193:2, 7,17,21;194:5,16,23; 196:1,10,21;198:14, 15,23;199:3,5,5,14, 17,21;200:8;202:1; 219:23,24;220:12,12, 18,18,23,23;225:9; 231:14;232:1,3,11; 233:10,10,17,17; 235:4,4;236:8;241:6; 249:12;250:2 <b>deal (1)</b> 79:7 <b>dear (1)</b> 88:2 <b>December (1)</b> 208:11 <b>decibels (15)</b> 111:14;112:1,5; 119:8;120:17; 171:21,22,23;172:3; 179:6,6,23;180:6; 243:9,10 <b>decide (2)</b> 12:17;63:13 <b>decided (2)</b> 62:22;63:3 <b>decision (3)</b> 44:12;231:22,23 <b>decisions (2)</b> 43:11;44:13 <b>deck (1)</b> 133:22 <b>decommissioning (1)</b> 45:22 <b>decrease (1)</b> 121:9 <b>decreasing (1)</b> 250:17 <b>define (3)</b> 164:23,23,24 <b>defined (7)</b> 18:23;57:9;113:24; 162:24;189:22; 198:8;240:8 <b>defines (1)</b> 150:18 <b>defining (1)</b> 66:14 <b>definite (2)</b> 29:18;129:13	<b>definitely (5)</b> 29:21;47:2;70:22; 89:17;96:23 <b>definition (4)</b> 30:11;38:19;66:24; 163:23 <b>definitions (2)</b> 47:24;48:3 <b>degradation (2)</b> 163:20,21 <b>degree (6)</b> 35:17;68:9;69:20; 86:19,21;104:19 <b>demonstrate (1)</b> 247:11 <b>demonstrated (3)</b> 209:13;210:13; 235:6 <b>demonstrates (2)</b> 217:9;218:12 <b>denied (1)</b> 23:14 <b>dense (1)</b> 210:11 <b>density (1)</b> 118:18 <b>Department (4)</b> 21:19;23:7;58:20, 21 <b>depending (6)</b> 37:23;43:15;76:4; 89:13;175:11;229:4 <b>depends (2)</b> 173:7;228:22 <b>describe (3)</b> 33:15;107:1;163:5 <b>described (13)</b> 8:3,17;18:23; 108:18;154:15; 166:16;222:20; 224:10;232:21; 237:8;238:11,12; 247:20 <b>description (5)</b> 131:14;160:23; 219:5;232:15;252:1 <b>descriptors (1)</b> 163:15 <b>design (2)</b> 36:8;139:1 <b>designated (2)</b> 48:24;54:19 <b>designates (1)</b> 6:13 <b>designation (3)</b> 10:8;16:22;71:10 <b>designed (3)</b> 22:12,13;56:21 <b>Designing (2)</b> 212:13;234:11 <b>detail (5)</b> 9:17;13:13;21:3; 89:20;246:20	<b>determination (1)</b> 84:15 <b>determine (8)</b> 25:4;48:18;148:13; 152:22;155:14; 186:8;254:23,24 <b>determined (7)</b> 113:23;127:1,3; 165:21;166:18; 171:3;256:20 <b>determining (2)</b> 16:10;244:19 <b>detracting (4)</b> 68:18;70:4;202:9, 21 <b>develop (1)</b> 19:19 <b>developed (14)</b> 9:3;17:11;18:5; 47:13,14;48:7;49:10, 20;57:1;81:5;85:11; 92:5;254:4,5 <b>developer (1)</b> 64:19 <b>developers (1)</b> 172:22 <b>development (24)</b> 5:17;10:18;18:16; 19:6,7,19;34:6,8; 45:2;47:5,22;50:5,7; 68:4;85:21;93:8; 96:9;98:7,19;99:1,8, 13;100:3;202:18 <b>developments (1)</b> 48:5 <b>device (4)</b> 135:14;158:18; 160:6,7 <b>devoid (1)</b> 252:4 <b>diameter (1)</b> 33:3 <b>diesel (1)</b> 181:1 <b>difference (18)</b> 40:2;61:6;74:15, 23;76:13;116:17; 119:14;158:14; 168:5,15;172:9; 175:1,20,21;196:4,8; 205:14;250:15 <b>differences (3)</b> 75:5;76:21;77:2 <b>different (51)</b> 6:24;8:11;9:18; 10:14;24:22;25:10, 11;32:21;34:20; 37:19;44:13;49:9; 56:22;61:3;64:24; 65:6;67:4;68:1;73:9, 20;79:22;80:1;83:5; 85:11;86:18;87:12; 88:3,9;89:18;90:8;	91:19;95:13;98:8; 101:23;102:3; 104:16,21;105:9,14, 14;108:23;162:9; 175:4,13;197:3; 221:3;222:7,9; 227:14;231:20;246:1 <b>differently (1)</b> 86:6 <b>difficult (4)</b> 58:13;65:18; 163:16;228:6 <b>difficulties (1)</b> 179:1 <b>dimensions (2)</b> 32:22,24 <b>diminishing (1)</b> 120:22 <b>Dir (4)</b> 4:7;37:10;41:20; 245:5 <b>direct (7)</b> 11:2;32:19;72:11; 79:4;106:10;127:18; 217:23 <b>direction (4)</b> 54:10;183:17; 248:7,11 <b>directly (5)</b> 44:12;111:17; 165:16;183:5;207:13 <b>disagree (4)</b> 86:20;88:12; 110:15,15 <b>disagreed (1)</b> 205:7 <b>discernible (1)</b> 23:15 <b>disconnect (1)</b> 158:13 <b>discounted (1)</b> 51:8 <b>discourage (2)</b> 99:1,8 <b>Discover (1)</b> 130:7 <b>discuss (1)</b> 207:6 <b>discussed (2)</b> 103:24;173:23 <b>discusses (1)</b> 209:10 <b>discussing (1)</b> 185:17 <b>discussion (16)</b> 28:24;34:17;65:22; 66:20;74:10;104:19; 122:21;142:23; 149:20;158:1; 185:16;208:22; 209:16;210:22; 222:6;225:21 <b>discussions (1)</b>	43:6 <b>disease (3)</b> 164:1;218:20; 247:12 <b>dismantle (1)</b> 30:4 <b>dismissal (1)</b> 178:24 <b>dispute (1)</b> 220:6 <b>distant (5)</b> 130:2,15;133:1,18; 147:24 <b>distinct (2)</b> 70:20;209:18 <b>distinction (2)</b> 109:11;120:5 <b>distinguish (2)</b> 60:3;147:23 <b>distress (1)</b> 178:5 <b>distress' (1)</b> 163:14 <b>District (6)</b> 12:1,5,14,22; 18:23;19:21 <b>disturbances (2)</b> 209:13;210:14 <b>diurnal (4)</b> 131:5;168:1;170:7; 190:11 <b>diurnal/nocturnal (1)</b> 168:15 <b>diverse (1)</b> 70:3 <b>diversity (7)</b> 67:15,18,20;68:10, 10,11,12 <b>Division (1)</b> 41:23 <b>docket (4)</b> 212:3,13,24; 213:24 <b>document (37)</b> 7:23;11:7;13:14; 16:1;21:22;59:17; 78:9;82:6;115:18; 125:21,23;126:3; 128:10;135:18,20; 136:16;137:5; 140:13,14,15,16; 148:7,10;153:24; 169:16;176:14,17; 186:16,18;190:9; 195:4;210:8,8,23; 224:6;239:9,20 <b>documentation (4)</b> 19:3;53:7;55:12; 59:1 <b>documents (3)</b> 107:20,23;226:4 <b>dogs (1)</b> 134:20
---	---	---	--	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>dominance (2)</b> 52:7;178:23	106:7;113:4	<b>economies (1)</b> 234:12	20:16;76:9	<b>entities (3)</b> 72:8,8;103:9
<b>dominant (1)</b> 52:2	<b>Dupee (3)</b> 26:4,5,8	<b>effect (17)</b> 20:6;27:16;28:11; 29:15;75:6;116:10; 119:19;121:16; 174:12;182:17; 202:17;203:1; 212:13;218:23; 219:10;252:15,19	<b>emissions (2)</b> 166:11;209:10	<b>entitled (2)</b> 185:1;186:19
<b>dominantly (1)</b> 54:12	<b>duration (2)</b> 85:1,3	<b>effectively (1)</b> 202:14	<b>enclosure (1)</b> 181:7	<b>entry (1)</b> 175:12
<b>dominate (1)</b> 120:19	<b>during (55)</b> 39:18;71:7;72:11; 79:4;81:17;86:1; 102:23;103:23; 104:17;111:20; 114:15,17;133:21; 134:5;152:6;154:12, 19;167:4;168:3,3; 181:5;191:10; 192:16,18;193:6,9, 11;196:2;206:21,22, 23,24;220:2,20; 228:13;230:1,2,12; 231:24;232:9; 233:15;234:2,3,4,5,9; 235:20,22;238:7; 248:2;251:15; 252:21;253:12; 255:2;256:16	<b>efforts (1)</b> 15:1	<b>encourage (2)</b> 19:5;99:24	<b>environment (11)</b> 25:17;90:16;91:4; 116:1;119:16;120:7, 20;128:16;129:22; 145:24;146:2
<b>donations (1)</b> 41:17	<b>dynamic (1)</b> 254:10	<b>effort (1)</b> 33:24	<b>end (9)</b> 47:3;56:1;76:23; 77:15;90:9;137:14; 161:19;199:19; 246:18	<b>Environmental (9)</b> 21:19;41:23;58:20; 75:16;148:15; 152:22;155:15; 228:23;246:15
<b>done (42)</b> 21:10;31:10,11,23; 34:10;43:14;55:10; 66:16;70:5;76:22; 77:13;100:18; 101:14;102:1;104:7; 111:15;123:23; 127:13,16;141:10; 145:8;157:17; 160:22;167:2; 171:11,16;174:19; 175:23;179:15; 188:10,17;193:10; 200:15;228:7;230:5; 237:13;242:5,9,12; 249:6;255:3;256:13	<b>E</b>	<b>effects (5)</b> 31:6;148:14;178:6; 245:8,12	<b>endeavors (1)</b> 83:4	<b>Epsilon (32)</b> 113:22;114:21; 159:3;165:17,17; 167:17,24;169:11; 182:22;189:4,7,9,10; 195:6;221:4,22,24; 222:21;224:2;239:3, 4,5,11,18;241:10,16; 242:3;244:19;248:5; 249:17;253:7,9
<b>double (1)</b> 44:21	<b>earlier (9)</b> 65:22;66:12;81:15; 90:14;94:16;104:8; 150:18;161:16; 243:23	<b>elaborate (1)</b> 172:8	<b>ending (1)</b> 136:21	<b>Epsilon's (3)</b> 165:12;194:21; 250:10
<b>Doug (2)</b> 204:23;207:23	<b>early (5)</b> 43:1;72:9;163:7; 196:2;227:10	<b>electric (4)</b> 147:16,16;181:2; 204:3	<b>ends (1)</b> 243:13	<b>equal (2)</b> 42:15;166:10
<b>down (14)</b> 22:14;28:10;30:1; 96:22;122:9;144:1; 173:13;192:22; 193:7,17;235:10; 254:11,13;255:13	<b>easement (2)</b> 40:19;93:7	<b>electricity (1)</b> 181:4	<b>endure (1)</b> 157:1	<b>equipment (3)</b> 77:12;130:2;142:4
<b>downstream (1)</b> 148:6	<b>easements (27)</b> 17:17;26:19;27:9; 41:13;43:13;44:3,15, 18;45:2;56:11,20; 91:12;92:8,9,10,16, 18;93:1,3,10;94:14, 18;96:3,4,7,8;103:12	<b>elements (4)</b> 68:18;69:12;70:4; 123:4	<b>energy (13)</b> 20:12;63:19,22; 66:6;69:6,10;110:10; 125:4,8;181:20; 228:5;249:24;252:9	<b>equivalent (2)</b> 14:11,11
<b>downwind (1)</b> 183:5	<b>easier (1)</b> 66:11	<b>elevation (5)</b> 5:19,24;45:17; 95:14;153:3	<b>engine (2)</b> 131:8;181:1	<b>erected (1)</b> 77:7
<b>Dr (4)</b> 52:11,12,21; 162:20	<b>easily (3)</b> 21:14;139:2; 227:18	<b>eliminate (3)</b> 60:18;63:2;152:9	<b>engineer (4)</b> 42:21;106:24; 107:3,6	<b>especially (4)</b> 20:13;98:11;100:1; 172:1
<b>draw (3)</b> 104:13;130:18; 213:11	<b>east (1)</b> 97:4	<b>eliminated (2)</b> 63:8;212:15	<b>Engineering (1)</b> 107:9	<b>essence (1)</b> 242:19
<b>drive (2)</b> 96:21;97:1	<b>easy (1)</b> 228:1	<b>else (9)</b> 26:23;27:12;68:8; 87:10,16;95:11; 123:15;166:5;238:19	<b>England (6)</b> 34:2;38:13,18; 70:20;79:21;229:4	<b>essentially (4)</b> 184:1;217:17; 232:8;239:12
<b>driven (1)</b> 131:7	<b>eco (1)</b> 33:23	<b>elsewhere (1)</b> 164:15	<b>enhanced (1)</b> 157:13	<b>establish (1)</b> 202:23
<b>driveway (1)</b> 113:11	<b>ecological (7)</b> 14:20;41:10;56:15; 58:8;75:16;91:4; 101:12	<b>e-mailed (2)</b> 148:19;149:7	<b>enhancing (1)</b> 256:13	<b>established (2)</b> 11:8;198:6
<b>driveways (1)</b> 18:7	<b>ecologically (4)</b> 5:19,23;10:5,10	<b>emanating (2)</b> 177:5,15	<b>enough (11)</b> 36:6;77:11;93:2,3; 129:18;173:10; 178:8,9,10;246:7,23	<b>estimate (7)</b> 168:6;170:24; 171:23;193:23; 195:3;248:21;249:21
<b>driving (1)</b> 181:2		<b>emergency (3)</b> 180:22;181:1,9	<b>ensues (1)</b> 210:22	<b>estimated (3)</b> 111:24;243:8,15
<b>DRV (1)</b> 99:13		<b>emerging (2)</b>	<b>ensure (1)</b> 5:17	<b>estimates (1)</b> 249:15
<b>due (1)</b> 118:18			<b>entail (1)</b> 6:17	<b>estimating (1)</b> 168:9
<b>duly (2)</b>			<b>enter (1)</b> 175:2	<b>et (2)</b> 18:7;128:23
			<b>entered (2)</b> 123:11;127:5	<b>European (1)</b> 207:6
			<b>entire (4)</b> 13:12;14:7;44:24; 93:9	
			<b>entirely (8)</b> 60:6;129:1;179:4; 187:24;192:9,11; 230:17;254:13	

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>evaluated (2)</b> 123:21;250:20	198:13,23;199:3,5, 14;220:12,17,22; 231:24	<b>experience (14)</b> 52:3;53:22;63:17; 86:23;88:2;99:22; 108:19;120:22; 124:23;125:1; 202:10,22;204:9,19	48:14 <b>externally (1)</b> 48:13 <b>extra (3)</b> 148:23;149:2,6 <b>extract (1)</b> 145:23 <b>extraordinarily (1)</b> 114:2 <b>extrapolate (1)</b> 110:21 <b>extreme (1)</b> 178:5 <b>extremely (5)</b> 51:13;112:3,3,4; 119:7 <b>extremes (1)</b> 254:6 <b>eyeballing (1)</b> 9:12	45:7;47:17;69:6; 113:19;131:13;228:1 <b>fall (3)</b> 9:9;229:3;247:4 <b>falls (2)</b> 9:24;187:12 <b>Falmouth (12)</b> 108:20;109:3,3,15, 19;110:13,17;111:2; 173:13;204:19; 206:11;245:23 <b>familiar (11)</b> 33:19;41:5,12; 55:3;108:11;126:16, 19;148:9;149:8; 163:10;214:9 <b>fan (2)</b> 131:2;222:14 <b>far (12)</b> 64:7;69:17;74:12, 13;80:21;105:6; 112:12;152:12; 185:1;200:8;247:10; 255:4 <b>farm (3)</b> 63:14;85:20; 234:11 <b>farms (1)</b> 185:18 <b>feasible (2)</b> 29:20,21 <b>feathering (1)</b> 121:11 <b>features (1)</b> 68:11 <b>federal (2)</b> 40:20;42:6 <b>feel (4)</b> 53:12;65:1;89:23; 105:5 <b>feeling (4)</b> 54:9;65:1;86:22; 174:13 <b>feelings (2)</b> 50:14;163:6 <b>feet (20)</b> 73:11;78:2,10,17; 81:2;104:5;113:10; 114:10;116:7,8,8; 120:15;142:5; 181:11,15;204:13,16, 20;205:8,11 <b>Fellow (1)</b> 107:9 <b>felt (1)</b> 50:19 <b>few (13)</b> 35:16;37:11;39:15; 43:10;53:16;55:22; 71:3;80:10;95:24; 113:1;221:3;251:2; 255:22 <b>fewer (2)</b>
<b>evening (4)</b> 106:12;112:13; 227:8,9 <b>event (1)</b> 109:13 <b>events (1)</b> 131:11 <b>everybody (2)</b> 93:22;181:24 <b>everywhere (1)</b> 249:1 <b>evidence (6)</b> 49:18,19;148:8; 170:7;217:1;247:11 <b>evident (1)</b> 170:8 <b>evidently (1)</b> 20:17 <b>evolves (1)</b> 96:1 <b>evolving (1)</b> 53:15 <b>exact (2)</b> 45:6;47:1 <b>exactly (16)</b> 25:7;31:5;33:13, 18;58:13;60:2;65:10; 73:21;75:17;80:17; 100:12;130:10; 153:12;157:9;189:8; 214:21 <b>Examination (5)</b> 4:9;79:5;102:21; 106:10;251:13 <b>example (28)</b> 10:15,19;25:7; 26:18;27:5;39:4; 40:24;48:6;67:11,21; 68:3;70:1;79:24; 83:9;91:20;130:1; 138:20;141:18; 180:20;181:6; 187:11;192:13,23; 222:11;228:3; 231:22;235:20;252:6 <b>examples (2)</b> 53:16;80:10 <b>excedences (1)</b> 256:6 <b>exceed (11)</b> 63:6;120:16;	<b>exceeded (1)</b> 198:15 <b>exceeds (4)</b> 190:2;199:17; 235:7;240:12 <b>excellent (1)</b> 70:18 <b>exception (1)</b> 249:7 <b>exchange (2)</b> 183:18,24 <b>excitation (1)</b> 212:16 <b>excited (1)</b> 174:9 <b>exclude (1)</b> 138:15 <b>excluding (1)</b> 154:20 <b>excuse (4)</b> 23:2;98:16;160:17; 209:20 <b>excused (1)</b> 106:2 <b>exhibit (17)</b> 6:8;7:13,14;15:24; 29:2;59:1,14;128:4, 8;148:9;174:11; 186:24;187:2; 207:24;216:7,10,14 <b>exhibiting (1)</b> 174:3 <b>exhibits (5)</b> 122:8,15;126:5; 208:23;214:19 <b>exist (4)</b> 27:13;34:5;115:18; 247:22 <b>existed (2)</b> 71:21;179:22 <b>existing (11)</b> 54:10;61:22;62:6; 69:1,21,23;82:14; 84:19;95:22;102:3; 180:14 <b>expanded (2)</b> 23:3,19 <b>expansion (1)</b> 22:12 <b>expect (10)</b> 42:9;110:23; 114:11,24;121:18; 144:9;200:5;213:11; 223:10;235:19 <b>expectation (1)</b> 175:13 <b>expected (8)</b> 77:21;78:17;114:7; 159:8;198:14;236:7; 248:8,18	<b>experts (1)</b> 211:13 <b>explain (17)</b> 52:17,24;88:5,10; 89:1;90:23;111:16; 113:16;147:10; 173:22;184:4; 185:12;186:15; 192:10;241:15,17; 250:11 <b>explained (4)</b> 89:2,20;165:22; 189:19 <b>explains (2)</b> 190:3;250:18 <b>explanation (2)</b> 240:3,4 <b>exposing (2)</b> 175:17,19 <b>exposure (1)</b> 76:7 <b>express (1)</b> 112:2 <b>expressed (1)</b> 110:8 <b>expresses (1)</b> 210:6 <b>expressly (1)</b> 25:3 <b>extend (1)</b> 78:11 <b>extended (1)</b> 85:1 <b>extending (2)</b> 110:9;229:3 <b>extends (1)</b> 193:12 <b>extent (19)</b> 10:20;22:15;23:9; 27:3;39:10;47:7; 50:2,24;51:19;68:21, 24;69:3;79:17;84:17; 91:23,24;94:17; 143:4;203:2 <b>external (1)</b>	<b>F</b>  <b>FAA (2)</b> 30:13,20 <b>facade (5)</b> 173:9;175:4;220:1, 19,24 <b>face (1)</b> 222:23 <b>facilities (4)</b> 120:21;181:4; 246:3,23 <b>facility (22)</b> 11:24;120:15; 125:4,8;201:23; 220:17,22;230:9; 231:14;235:8,24; 236:7;237:14,18; 242:20;243:15; 250:1;255:5,8,9,13; 256:22 <b>fact (14)</b> 10:13;25:3,10; 56:24;59:3;83:12; 90:23;116:17; 166:23;167:10; 193:18;206:13; 211:19;254:11 <b>factor (1)</b> 160:9 <b>factors (1)</b> 155:19 <b>fail (2)</b> 178:17,19 <b>fair (12)</b> 64:10;79:15; 110:21;143:19,21; 157:3;158:4;197:6; 202:12;213:10; 235:24;237:11 <b>fairly (10)</b> 35:9,12,18,19;	

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

74:12,13 <b>field (5)</b> 68:13;79:10;80:3; 101:10,11 <b>fifth (1)</b> 19:23 <b>Figure (17)</b> 119:3;192:14; 195:5,6;196:13; 221:17;223:16; 231:16;234:20; 239:12;240:14; 241:7,17,18;243:7; 253:9,23 <b>Figures (1)</b> 227:21 <b>filed (2)</b> 108:9,10 <b>fill (8)</b> 20:2,4,18;21:11, 16;76:5,8,10 <b>Final (3)</b> 8:9;44:14;119:12 <b>finally (1)</b> 163:17 <b>financially (1)</b> 63:4 <b>find (33)</b> 14:3;28:10;30:1; 34:7,10;55:11,14; 81:6,8,13;82:3;112:4, 10,11;117:12;130:8; 144:22;150:21; 195:8;205:2;208:2; 210:12,15;226:6,12, 14,19;231:19; 235:19;241:15; 252:5;254:16;255:4 <b>findings (2)</b> 25:10;196:18 <b>fine (1)</b> 94:10 <b>finished (1)</b> 78:2 <b>fireplace (1)</b> 175:7 <b>firm (4)</b> 106:22;127:13; 159:3;160:23 <b>first (31)</b> 37:15;55:24;71:4; 92:12;104:4;107:7; 115:4;117:24; 122:11;133:21; 136:24;137:22; 141:2;150:6;151:12, 19;178:1;180:5; 182:15;185:15; 186:20;189:2;223:1; 227:11,20;229:19; 235:12;240:14; 241:3;242:5;243:5 <b>five (11)</b>	24:8,13,14;41:14; 64:23;94:1,7;139:19; 140:2;227:11;251:5 <b>five-minute (1)</b> 182:1 <b>flags (3)</b> 50:23;64:17;65:4 <b>flat (3)</b> 67:17;223:11,18 <b>flowing (2)</b> 132:24;133:5 <b>fluctuations (1)</b> 131:6 <b>fly (2)</b> 66:6;203:24 <b>flying (1)</b> 132:11 <b>focal (1)</b> 95:6 <b>focus (2)</b> 54:3;82:24 <b>focused (2)</b> 35:1;83:15 <b>focusing (1)</b> 70:9 <b>foliage (1)</b> 248:22 <b>folks (1)</b> 115:11 <b>follow (3)</b> 139:16;158:10; 234:22 <b>followed (2)</b> 105:9;157:18 <b>following (5)</b> 21:18;40:18;81:10; 104:21;234:18 <b>follow-up (1)</b> 182:12 <b>footnote (9)</b> 165:13;189:3; 239:1,13,14,17; 244:13,14,16 <b>forces (1)</b> 237:21 <b>forest (31)</b> 16:14,18;20:16; 39:4;40:23;41:1,6,12, 17;47:23;48:9,11,21, 22;49:17;66:18; 67:12,17;68:13,23; 76:9;84:11;91:17,21; 95:13;103:4,6,7,12, 16;194:14 <b>foresters (1)</b> 84:9 <b>forestry (3)</b> 44:4;45:9;47:9 <b>forget (1)</b> 33:12 <b>form (3)</b> 69:4;95:18;189:11 <b>forms (1)</b>	80:18 <b>forth (2)</b> 247:3;256:21 <b>found (10)</b> 28:7;70:13;117:16; 118:2;173:16; 183:19,20;194:10; 196:6;222:8 <b>Four (4)</b> 113:6;116:5; 122:15;147:1 <b>fragmentation (1)</b> 44:9 <b>fragments (1)</b> 91:3 <b>framing (1)</b> 232:8 <b>Frankly (1)</b> 205:9 <b>freeze (1)</b> 229:3 <b>frequencies (12)</b> 147:9;150:13; 172:14,14;177:7,16; 178:20;179:9; 184:14;228:1;252:8, 11 <b>frequency (20)</b> 138:19;172:6; 173:6;177:1,2,18,19; 178:4,10,11,18; 179:1;184:3,6,9,11; 230:15;237:9;246:9; 252:10 <b>frequent (1)</b> 88:1 <b>frequently (2)</b> 206:21;207:2 <b>friendly (2)</b> 143:3,7 <b>Froling (3)</b> 112:20,21;226:19 <b>front (12)</b> 6:10;9:3;15:21; 28:9;51:17;87:22; 107:15;115:19; 126:4;136:1;149:9; 213:6 <b>full (4)</b> 129:19;151:1; 176:17;230:10 <b>function (3)</b> 152:23;155:16; 159:4 <b>functions (1)</b> 211:9 <b>funding (4)</b> 39:3,4,11;103:5 <b>funds (2)</b> 40:20;41:4 <b>further (9)</b> 24:1;26:2;36:19; 41:18;50:12;109:21;	121:19;157:1;205:10 <b>future (1)</b> 5:17 <b>G</b> <b>gather (1)</b> 51:7 <b>gathered (1)</b> 153:13 <b>gathering (2)</b> 51:7;129:18 <b>gave (3)</b> 107:20;148:20; 216:16 <b>gears (1)</b> 191:4 <b>GEIGER (20)</b> 5:7,9;7:10,18;8:1, 19,22;12:16;13:3,6, 18,22;16:21;18:19, 21;71:8;86:2;89:6; 214:23;215:3 <b>General (14)</b> 21:15;26:9;50:20; 54:15;66:23;91:15; 99:21;123:18; 141:21;150:1,17; 220:15;221:15; 249:16 <b>generally (14)</b> 20:8;23:1;50:20; 53:3;54:3;65:16; 78:15;81:9;88:23; 91:15;177:10;185:5; 196:12;249:21 <b>generate (4)</b> 151:19;181:3,4; 212:4 <b>generated (5)</b> 63:5;147:20; 184:14;220:17,22 <b>generating (1)</b> 181:20 <b>generation (3)</b> 121:12,13;152:14 <b>generator (4)</b> 180:22;181:1,2,9 <b>generators (2)</b> 214:11;217:4 <b>generically (1)</b> 12:19 <b>geographically (1)</b> 79:18 <b>George (4)</b> 137:19,19;140:18; 213:1 <b>gets (3)</b> 39:14;129:20; 255:3 <b>Given (8)</b> 12:23;15:6;19:3, 15;34:11;36:8;	167:17;255:1 <b>gives (1)</b> 85:14 <b>goal (1)</b> 47:5 <b>goals (1)</b> 56:22 <b>goes (17)</b> 22:13;41:6;65:7; 88:21;97:10;113:11; 128:20;141:19; 152:16;154:22; 155:16;163:13; 171:19;209:7,18; 234:19;254:11 <b>GOLDWASSER (1)</b> 208:16 <b>Good (23)</b> 28:19,20;34:23; 46:15,16;51:11;52:8; 55:20,21;63:7;65:15; 71:3;81:16;93:3; 106:12;117:10,11; 122:5,6;150:8; 159:16;227:8,9 <b>Goodhue (5)</b> 21:7;86:4;87:13; 100:17;101:4 <b>Google (1)</b> 81:15 <b>Googled (1)</b> 81:14 <b>governing (1)</b> 99:12 <b>government (1)</b> 71:13 <b>governmental (1)</b> 40:14 <b>government-sponsored (1)</b> 72:3 <b>grabbed (3)</b> 135:5,8,9 <b>grade (4)</b> 152:11;153:3,14; 155:21 <b>grading (3)</b> 21:3,13;78:14 <b>gradually (1)</b> 42:5 <b>Great (7)</b> 59:11;69:24;70:17; 96:17;173:17; 246:20;251:18 <b>greater (16)</b> 40:12;76:2;110:12; 172:11;219:24; 220:1,3,13,18,19,23, 24;230:1;231:19; 232:12;233:10 <b>greatest (2)</b> 47:7;233:18 <b>greatly (1)</b> 120:21
---	--	--	--	---

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>Greeks (1)</b> 67:6	34:4 <b>half (3)</b> 9:14;38:6;103:10	213:7;251:10;257:4, 6	177:13;181:8,13; 184:2,6,9;192:16; 228:16;231:14,15; 232:1;236:8;239:23; 242:11,14;243:15; 244:22;252:18	71:5 <b>houses (6)</b> 18:6;91:20;95:14, 18;118:18;173:17
<b>Green (4)</b> 45:14;81:4;96:2; 242:15	<b>half-mile (1)</b> 204:16	<b>hearings (1)</b> 211:23	<b>highest (3)</b> 155:6;253:3,4	<b>housing (4)</b> 19:1;85:21;99:1,8
<b>Greenway (2)</b> 58:1,2	<b>halfway (1)</b> 210:20	<b>heart (2)</b> 218:24;231:10	<b>high-frequency (1)</b> 138:22	<b>hub (1)</b> 224:9
<b>Greg (2)</b> 107:13;240:17	<b>Hampshire (10)</b> 21:19;23:13;34:3; 38:6;39:13;51:14; 54:17;58:7;72:2; 172:2	<b>heavily (1)</b> 48:7	<b>highly (6)</b> 36:15;43:9;69:7,8; 98:4;164:8	<b>hub-height (1)</b> 225:10
<b>Gregg (12)</b> 25:8;36:1;38:2; 46:23;61:4;86:3; 87:13;134:19;165:8; 191:8;196:6;206:18	<b>Hampshire's (1)</b> 54:4	<b>heavy (1)</b> 142:3	<b>high-priority (2)</b> 11:12;16:11	<b>human (5)</b> 79:11,15;124:23, 24;202:18
<b>Gregory (2)</b> 106:18;186:19	<b>hand (3)</b> 65:19;69:9;80:17	<b>hedgerow (1)</b> 54:9	<b>high-value (2)</b> 15:7,12	<b>hundreds (2)</b> 82:22;181:15
<b>Groton (18)</b> 23:11;126:6; 133:15;197:22,24; 200:24;201:6; 211:23;217:8;218:7; 219:18;226:16,18; 231:22,23;245:9,14; 247:23	<b>handed (1)</b> 17:7	<b>height (15)</b> 33:1;60:19;154:3, 19;224:4,9,11,15,17, 19,21,22;225:1,6,17	<b>Hill (15)</b> 21:7;54:8;86:4; 87:13;92:2,4;98:18, 19;100:17;101:4; 108:19;110:1,4; 204:9;205:23	<b>hyperbole (1)</b> 97:19
<b>ground (4)</b> 152:8;158:16; 175:17;248:24	<b>hands (1)</b> 176:17	<b>heights (1)</b> 73:4	<b>hills (3)</b> 37:5;67:18;70:2	<b>hypothetical (1)</b> 18:9
<b>group (1)</b> 40:5	<b>happen (7)</b> 48:24;50:4;119:14; 174:15;183:11,12; 252:8	<b>held (1)</b> 40:19	<b>hired (2)</b> 45:14;81:3	<b>hypothetically (2)</b> 27:19,22
<b>GRP (1)</b> 201:2	<b>happened (1)</b> 88:22	<b>help (5)</b> 64:3;126:8;164:22; 210:15;225:2	<b>historic (16)</b> 16:14;35:3;52:14, 16;53:1,4,5,7,14,24; 54:14,20;55:1,5,10, 17	<b>I</b>
<b>Guariglia (3)</b> 68:24;82:23; 105:18	<b>happening (3)</b> 44:10;56:19; 227:15	<b>helpful (6)</b> 55:15;70:13;130:4; 159:15;245:21,24	<b>hold (6)</b> 69:15;76:17;77:11; 79:1;218:3;240:16	<b>Iacopino (31)</b> 4:8;8:5;52:19; 70:24;71:1,2;93:17, 24;94:11;97:12,15; 128:9;136:2;137:4,9, 12;143:10,18; 148:17;149:16; 186:14,23;187:3,6; 208:9;215:10,19; 226:8,24;244:24; 247:7
<b>Guariglia's (1)</b> 40:10	<b>happy (1)</b> 226:22	<b>here's (2)</b> 15:23;237:15	<b>holderness (1)</b> 23:12	<b>Iacopino's (3)</b> 102:23;103:23; 104:18
<b>guess (40)</b> 18:8;26:9;28:2,13; 29:22;35:24;37:22; 49:1;58:12,19,22; 60:4;65:1,14,20; 66:7;69:18;77:13; 78:21;79:6,12;88:7; 89:23;90:4;93:13,19; 95:9;170:1;187:20; 189:13;199:1,22; 200:17;207:7; 209:20,22;213:2; 218:18;224:21; 252:24	<b>hard (10)</b> 28:1,3;30:3;31:13, 22;62:7;98:13;185:6; 226:23;248:24	<b>hertz (3)</b> 178:4,4;227:23	<b>home (7)</b> 83:12;93:12;96:5; 113:7;116:7;171:24; 172:3	<b>idea (10)</b> 30:6;33:21;48:3; 57:5;67:14;69:1,18; 95:10;159:16;232:22
<b>guessing (2)</b> 38:4;66:9	<b>harder (1)</b> 62:9	<b>hesitant (1)</b> 104:13	<b>homes (3)</b> 94:21;204:13,20	<b>ideally (1)</b> 48:23
<b>guide (1)</b> 17:12	<b>hardly (1)</b> 64:21	<b>Hessler (13)</b> 137:19,19;140:18, 19,24;141:3,19,24; 143:16;144:11,15; 148:2;155:11	<b>hope (3)</b> 28:21;89:19; 102:20	<b>identical (1)</b> 78:23
<b>H</b>	<b>hard-surfaced (1)</b> 252:7	<b>Hessler's (1)</b> 139:16	<b>horizontal (1)</b> 241:23	<b>identifiable (3)</b> 145:24;227:18,24
<b>habitat (13)</b> 14:14;27:11;33:22; 43:9;44:5,7;57:5; 90:12,19;91:8,17; 92:7,14	<b>Harris (5)</b> 7:12,17,23;8:17; 92:21	<b>hey (1)</b> 83:18	<b>hour (3)</b> 182:2;250:4,7	<b>identification (2)</b> 23:23;56:12
<b>habitats (1)</b>	<b>harvest (1)</b> 84:5	<b>HG (1)</b> 176:10	<b>hours (5)</b> 93:19;129:9;154:9, 18;257:5	<b>identified (13)</b> 9:17;14:16;15:8, 18;27:10;34:9;44:15; 56:2;82:22;85:13,15; 86:17;179:18
	<b>harvesting (4)</b> 80:1;83:19;84:9,11	<b>hide (1)</b> 50:9	<b>house (6)</b> 171:21;174:16,22; 175:2;207:10;251:19	<b>identifies (1)</b> 23:19
	<b>Health (4)</b> 163:22,22,23; 245:7	<b>high (25)</b> 11:13;14:13;15:16; 23:8;34:11;36:5; 45:16;46:11;62:14; 68:9;70:1;85:5,6; 95:14;98:10;109:19, 20;115:23;154:12; 172:6,14;178:8,9,10; 230:12	<b>housekeeping (1)</b>	<b>identify (5)</b> 19:24;34:1;55:16; 208:1;247:4
	<b>hear (4)</b> 90:16;173:4,10; 182:17	<b>high-elevation (1)</b> 75:2		<b>identifying (2)</b> 44:17;138:4
	<b>heard (6)</b> 66:19;90:13; 156:16;172:21; 209:22;242:22	<b>higher (23)</b> 5:19,23;119:18; 153:16;154:11;		<b>IEC (2)</b>
	<b>hearing (7)</b> 5:2;102:14;182:6;			

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

224:9;225:11 <b>Ignatius (10)</b> 4:5;28:16,17,18; 64:9;195:20;231:2,3, 4;242:23 <b>ignorant (1)</b> 113:19 <b>ignore (3)</b> 165:7;250:11,19 <b>ignored (1)</b> 250:8 <b>illustrating (2)</b> 178:17,19 <b>image (2)</b> 31:14,18 <b>imagine (4)</b> 28:4;120:11;204:7; 206:23 <b>imagining (1)</b> 37:22 <b>immediate (4)</b> 43:12,13,20;51:18 <b>immediately (1)</b> 21:17 <b>impact (59)</b> 12:11;20:20;23:3; 24:3,10,21,22;25:20; 26:20;27:10;36:23; 42:16;50:13;52:7,16; 62:15,16,19;75:18; 82:5;83:21;86:6,8,10, 19,21;94:22;95:4,23; 103:24;104:19; 105:7;113:9,15; 114:8;116:2;119:12; 124:15;163:9; 164:11,16;166:8,24; 167:11;170:18; 179:8;184:11; 185:18;198:14,16,18; 228:23;230:22; 237:1,5;243:19; 250:17,18,20 <b>impacting (1)</b> 124:22 <b>impacts (27)</b> 14:12,19,21;15:6; 24:13;25:5;29:8; 31:8,11;42:2;51:1; 56:18;65:20;74:5,12, 13,16;87:1,2;88:16; 95:17,18;100:4; 115:12;203:7; 245:17;246:16 <b>impeach (1)</b> 216:5 <b>implication (2)</b> 223:1,3 <b>implications (1)</b> 221:10 <b>imply (1)</b> 224:12 <b>importance (5)</b>	11:3;39:9;41:3; 56:23;91:14 <b>important (19)</b> 24:12;27:4;39:13, 24;49:7;51:13;53:9; 54:2;55:7;56:3;66:1, 4;79:20;84:12;90:3; 91:13,22;186:9; 238:14 <b>importantly (1)</b> 14:10 <b>impose (1)</b> 203:7 <b>imposed (1)</b> 219:19 <b>imposing (1)</b> 119:14 <b>impression (1)</b> 255:23 <b>improve (1)</b> 23:5 <b>improvement (1)</b> 96:10 <b>inadequacy (2)</b> 178:17,19 <b>inadequate (2)</b> 14:3;15:5 <b>inappropriate (1)</b> 12:15 <b>inaudible (2)</b> 177:1;203:19 <b>inches (1)</b> 147:2 <b>incidences (2)</b> 217:10;218:13 <b>include (7)</b> 17:22;32:24;53:1; 82:15,15;128:21; 201:6 <b>included (5)</b> 27:8,11;166:6; 232:17;248:23 <b>includes (2)</b> 34:2;38:5 <b>including (6)</b> 35:6;36:3;166:4,5; 175:7;214:22 <b>inconsistent (1)</b> 216:6 <b>incorrect (2)</b> 239:13;240:2 <b>increase (10)</b> 81:10;109:6;111:3; 119:13;124:13; 196:10;206:4; 229:13,15;242:7 <b>increased (1)</b> 205:24 <b>increases (2)</b> 207:10,16 <b>increasing (4)</b> 67:20;109:7,10; 242:8	<b>increasingly (1)</b> 50:18 <b>incremental (1)</b> 124:13 <b>indicate (6)</b> 7:1;23:18;129:3; 186:11;209:23;217:2 <b>indicated (19)</b> 10:4;71:7,18;72:9; 74:3;79:2,4,10; 81:18;86:8;96:11,16; 101:6;109:2;152:12; 189:1,7;191:3;214:6 <b>indicates (2)</b> 154:6;225:7 <b>indicating (1)</b> 238:5 <b>indigenous (1)</b> 166:17 <b>Indirectly (1)</b> 170:23 <b>individual (1)</b> 247:16 <b>individuals (1)</b> 162:15 <b>indoors (1)</b> 252:15 <b>industrial (1)</b> 68:4 <b>industry (4)</b> 31:12;145:3,19; 246:18 <b>inflate (1)</b> 142:7 <b>influence (2)</b> 129:24;132:13 <b>influenced (5)</b> 131:1,22;132:24; 133:21;145:11 <b>information (11)</b> 107:19;109:22; 116:19;139:12; 157:11;159:15; 166:13,14;169:23; 211:17;252:23 <b>informative (2)</b> 170:2,4 <b>informed (1)</b> 58:24 <b>informing (1)</b> 71:15 <b>informs (1)</b> 71:13 <b>infrasound (3)</b> 211:10;214:10; 217:3 <b>initially (1)</b> 82:12 <b>Initiative (10)</b> 55:23;56:4,13; 57:8,10,13,21;58:9; 72:4;103:8 <b>initiatives (4)</b>	15:9;71:19,21; 103:1 <b>insect (56)</b> 131:3,24;132:4; 133:18;134:6; 138:22;140:5,6; 145:4,5;146:7;166:7, 15,17;167:5;168:5, 12;169:9,14,15; 170:9;190:11;191:7, 10,19;192:3,24; 194:14;196:5; 199:21;200:3; 206:22;222:14; 227:14,16,17,23; 228:14;229:5,7,23; 230:11,17,19;233:11, 13,20;234:10,16; 235:13,16,18;236:10; 243:1,8,9 <b>insect-correct (1)</b> 190:16 <b>insect-corrected (6)</b> 189:23;190:6,15; 193:10;240:10; 243:11 <b>insect-correction (1)</b> 194:2 <b>insect-removal (2)</b> 167:14;190:8 <b>insects (17)</b> 111:22;114:3; 134:20;139:23; 145:9,11,20;166:1,4; 191:7;192:18,19; 194:21;196:11; 229:19;233:16; 235:15 <b>inside (6)</b> 171:24;173:2,10; 174:1,16;252:16 <b>insist (1)</b> 100:12 <b>insofar (2)</b> 197:22;217:6 <b>installed (3)</b> 29:22;30:9,16 <b>instance (3)</b> 76:14,22;237:23 <b>instances (1)</b> 253:15 <b>instead (3)</b> 211:10;232:9,16 <b>Institute (1)</b> 107:8 <b>insulation (1)</b> 256:7 <b>intact (1)</b> 20:16 <b>intend (1)</b> 126:1 <b>intent (1)</b> 123:20	<b>intentional (1)</b> 101:8 <b>interest (3)</b> 10:11;152:7;205:5 <b>interested (4)</b> 75:23;76:12;101:3; 216:16 <b>interesting (1)</b> 75:8 <b>interior (1)</b> 256:12 <b>interjects (5)</b> 26:11;38:16;73:15; 138:14;161:9 <b>internal (2)</b> 48:10,18 <b>interpret (1)</b> 190:21 <b>interpretations (1)</b> 37:19 <b>interpreted (2)</b> 18:15;119:13 <b>INTERROGATORIES (14)</b> 4:3;26:8;28:18; 37:10;41:20;46:14; 52:12;55:19;71:2; 227:7;231:4;238:20; 245:5;247:7 <b>interrupt (1)</b> 93:17 <b>intertwined (1)</b> 57:6 <b>interval (3)</b> 189:23;240:9; 242:3 <b>into (25)</b> 18:5;22:16;29:14; 30:24;39:11,14;41:8; 43:19;65:7;70:7; 72:19;91:2;114:18; 123:11;127:5;131:4; 147:15,16;172:10; 193:12;201:12; 209:18;216:20; 238:1;246:24 <b>introduce (1)</b> 69:2 <b>introduced (2)</b> 70:7;165:8 <b>introducing (1)</b> 106:14 <b>Introduction (1)</b> 178:2 <b>investment (1)</b> 41:4 <b>involved (11)</b> 23:6;45:11,13,24; 49:4;58:11,21;72:5; 73:20;76:6;79:23 <b>involves (1)</b> 103:9 <b>irrespective (1)</b> 199:8
---	--	---	---	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>irritation (1)</b> 163:19		<b>L90 (2)</b> 154:23;239:22	<b>later (4)</b> 30:1;124:12;202:8, 8	<b>level (104)</b> 32:14;109:9,9; 111:24;112:11;
<b>Island (1)</b> 107:5	<b>K</b>	<b>lab (1)</b> 153:1	<b>latest (2)</b> 36:16;245:15	114:4,9,22;115:7,13; 116:13;119:18;
<b>ISO (3)</b> 126:16;183:13; 249:19	<b>Kalisky (1)</b> 249:2	<b>Lake (17)</b> 25:8,15;35:5;36:1; 38:2;46:23;51:24; 61:5;67:19;86:3; 87:13;134:19,21; 165:8;191:8;196:7; 206:18	<b>latter (1)</b> 32:17	124:5,6;126:24; 127:6;128:14;131:6; 132:9,10,13;133:7; 134:1,2,4;138:4,18, 20,24;139:3,4,6,18; 142:8;146:3;152:20, 23;153:8;155:13,15, 15;157:16;158:16; 159:17,21,21;168:8, 9,10;169:5;172:4; 174:3;178:8,9,10; 179:24;180:7,8,12, 12,15,18,23;181:10, 12,14,19;187:10,12; 189:22;194:17; 195:17;196:4;199:9; 205:19;206:19; 218:22;219:7,9; 220:11;228:15,16; 230:6,12,20,21; 232:9;236:5,7; 239:23;240:8;242:2; 247:19;248:18; 249:9,11;250:22; 253:4,5;254:4,7,8,10; 255:5
<b>isolated (1)</b> 160:18	<b>kayaks (1)</b> 204:5		<b>layer (3)</b> 56:9,9;228:17	<b>level/masking (1)</b> 152:23
<b>isolation (1)</b> 256:13	<b>keep (1)</b> 246:21	<b>land (23)</b> 6:5;16:12,13,14,16, 18;17:13,21,22;19:7, 15;27:12;34:7;42:12; 47:9;48:15,16,23; 71:11;90:15;91:3; 93:2;103:18	<b>layperson's (1)</b> 162:8	<b>levels (97)</b> 109:6,18;110:24; 111:3;112:5,10; 113:18,24;114:7,12, 20,21,24;115:3,16, 23;119:2;123:6,7,11, 24;124:14,22;127:2; 130:24;132:2; 133:21;134:6; 138:16;141:13; 145:12,18;151:14; 152:5;154:7,23; 155:5,22;156:5; 159:2,2,12;160:13; 171:19,20;178:23; 181:7,19;183:3; 186:1,4;189:24; 191:8;192:15,22; 193:1,5,9,17,20,23; 194:5,22;195:24; 199:2,5,7,20;200:7; 201:2,24;205:16; 212:5;217:11; 218:14,21;220:16,21; 221:6;222:12; 223:11;225:9;230:7; 231:24;240:10; 242:7,7,10;244:20, 20;246:7;247:3; 248:21;249:22;
<b>issue (22)</b> 21:1,2;22:10; 37:11;41:22;42:13; 43:6;54:18;109:1; 115:1;130:3;184:5; 191:19;192:6,7,8; 235:15;246:6,11,23; 247:1,24	<b>keeps (1)</b> 147:17	<b>landowners (1)</b> 43:15	<b>LB (1)</b> 59:2	
<b>issued (1)</b> 109:15	<b>Kimball (2)</b> 121:22,23	<b>lands (3)</b> 16:11,14;17:19	<b>LDN (2)</b> 186:3,8	
<b>issues (9)</b> 26:14,15;75:16,16; 94:13,18;175:10; 215:16;247:5	<b>kind (35)</b> 10:20;22:14;24:22; 30:23;35:12;38:8,8; 39:7,14;40:5,22; 45:1;50:17;63:11; 65:2,6;69:11;70:15; 72:19;76:3;82:20; 85:12;87:4;95:23; 96:8;98:4;100:3; 112:7,7;115:12; 142:6;168:14; 244:11;246:1,19	<b>landscape (15)</b> 12:9;47:6,12; 49:17;51:14;53:15; 54:20;68:16;70:1; 75:7,12;84:15;85:11; 91:21;145:13	<b>lead (1)</b> 80:9	
<b>italicized (2)</b> 137:14,23	<b>kinds (9)</b> 14:11,12,16,19; 50:24;100:1;113:20; 228:2,4	<b>landscapes (9)</b> 54:14,20;67:5,23; 68:2,2,4;80:11;100:5	<b>leading (1)</b> 131:4	
<b>IWAG-N1 (1)</b> 122:16	<b>knew (2)</b> 30:19;78:8	<b>language (1)</b> 99:24	<b>leads (1)</b> 178:24	
<b>IWAG-N4 (1)</b> 175:24	<b>knowing (1)</b> 159:19	<b>large (12)</b> 22:16,22;34:7; 35:5,12,14;77:11; 114:8;142:4;153:1; 173:17;251:18	<b>leaf (1)</b> 131:2	
<b>IWAG-N7 (2)</b> 135:19;136:4	<b>knowledge (7)</b> 13:2;86:24;107:18; 126:11;197:14; 245:7;247:22	<b>larger (15)</b> 74:4,22;75:20,20, 24;109:17;111:1; 147:5,7;148:3;174:7; 176:22;177:5,6; 184:1	<b>learned (1)</b> 75:10	
<b>IWAG-N8 (1)</b> 148:9	<b>knowledgeable (1)</b> 46:1	<b>last (19)</b> 23:17;28:23;29:2, 5;51:3;98:20;137:3, 3,23;150:5;175:22; 179:20;210:21; 216:18,18,24,24; 245:10;248:13	<b>least (19)</b> 19:7;23:8;36:7; 39:6;50:11;53:17; 91:23;92:4;98:17; 99:10;124:4;126:4; 153:10;172:2; 190:14;194:22; 204:15;209:7;237:8	
<b>J</b>	<b>known (5)</b> 36:15;103:13; 115:11;127:4;159:18	<b>late (4)</b> 144:17,17;229:5; 256:4	<b>leave (2)</b> 222:14;229:21	
<b>James (8)</b> 106:5,7,9;171:14; 207:20,20;210:5; 226:3	<b>knows (1)</b> 200:14		<b>leaves (1)</b> 252:23	
<b>James' (1)</b> 208:4	<b>knuckles (1)</b> 214:17		<b>leaving (1)</b> 129:16	
<b>Janice (1)</b> 113:4			<b>left (2)</b> 61:17;97:7	
<b>Jim (1)</b> 81:3	<b>L</b>		<b>Legacy (11)</b> 39:4;40:23;41:2,7, 12,17;103:5,6,7,12, 16	
<b>job (1)</b> 87:3	<b>L1 (4)</b> 130:24;135:1,3; 222:11		<b>legal (2)</b> 12:7,11	
<b>joking (1)</b> 143:19	<b>L2 (3)</b> 131:19,22;135:5		<b>legitimate (2)</b> 40:9;54:22	
<b>Jones (1)</b> 112:23	<b>L3 (4)</b> 132:21,24;135:5; 196:14		<b>Lempster (8)</b> 32:6,14,15;64:20, 21;96:17,19;200:24	
<b>judgment (1)</b> 130:16	<b>L4 (2)</b> 133:17;135:8		<b>Leq (1)</b> 154:23	
<b>judicial (1)</b> 201:15	<b>L5 (2)</b> 134:18;135:9		<b>less (18)</b> 39:1;44:21;48:20; 51:15;62:13,14,15; 67:17;75:9;110:18; 111:6;142:5;172:13; 204:13;229:15; 250:14,17,18	
<b>July (5)</b> 204:8;207:18,21; 208:12;209:4	<b>L9 (1)</b> 134:9		<b>lessons (2)</b> 75:10;104:10	
<b>jump (1)</b> 79:2				

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

252:13;254:5,12 <b>Leventhal (1)</b> 176:10 <b>Levesque (2)</b> 116:24;117:1 <b>Lewis (1)</b> 220:15 <b>library (1)</b> 180:4 <b>lied (1)</b> 100:14 <b>lieu (1)</b> 233:12 <b>life (1)</b> 163:21 <b>lighting (16)</b> 28:24;29:6,7,12,14, 15,19;30:10,14,16, 23;31:1,6,11,13,15 <b>likelihood (2)</b> 76:2;170:24 <b>likely (5)</b> 20:14;79:22; 120:12;145:11; 160:15 <b>limit (13)</b> 14:21;30:22; 203:18;233:4;234:8; 235:3;236:2,9,23,24; 242:20;243:13,16 <b>limitation (1)</b> 203:8 <b>limitations (1)</b> 200:14 <b>limited (4)</b> 16:23;35:19;47:21; 250:1 <b>limits (4)</b> 61:10,11;179:10; 233:7 <b>line (9)</b> 21:12;69:4;116:9; 166:3;167:15; 210:10;216:21,22; 242:15 <b>linear (1)</b> 206:5 <b>linearly (2)</b> 206:2,3 <b>line-of-sight (1)</b> 21:9 <b>lines (6)</b> 22:24;80:13;98:8; 124:13;197:9;223:18 <b>Linowes (51)</b> 121:24;122:1,22, 23;128:3,7,11,12; 136:4,6,10;137:7,11, 13,16;142:15;143:6, 9,12,15;144:2,4,16, 18;148:19;149:1,5, 10,15,23;151:10; 156:14;157:3,8,9,21;	158:6,8;161:10,13; 176:4,8,9,16,19; 183:18;189:5; 221:11;223:6,22; 252:3 <b>Linowes' (1)</b> 251:15 <b>Linowes's (1)</b> 221:20 <b>list (12)</b> 17:10;81:24;82:4; 83:5;122:9;125:12, 18,18,22;126:2; 196:24;198:20 <b>listed (2)</b> 103:2;126:3 <b>listen (1)</b> 106:5 <b>listened (1)</b> 231:6 <b>listing (1)</b> 55:4 <b>lit (1)</b> 104:6 <b>literature (7)</b> 115:15;184:17; 214:2,12;217:9; 218:12;245:7 <b>litigated (1)</b> 12:8 <b>little (26)</b> 31:17,17;38:1; 44:6;46:18;57:6; 58:12;65:22;67:13; 70:3;96:14;97:7; 138:10;148:4; 172:13,16;181:17; 205:10;226:7; 229:10;237:7,12; 243:22;246:8;252:1, 17 <b>live (6)</b> 106:19;113:5; 118:22;119:24; 120:1,3 <b>lived (1)</b> 115:24 <b>lives (1)</b> 167:9 <b>living (1)</b> 179:8 <b>local (4)</b> 18:15;19:17;38:1; 71:12 <b>located (14)</b> 5:18,24;6:4;7:5; 12:5,21;14:15;17:1; 18:4;69:7;181:14; 183:5;206:14;246:22 <b>location (64)</b> 37:23;82:13;110:3; 112:8;113:22; 114:10,10,14;127:7;	130:14,21;131:7,15, 17,19;132:3,21; 133:17;134:1; 135:14;139:10; 141:4;153:21; 154:10,18;155:5; 158:23;159:13,14,22; 164:12;165:6,23; 166:22;167:1,9,15, 19;168:15,17,19,23; 169:2,8;170:16; 175:12;196:14; 204:1;221:9,13; 222:11,12,24;234:24; 235:2;236:4,16; 238:24;239:8; 240:13;243:2,6; 255:4,7 <b>locations (43)</b> 20:23;24:7;34:20; 35:22,23;69:8; 112:12;119:5;127:1; 134:24;139:19,21,23; 140:2,3;141:6,12,14, 18,20,22;160:11; 170:6,8;189:2; 190:10,13,14,16; 191:2,3;198:12; 217:12;218:15; 221:4,8;222:7,9,21; 250:22;253:15; 256:10,24 <b>logarithmic (1)</b> 225:12 <b>logged (2)</b> 95:13;101:7 <b>logger (2)</b> 83:17,21 <b>logging (11)</b> 47:9;84:18;85:20; 93:11;95:19,21;96:6; 100:18;101:8; 114:15;115:1 <b>logic (2)</b> 87:5;90:2 <b>logical (1)</b> 84:16 <b>logically (2)</b> 88:5,10 <b>Long (5)</b> 50:5,6;101:18; 129:8,17 <b>longer (9)</b> 62:19;63:3;136:19; 176:23;177:11; 184:2,7,12,13 <b>Longgood (6)</b> 112:23,24;113:3,4; 161:20;182:15 <b>long-term (1)</b> 139:3 <b>look (66)</b> 8:7;16:3;19:18;	21:1,13;23:4;29:1; 36:14;41:15;42:18; 43:5;44:12;51:16; 54:6;59:14;60:17; 64:16;65:3,4;68:10, 16,17;69:20;71:9; 76:21;81:20;82:1; 83:6,17,18;84:14; 86:22,23;119:7; 125:18;130:20; 150:19,21;151:7; 153:8,22;161:15; 167:21;168:21; 170:14,16;192:12,14; 195:22;204:22; 206:15;215:20,22; 217:20;220:8; 223:14;224:1; 227:19;228:22,24; 234:17,24;237:16; 238:24;239:3,4 <b>looked (19)</b> 9:19;11:11;13:12; 20:21;21:3;26:12; 39:8;41:8,16;53:3; 65:9;82:12;103:14; 115:20;136:18; 164:20;226:12,17; 243:7 <b>looking (43)</b> 13:9;21:10;28:22; 36:1;45:21;46:1; 47:12;48:11,13;51:5; 52:1;55:13;56:16; 65:11;67:8,23;68:17; 72:20;82:19;83:14; 87:23;88:24;114:23; 133:24;141:8; 146:14;159:10,10,24; 160:12;167:15; 168:8;169:23;183:2; 186:16,18;219:4,5; 220:9;231:21; 238:21,23;246:19 <b>looks (4)</b> 31:16;70:14;119:4; 237:16 <b>losing (1)</b> 96:13 <b>lost (1)</b> 91:24 <b>lot (15)</b> 23:6;24:16;34:17; 40:1;63:17;65:6,12; 68:3;74:10;83:19; 156:19;157:10; 223:18;250:8;252:23 <b>lots (3)</b> 18:6;51:6;98:7 <b>loud (6)</b> 138:12;173:7,9; 180:9,11;229:11 <b>louder (1)</b>	196:1 <b>loudest (2)</b> 179:23;254:6 <b>Loveren (2)</b> 119:6;131:20 <b>low (32)</b> 112:11;114:5; 115:2;118:18;119:7; 147:9;150:8,16; 151:3,22;152:3; 160:16;172:6,13; 173:6;175:17; 176:24;177:2; 178:18,20,24;179:9; 184:2,6,11,14; 193:22;194:5; 199:21;237:8;246:7; 252:11 <b>Lowell (16)</b> 43:7;72:14,17,23; 73:5,16;74:1,7,8,14, 24;76:19;77:1,10; 78:20,23 <b>lower (18)</b> 38:5;115:3;150:12, 23;177:7,11,14,16; 184:8,9,12,13; 228:15;230:15; 232:3,9;243:22; 252:14 <b>lowering (1)</b> 237:13 <b>lowest (6)</b> 138:4;139:5; 160:12;177:19,19; 254:8 <b>low-frequency (25)</b> 147:19,21,24; 148:5;172:10,19; 174:3,10,11;176:7; 178:3,13,15;179:12; 209:11;210:6; 211:11;212:5,16; 214:10;217:2; 245:18;246:6;247:1; 252:13 <b>lunch (2)</b> 5:1,10 <b>lungs (1)</b> 218:24 <b>Lyons (5)</b> 4:4;46:13,14; 227:6,7
<b>M</b>				
<b>Ma'am (1)</b> 156:12 <b>machinery (1)</b> 227:13 <b>machines (2)</b> 109:18;110:11 <b>Madam (8)</b>				



**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

26:5;58:23;63:10; 93:16;122:1;143:6; 158:6;215:14 <b>magnify (1)</b> 25:19 <b>magnitude (2)</b> 42:9,19 <b>main (1)</b> 22:17 <b>Maine (3)</b> 53:19;204:9,13 <b>mainly (1)</b> 131:7 <b>major (2)</b> 46:21;55:1 <b>majority (2)</b> 24:18,19 <b>makes (4)</b> 111:4;116:16; 180:14;182:23 <b>making (5)</b> 99:6;167:20; 181:17;217:18; 255:16 <b>manage (1)</b> 41:22 <b>management (3)</b> 48:10,18;58:21 <b>man-made (1)</b> 180:2 <b>manufacturer (1)</b> 249:13 <b>many (30)</b> 6:16,20;24:24,24; 25:11,11;31:15;34:1, 19;44:19;61:3,5; 66:3;82:20,21;85:10; 86:18;87:22;97:23; 116:10;120:9; 159:11;160:10; 196:12;237:20; 246:2;250:4,11; 253:15,15 <b>Manzelli (4)</b> 33:10;66:14;117:2, 3 <b>map (7)</b> 6:11,19;9:4,12; 15:14,15;180:13 <b>margin (2)</b> 198:8;232:17 <b>margins (1)</b> 232:17 <b>mark (1)</b> 214:24 <b>marked (4)</b> 6:9;15:22;214:19; 215:7 <b>marking (1)</b> 215:4 <b>Mars (5)</b> 108:19;110:1,4; 204:9;205:23	<b>Marsh (1)</b> 36:3 <b>marshaling (1)</b> 142:3 <b>mask (3)</b> 138:5;139:7;173:1 <b>masked (1)</b> 230:17 <b>masking (1)</b> 155:15 <b>mass (1)</b> 230:11 <b>Massachusetts (5)</b> 34:3;38:7;57:11; 106:19;107:4 <b>master (1)</b> 11:6 <b>materials (1)</b> 252:5 <b>math (2)</b> 244:10,12 <b>mathematical (2)</b> 35:21;138:21 <b>matter (5)</b> 109:12;116:12; 129:16;175:6;184:10 <b>matters (1)</b> 113:20 <b>maximum (4)</b> 153:2;155:4; 205:19;250:21 <b>may (60)</b> 8:21;10:13;16:3; 20:2;22:1,10,10; 24:7;32:9,10,16; 33:5;34:13,20;48:1; 58:24;72:10;78:6; 82:14;83:5;89:4; 97:24;106:2;108:16; 125:13,24;127:13; 129:20;130:11; 131:16;132:10,12,18; 141:9,14,15,16; 145:13,14;160:7; 162:15;170:13,14; 174:1;177:2,3,6; 179:17;184:14,15; 191:24;205:9; 213:12;218:6; 219:12;229:5;247:4; 250:6;251:5;254:16 <b>maybe (31)</b> 38:6;42:4;43:23; 52:22;55:12,13;59:5; 68:5,13;87:8,18; 95:9;98:18;125:17; 126:8;165:12; 166:20;169:12; 183:19;185:12; 187:20,21;192:10; 200:2,19;203:11; 206:2;217:23;225:2; 229:18;237:9	<b>Meadow (1)</b> 36:3 <b>mean (51)</b> 7:7;32:19;33:2; 35:15;38:17,18;45:3; 48:21;67:10,20;72:2; 75:23;83:8,9;84:5, 10;86:14;88:2,11,20; 91:9;100:10;124:9; 131:11;156:11,13; 162:9,16;163:19; 164:2,16;187:15; 191:18;192:10,17; 193:23;194:13; 197:12;202:12; 203:24;205:13; 207:11;213:15; 222:13;225:15; 235:10,11;243:17; 244:11;247:9;254:1 <b>meaning (6)</b> 15:15;29:11,14; 38:13;141:4;163:23 <b>means (7)</b> 33:15;38:19; 152:13;162:11; 199:22;238:14; 256:10 <b>meant (3)</b> 99:10;144:11; 146:12 <b>measurable (1)</b> 247:19 <b>measure (5)</b> 123:5;231:17; 254:15;255:8,13 <b>measured (22)</b> 111:14,18;114:6, 13;138:16;151:16; 155:20,21;159:4,13; 160:15;189:21,24; 193:22;194:4; 223:23;224:18,22; 227:19;240:7,11; 242:2 <b>measurement (4)</b> 111:20;154:20; 179:19;224:17 <b>measurements (18)</b> 32:16;145:3; 152:11;153:16; 179:15;191:6;194:1, 2;195:17;196:6; 198:11;206:20; 224:3,12;235:22; 248:8,9;255:17 <b>measures (5)</b> 5:15;10:17,21; 72:13;255:21 <b>measuring (4)</b> 129:18;135:14; 150:8;152:8 <b>mechanical (4)</b>	130:1;134:20; 180:2;256:17 <b>median (1)</b> 155:4 <b>mediated (1)</b> 211:11 <b>Meetinghouse (1)</b> 54:8 <b>megawatt (1)</b> 32:14 <b>megawatts (5)</b> 32:9,10,12,18;33:5 <b>member (2)</b> 19:16;107:9 <b>MEMBERS (6)</b> 4:3;51:4;142:23; 158:1;160:22;225:21 <b>membrane (2)</b> 147:15,18 <b>memory (1)</b> 213:9 <b>mental (1)</b> 163:24 <b>mentioned (11)</b> 16:15,16,17;21:4; 26:9;37:16;41:11; 52:14;57:23;98:21; 187:23 <b>mentions (1)</b> 40:11 <b>merit (1)</b> 109:16 <b>met (8)</b> 61:21,23;62:3; 135:13;162:23; 234:4,5;255:11 <b>meteorological (2)</b> 224:4;225:17 <b>meter (1)</b> 153:3 <b>meters (25)</b> 150:20;151:2,6,17; 152:15;153:14; 154:10;155:21,24; 158:15;190:2; 223:23;224:8,9,18; 225:11;240:12; 241:24;242:11,14; 244:21;250:4,13; 252:22;253:1 <b>method (1)</b> 100:3 <b>methodologies (1)</b> 86:18 <b>methodology (8)</b> 66:18;84:3;85:3; 104:22;105:8,12,14; 253:14 <b>methods (4)</b> 121:8;178:16,18, 20 <b>mic (1)</b> 52:20	<b>microphone (12)</b> 20:9;111:23; 146:20;147:13,18,22; 148:14;152:9;153:2, 20,21;160:3 <b>microphones (3)</b> 160:10,17,18 <b>middle (2)</b> 142:1;154:8 <b>midnight (5)</b> 192:14,15;195:22, 24;196:9 <b>might (60)</b> 9:20;18:14;21:14; 24:23;26:19;29:14, 24;30:22;31:3;38:10; 39:24;40:7;43:4; 51:24;65:5;82:15; 83:1;84:17,21;86:5; 87:17;88:8;89:7,11, 12,13;98:3;118:23; 120:8;121:8;129:24; 130:2;139:2;141:17; 142:7;153:19; 159:22;162:8,9; 163:14;168:10; 173:22;174:2;175:2, 3;180:19,22;181:10; 188:3;191:1;192:4; 206:24;222:18; 232:23;233:14; 234:7,9;243:22; 256:16,17 <b>Mike (3)</b> 128:3,7;208:8 <b>mile (2)</b> 113:7;116:6 <b>miles (9)</b> 24:8,14;41:14; 45:16;64:23,23;75:3; 250:4,7 <b>Mill (3)</b> 36:12;119:6 <b>mind (4)</b> 42:19;76:11;162:8; 180:3 <b>mine (1)</b> 86:13 <b>minimal (6)</b> 47:5;48:5;49:19; 68:2;89:12;239:22 <b>minimize (3)</b> 50:24;75:11;163:9 <b>minimum (1)</b> 155:4 <b>minus (1)</b> 235:17 <b>minute (5)</b> 142:21;149:19; 215:23;225:4;244:8 <b>minutes (6)</b> 94:1,8;227:11; 251:3,6;255:22
---	---	--	--	---

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>misimpression (1)</b> 256:2	<b>monitoring (2)</b> 125:3;160:6	160:5;161:14; 181:22;205:12;218:1	<b>nearest (1)</b> 204:15	194:11;220:3,20; 232:7,10;238:8
<b>misread (1)</b> 165:12	<b>monitors (3)</b> 129:21;130:12; 158:19	<b>MSLINOWES (1)</b> 122:4	<b>necessarily (19)</b> 11:15;19:2;39:21; 51:24;53:12;57:20; 75:7;98:10;132:12; 133:23;167:13; 173:5;174:12,24; 177:1;180:9;192:17; 229:1;230:13	<b>nights (2)</b> 199:23;200:2
<b>misrepresentation (1)</b> 133:12	<b>month (1)</b> 206:22	<b>much (25)</b> 14:9;36:17;38:4; 47:20;51:9;58:11; 67:17;70:10;84:21; 95:21;102:9;104:7; 111:5;116:18; 120:20;121:20; 124:17;156:24; 159:24;228:5,6; 229:8;231:15; 237:11;257:3	<b>need (17)</b> 22:1;52:22;69:17; 70:22,22;89:24;94:3; 129:11,13;149:13; 164:20;176:1,5; 203:15;234:14; 237:2;240:5	<b>nighttime (7)</b> 114:24;129:7; 139:4;168:8,10; 193:9,14
<b>misrepresented (1)</b> 133:7	<b>months (9)</b> 30:10,21,22; 206:23,24;229:6,23; 230:2;233:20	<b>Multiply (1)</b> 188:13	<b>needed (2)</b> 77:11;234:9	<b>nine (1)</b> 36:17
<b>missed (1)</b> 92:12	<b>mooshing (1)</b> 244:10	<b>must (4)</b> 20:7;21:17;146:10; 209:16	<b>needs (3)</b> 66:8;130:16; 199:10	<b>Nobscot (1)</b> 106:20
<b>misunderstood (2)</b> 87:9;89:4	<b>more (58)</b> 5:18;7:4;9:17,21, 21;13:13;14:10; 20:14;32:6,22;33:8; 34:5,5;38:1;40:5; 44:21;48:3;51:10; 56:21;66:3;70:14; 74:4,20,24;75:24; 80:19;90:17;96:15; 100:15,15;110:4,12; 111:5,6;112:9; 119:19;120:2; 159:24;163:14,18; 172:16;173:18,19; 188:21;198:7,13,17; 207:2;208:1;228:6; 229:9;232:18;234:8; 235:1;242:21,24; 245:17;252:1	<b>mute (1)</b> 106:5	<b>neglected (1)</b> 170:13	<b>Noise (120)</b> 107:8;111:19; 113:18;119:15; 121:13;123:22,24; 124:5,6,22;125:3; 126:10;127:2,4,11; 128:20,21;129:23; 130:15;131:2,3,8,22, 24;132:4;133:2,3,11, 18;134:7,21;135:2; 138:6,15,17,22; 139:7,24,24;140:17, 17;142:7;145:4,6,18, 19;146:14,19;147:8, 11;148:13;151:19; 152:10;153:19; 157:11,14,16;158:16, 22;160:3;163:6,7; 165:18;166:5,11,16; 167:5;169:5,15; 171:19,20;172:12,19; 173:4,19;174:20,22; 175:11,17;176:7; 177:3,5;178:3,13,16, 16;179:24;182:17; 190:12;191:7,10,19; 192:22,24;193:5; 194:3,14;198:16; 203:1,5;206:22; 214:10;219:19,19; 221:5;222:14,15; 223:19;227:12,17,23; 228:3,4;237:5; 242:20;246:14,16; 247:2;251:17,17
<b>mitigate (4)</b> 23:8;27:2;237:7; 256:6	<b>morning (7)</b> 34:18;37:16;39:16; 196:3,3;214:18; 226:7	<b>myself (3)</b> 14:21;197:20; 226:3	<b>neglects (2)</b> 141:24;142:1	<b>noise-control (1)</b> 107:6
<b>mitigated (4)</b> 20:7;22:2;26:15,22	<b>most (24)</b> 35:7;51:20;52:2,3, 4;53:14,24;70:8; 78:18;86:10;88:1; 98:6;130:7,7;152:6; 160:15;164:5; 206:21;217:23; 230:4;234:13; 237:17,23;252:10	<b>N</b>	<b>neighborhood (1)</b> 120:4	<b>noise-level (2)</b> 125:7;169:18
<b>mitigating (1)</b> 27:8	<b>models (1)</b> 217:3	<b>N4 (1)</b> 122:16	<b>neighboring (1)</b> 38:2	<b>noise-reduction (1)</b> 173:8
<b>mitigation (22)</b> 27:6,13,14,23; 41:21;42:1,7,9,15,18; 43:2,45;20,21;60:22; 66:9;92:3;121:8; 237:24;255:21,24; 256:23,24	<b>modeling (8)</b> 122:14;124:19; 171:6,10,14;182:22; 249:6;253:10	<b>N7 (1)</b> 122:16	<b>Netherlands (7)</b> 115:21;164:19; 185:19;238:16; 243:23;245:20,20	<b>noises (9)</b> 142:18;204:5,6; 221:12;222:7,16; 227:14,16,16
<b>mixed (1)</b> 50:14	<b>models (1)</b> 217:3	<b>N8 (2)</b> 122:16;148:24	<b>nevertheless (2)</b> 24:24;84:8	<b>noisier (4)</b> 109:20;131:18; 146:5;168:2
<b>model (4)</b> 123:10;127:5,5,11	<b>moderate (14)</b> 86:7;87:14,17; 88:13,18;89:9,10,11; 150:9,16;151:22; 152:3,6,13	<b>nacelle (1)</b> 33:1	<b>New (25)</b> 21:18;23:12;34:1, 3;38:6,13,18;39:13; 51:14;54:4,17,19; 58:6;67:5;69:2; 70:20;72:2;79:21; 80:8,11,18;95:17,17; 172:2;229:4	<b>noisiest (2)</b> 143:16,17
<b>modeling (8)</b> 122:14;124:19; 171:6,10,14;182:22; 249:6;253:10	<b>Modern (1)</b> 212:3	<b>name (4)</b> 106:15,18;113:4; 148:11	<b>newer (1)</b> 212:16	<b>noisy (8)</b>
<b>models (1)</b> 217:3	<b>modest (2)</b> 168:13;198:16	<b>national (5)</b> 37:12,13;39:5; 55:5;107:11	<b>next (14)</b> 39:15;44:1;69:13, 13,14;131:4,4,19; 143:14;190:7; 198:20;216:14,22; 242:15	
<b>modified (1)</b> 138:24	<b>modified (1)</b> 138:24	<b>nationally (1)</b> 43:1	<b>nice (1)</b> 65:21	
<b>moment (7)</b> 26:6;91:18;107:23; 132:20;195:8; 215:24;255:1	<b>mostly (8)</b> 14:21;44:4;48:9; 75:1;114:23;192:8; 212:15;246:21	<b>natural (6)</b> 38:3;47:6;49:16; 50:3;85:6;95:12	<b>night (19)</b> 29:7;64:21;111:20, 21;134:6;168:3; 170:5;191:9,20; 192:6,8,19;193:16;	
<b>money (7)</b> 40:23;41:2,4,17; 65:7;83:19;103:21	<b>motion (3)</b> 174:4,14;246:9	<b>nature (5)</b> 12:24;40:3;143:2; 179:22;180:1		
<b>monies (1)</b> 103:6	<b>motor (1)</b> 36:13	<b>nausea (1)</b> 174:13		
<b>monitor (12)</b> 129:17;131:1,22; 132:24;133:4; 139:11,13,24;140:4; 141:5,21;142:19	<b>mount (1)</b> 153:2	<b>NB (3)</b> 208:10,11,12		
<b>monitored (2)</b> 132:6;194:12	<b>Mountain (10)</b> 40:24;41:11;45:14; 72:24;73:10;75:6,12; 81:4;103:13;181:16	<b>near (8)</b> 22:20;36:2;44:8; 65:16;133:4;158:19; 166:22;199:19		
	<b>mountains (1)</b> 52:1	<b>nearby (5)</b> 75:2,3;133:1; 179:8;223:2		
	<b>move (8)</b> 13:21;120:6;144:3;			

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

131:13,16;132:11, 12;141:3,6,19,22 <b>nomenclature (1)</b> 88:19 <b>none (3)</b> 126:8;217:9; 218:12 <b>nonetheless (1)</b> 157:2 <b>non-insect (1)</b> 234:6 <b>non-issue (1)</b> 160:5 <b>non-permanent (1)</b> 21:17 <b>nonprofit (1)</b> 72:8 <b>nor (2)</b> 18:18;159:10 <b>normal (1)</b> 145:2 <b>northern (1)</b> 38:7 <b>northwest (1)</b> 199:20 <b>note (3)</b> 153:18;156:13; 210:12 <b>noted (3)</b> 217:7;220:16; 248:13 <b>notes (2)</b> 117:12;218:2 <b>notice (8)</b> 119:20;168:14; 200:19;201:15; 215:8;217:15;230:4; 242:4 <b>noticeable (1)</b> 96:1 <b>noticed (3)</b> 22:11;168:17; 252:12 <b>November (4)</b> 8:14;148:21;189:4; 219:15 <b>Nowhere (1)</b> 97:18 <b>number (33)</b> 9:18;13:24;21:4; 29:2;32:12;35:4,14, 20;43:21;46:5;56:21; 68:19;69:19;116:12, 16;122:7,8;128:4,8; 136:2;162:19; 177:20;178:5;186:1, 24;195:10,11; 206:12;239:2,7; 242:15;245:23; 253:20 <b>numbers (25)</b> 43:18;46:10; 137:10;162:1;165:5,	9,10,11;188:6;189:3, 6,15,18,19;190:3; 191:14,15,20,22; 192:2;210:11; 236:10,12;244:10; 250:10 <b>numerical (2)</b> 203:8,18 <b>numerous (2)</b> 25:18,21  <b>O</b>  <b>object (9)</b> 12:6;18:12;63:11; 142:10;151:6,9; 213:3;214:14;215:1 <b>objection (9)</b> 64:6;156:13;158:5; 197:15;200:13; 201:4;202:19; 209:21;215:15 <b>objective (5)</b> 46:5;49:16;50:1; 152:21;155:14 <b>objects (1)</b> 67:9 <b>observable (1)</b> 169:10 <b>observed (3)</b> 78:20;189:21; 240:7 <b>observes (1)</b> 95:7 <b>observing (1)</b> 196:8 <b>obviously (13)</b> 34:2;50:8;62:10; 83:11;86:20;100:13, 18;111:4;112:9; 145:12;186:5; 229:21;231:6 <b>occasion (2)</b> 111:20;193:15 <b>occasional (1)</b> 133:19 <b>occasions (1)</b> 194:4 <b>occupation (2)</b> 106:16,23 <b>occupy (1)</b> 130:13 <b>occur (14)</b> 14:9;20:22;21:17; 42:20;70:15;129:20; 152:6;169:11; 228:12;246:10; 253:4,5;254:7,9 <b>occurred (4)</b> 34:8;134:4;195:22; 244:21 <b>occurrence (1)</b> 194:7	<b>occurring (4)</b> 49:16;227:22; 228:21;232:7 <b>occurs (2)</b> 247:17;252:11 <b>octave (11)</b> 135:3,9;138:19; 139:20,21;140:4; 165:24;167:19; 168:19,23;170:11 <b>October (3)</b> 40:11;161:22; 169:17 <b>odd (1)</b> 138:10 <b>Oddly (1)</b> 246:7 <b>off (12)</b> 29:11;79:3;83:20; 92:6;122:21;142:24; 149:18,20;158:2; 208:23;211:2;225:22 <b>offer (2)</b> 124:3;201:12 <b>offered (3)</b> 92:10,11;151:7 <b>offering (1)</b> 216:6 <b>offers (2)</b> 150:11;152:7 <b>offhand (1)</b> 217:19 <b>official (3)</b> 200:18;215:8; 217:14 <b>offset (1)</b> 20:10 <b>offsetting (1)</b> 26:22 <b>off-site (3)</b> 75:9;76:3;77:18 <b>Often (13)</b> 49:11;52:5,6; 79:19;86:17;95:24; 172:21,22;178:17,18; 194:6;227:15;252:10 <b>Oh-oh (1)</b> 149:3 <b>old (5)</b> 47:18;70:11;80:24; 101:10,10 <b>older (3)</b> 177:7;212:6,18 <b>once (2)</b> 75:21;123:12 <b>one (104)</b> 10:16;14:6;20:11, 15;23:4;25:12;26:20; 28:3;31:19;32:3; 34:2;36:11,12;38:9; 40:6;41:9;43:12; 44:24;47:18;49:5; 51:4;54:5;56:22;	60:7,10,13,14;61:24; 62:6;64:14;67:21; 68:14,22;69:9;70:12; 71:12;72:13;74:11; 77:2,7,8;79:18;80:8, 23;82:17;84:10;85:8; 88:1;90:12;91:15,23; 95:15;100:14,15,20; 104:3,14,14;105:1; 108:21;111:20; 113:7;116:6,15; 119:19;121:5;123:5, 8;126:6;129:6,6; 131:19;132:5; 133:10,14;135:22; 136:11;139:2;142:2; 143:14;144:19; 146:4,22;155:19; 157:23;160:10; 167:24;174:13; 176:4,15;183:20; 192:20;193:14; 197:17;208:14; 231:18,21;234:19; 235:1;237:7,21; 245:3;248:22;255:4 <b>O'Neal (24)</b> 108:10,14;110:8; 111:7,13;137:1; 139:11,15;141:8,9; 142:14;144:7,10,12, 13,21;146:22;153:7, 12;171:18;179:20; 236:3;255:20;256:5 <b>O'Neal's (10)</b> 122:13,24;127:24; 130:19;142:17; 153:23;156:20; 157:5;161:4,5 <b>ones (15)</b> 32:14;54:2;68:3,8; 70:11;71:5;73:11; 76:19,20;82:23; 101:3;125:13;161:2; 191:21;201:1 <b>One's (2)</b> 53:19,19 <b>one-third (3)</b> 135:2,8;139:20 <b>only (35)</b> 11:15;13:8;25:8; 30:15,22;34:21; 41:16;45:13;77:6,11; 80:23;88:14;90:20; 96:15;98:3;100:14; 103:14,14;121:10; 135:13;138:18; 139:19;141:17; 149:11;176:15; 181:6;183:20; 191:19;193:13; 197:16;199:2;232:8; 233:19;242:9;243:24	<b>open (8)</b> 15:15;37:2;54:1; 160:24;171:24; 173:17;175:9;256:17 <b>open-ended (1)</b> 31:3 <b>Open-Space (7)</b> 6:6,12,13;8:8,13; 9:1,13 <b>Open-window (1)</b> 172:15 <b>operate (2)</b> 151:24;234:14 <b>operating (7)</b> 125:4;150:24; 166:10;172:24; 179:4;180:22;186:7 <b>operation (2)</b> 247:13;255:2 <b>operational (2)</b> 123:12;179:4 <b>operations (1)</b> 121:11 <b>opinion (16)</b> 14:5;27:15;63:19, 21;64:2;71:13,15; 75:19;113:16;116:9; 117:16;118:1;121:1; 145:2;247:10,23 <b>Opportunities (6)</b> 46:18,22;47:4; 48:4;49:9,12 <b>opportunity (4)</b> 50:3,17;96:21;97:1 <b>opposed (3)</b> 35:2;89:10;175:18 <b>opposite (1)</b> 74:6 <b>opposition (1)</b> 45:19 <b>order (24)</b> 44:14,17;46:2; 121:12;167:5;186:7; 200:24,24;201:2,6; 217:8,15,16;218:6; 219:5,16;220:5,7,9; 232:13;235:23,23; 248:7;256:15 <b>orders (2)</b> 200:20;201:15 <b>ordinance (7)</b> 11:21;12:4,20; 13:9;18:11,24;19:11 <b>ordinances (3)</b> 13:5,20;100:8 <b>ordinary (1)</b> 68:5 <b>organizations (2)</b> 57:15,16 <b>Organization's (1)</b> 163:23 <b>organize (1)</b> 26:6
--	---	--	---	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>organs (3)</b> 209:14;210:14; 211:12	203:24	81:3	<b>particularly (10)</b> 33:1,2,23;70:13; 71:15;96:1;115:24; 119:5;139:4;180:9	<b>people (46)</b> 12:9;18:15;31:24; 38:6,10;39:13;40:5; 51:6,10;83:4,11,16; 84:12;87:22;90:6; 108:19;109:15; 116:3;118:22; 119:23;120:1,3,6,8; 130:13;159:11; 164:16;178:5;179:8; 180:17;181:18; 188:20;203:2;204:4; 207:11;230:10; 232:14,19;234:21; 238:5,9,11,17; 243:24;244:4;245:23
<b>original (1)</b> 149:17	<b>overlooked (1)</b> 166:20	<b>Palmer's (1)</b> 81:12	<b>parties (5)</b> 149:7;214:20; 215:11,21;216:12	<b>people's (3)</b> 80:6;81:6,8
<b>others (10)</b> 25:23;42:10;55:8; 103:3;127:13; 176:24;197:18; 199:7;211:21;249:2	<b>overrule (1)</b> 158:4	<b>pane (1)</b> 256:7	<b>partly (7)</b> 61:2,2,10;93:5,6; 101:11,12	<b>per (21)</b> 42:23;150:20; 151:2;152:15;154:9; 10,18;156:1;190:2; 224:8;225:11; 240:12;241:24; 242:11,14;244:22; 250:4,4,13;252:23; 253:1
<b>otherwise (3)</b> 129:24;254:7; 256:17	<b>overstating (1)</b> 237:9	<b>paper (16)</b> 81:12;137:18; 148:1;150:18,21; 170:20,22,24;185:16; 17;186:11;212:24; 213:11;214:1,9; 249:2	<b>parts (4)</b> 14:22;43:12,14; 51:13	<b>perceive (5)</b> 181:12,18;230:10; 232:14,20
<b>ours (1)</b> 127:17	<b>own (10)</b> 24:21;99:22;105:5; 142:17;160:20,22; 165:21;169:18; 170:1;192:12	<b>papers (3)</b> 245:16,17;246:5	<b>passage (2)</b> 184:8;246:8	<b>perceived (1)</b> 179:16
<b>out (44)</b> 20:16;21:14;30:1; 64:3;70:15;79:21; 81:6,8;84:2,3;96:18; 20;117:19;123:2; 128:2;129:17; 137:18;138:12; 165:24;169:24; 184:15;187:20; 192:13;197:7;201:5; 207:8;210:7,24; 231:16;234:20; 236:17;237:18,22; 239:10;243:4; 245:21,24;247:16; 248:19;252:23; 253:16;254:20; 255:1;256:22	<b>owned (1)</b> 220:14	<b>Paragraph (16)</b> 117:20;136:24; 137:14,18,23;139:14; 142:1;150:6;152:17; 154:9;178:15;207:6; 209:15;210:21; 224:7,13	<b>passing (1)</b> 133:19	<b>perceives (1)</b> 70:6
<b>outages (1)</b> 181:5	<b>P</b>	<b>paragraphs (2)</b> 23:17;149:12	<b>past (11)</b> 53:10;90:10;97:2; 107:6,10;176:20; 197:5;200:10,16; 210:3;246:14	<b>percent (20)</b> 34:21,22;110:12; 111:6;170:18,19; 186:12,12;187:13,14; 21;188:4,8,12,14; 243:24;244:2,2,5,6
<b>outdoors (4)</b> 173:7;194:5; 252:14,18	<b>package (1)</b> 42:18	<b>paraphrase (1)</b> 34:23	<b>PATCH (46)</b> 142:9;148:22; 151:5;156:12; 181:24;182:9,11; 184:22,23;195:9,14; 19;196:15;197:21; 200:17,23;201:9,16; 17;205:2,4;208:3; 209:1,2;210:1; 211:14;212:8,11,19; 22;213:14,23;215:6; 10,13,23;216:1,4,15; 217:21,24;222:2,3; 226:4,21;248:3	<b>percentage (1)</b> 35:22
<b>output (3)</b> 32:21,23;121:17	<b>packages (1)</b> 43:22	<b>parcel (1)</b> 93:13	<b>path (3)</b> 78:12,14;157:5	<b>percentages (8)</b> 185:3,9;187:8,10; 16;188:1,6;243:21
<b>outset (1)</b> 64:18	<b>pad (2)</b> 76:1;77:8	<b>parcels (2)</b> 9:15;94:22	<b>pattern (3)</b> 168:2;170:7; 190:11	<b>percentile (7)</b> 132:10,13;134:1; 189:22;240:9;242:2, 12
<b>outside (7)</b> 75:14;171:21; 172:23;220:1,19; 251:17;256:11	<b>Paddlers' (1)</b> 36:14	<b>park (3)</b> 40:2;49:11;98:1	<b>patterns (3)</b> 19:6,19;68:12	<b>perceptible (1)</b> 230:16
<b>outstanding (1)</b> 68:7	<b>pads (8)</b> 20:2,5,11;74:18, 21;75:21;77:4,11	<b>parking (1)</b> 47:16	<b>Paul (1)</b> 136:14	<b>perception (4)</b> 80:9;229:24; 230:22;232:14
<b>over (23)</b> 44:6;52:20;53:16; 62:23;68:15,15; 79:16;80:2,7;95:24; 111:21;112:12; 114:21;124:13; 132:11;133:13; 147:13;160:14; 208:2;216:22;228:5; 233:7;235:4	<b>PAGE (88)</b> 4:2;16:3,5,9;17:6, 9;28:23;29:1,2,3; 78:6;82:4;108:17; 117:14,20;120:14,18; 127:24;128:13; 130:19,20;131:5; 134:23;137:2,3,10, 11,15;140:13,22; 141:2;150:5;151:12; 153:22;161:18,21; 165:22;176:15; 178:2,14;183:3; 184:20,21,22;185:14; 188:7,24;189:20; 190:18;191:6; 192:23;194:20; 195:5,10,11,20; 196:16,23;197:10; 199:18;207:5;209:9, 15;210:18;212:10; 216:17,22;217:8; 218:8;219:4,15; 220:9;221:16,21; 222:4;224:1,7; 226:18;227:20,21; 234:17;237:24; 240:5,19;241:7,12, 14,19	<b>part (51)</b> 11:12,16,17;13:10; 17:4,5;25:16;31:7; 34:14;37:4,5,6; 44:17;45:8,24;47:18; 52:2;53:14;56:24; 57:7,12;58:19;65:18; 77:6,9;78:18;84:20, 21;85:17;91:17;92:1, 12;103:20;112:9; 118:20;122:15; 123:16;126:4;140:9; 142:5;145:12;146:1; 148:8;164:5;169:19; 206:11;214:2,11; 228:9;229:4;230:18	<b>Pause (6)</b> 106:6;121:6;136:5; 176:3;208:19;211:4	<b>perceptions (5)</b> 79:12,15,24;80:2,6
<b>overall (2)</b> 61:3;157:15	<b>pages (4)</b> 59:3;209:8;212:20; 231:8	<b>participated (1)</b> 197:16	<b>PC (7)</b> 29:1;59:14;107:15, 16;122:12;191:5; 207:5	<b>perfect (1)</b> 64:22
<b>overestimate (1)</b> 139:3	<b>paid (1)</b> 51:15	<b>particular (31)</b> 12:14;13:24;15:17; 19:8;25:14,16;32:23; 34:9;35:23;36:22; 37:23;54:5,23;56:10; 58:14;71:14;82:17; 84:17;88:18;91:16; 104:15;135:22; 164:21;178:22; 184:5;202:15;215:1; 217:15;221:13; 248:22;254:1	<b>peer-reviewed (1)</b> 81:12	<b>performance (3)</b> 148:3;150:12; 256:14
<b>overhead (1)</b>	<b>Palmer (1)</b>		<b>penetrating (1)</b> 174:23	<b>performed (1)</b> 248:4

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>perhaps (20)</b> 19:5;26:15,21; 35:9;38:1,5;53:20; 54:6;58:19;64:2,6; 130:2;133:8;169:12; 179:16;188:1; 228:16;229:5;244:1; 256:1	<b>picking (2)</b> 52:13;139:12 <b>picture (3)</b> 61:19;159:23; 230:10 <b>piece (4)</b> 19:8;48:15,16,23 <b>Pillsbury (1)</b> 40:3 <b>Pinello (1)</b> 116:23 <b>pitch (1)</b> 108:24 <b>pitch-controlled (4)</b> 109:5,8;205:14,18 <b>place (10)</b> 16:8;19:6;29:19; 30:24;39:9;42:5; 51:8,23;55:13;98:9 <b>placed (6)</b> 113:13;130:12,12; 141:5,6;142:19 <b>places (16)</b> 11:1,6;21:5;35:1; 36:24;37:1,2,3;49:15, 24;55:5;67:9;81:21; 85:13;252:7,12 <b>placing (1)</b> 129:21 <b>plan (30)</b> 5:13;6:6,12;7:4,8, 9,16;8:2,8,13,16;9:1, 17;11:1,6;13:13; 15:8,12,21;16:3,9; 19:4;21:13;29:18; 45:22;49:4;58:9; 60:22;99:18,23 <b>plane (1)</b> 152:9 <b>planes (1)</b> 203:24 <b>planning (14)</b> 18:15;19:4,9,16, 17;49:3;65:7;79:9; 98:21,24;99:11,14, 15;100:9 <b>plans (5)</b> 15:19;21:3;76:15, 18;79:1 <b>plant (3)</b> 77:1,1;85:20 <b>Plantation (1)</b> 53:20 <b>plantings (1)</b> 22:2 <b>plateau (1)</b> 109:18 <b>playing (1)</b> 244:9 <b>please (16)</b> 6:8;17:7;117:19; 121:5;124:10;138:9; 142:22;143:23;	157:24;161:12; 167:8;203:16;225:4, 14;226:2;251:1 <b>pleased (3)</b> 217:19;219:2; 220:8 <b>plot (1)</b> 239:15 <b>plotted (2)</b> 159:1;189:10 <b>plus (6)</b> 62:20;233:17; 235:24;236:18,22; 243:12 <b>Plymouth (1)</b> 53:20 <b>pm (11)</b> 5:2;102:14,15; 182:5,6;220:3,21; 251:8,9,10;257:7 <b>point (44)</b> 15:20;17:17;26:21; 30:3;33:6;49:5;52:9; 54:13;58:8;61:15; 64:10,13;76:10; 77:19;88:7;89:3; 90:4;91:8;95:6;99:5; 109:5;110:15,16; 117:19;128:2;129:4; 130:7,8;137:22; 146:9;149:9;175:12; 181:8;192:13;197:7; 201:5,11,18,22; 205:1;210:7,24; 219:12;257:3 <b>pointed (2)</b> 210:9;245:24 <b>points (8)</b> 61:5;75:8;207:8; 242:13;248:19; 250:9,12,19 <b>policy (1)</b> 63:14 <b>pond (35)</b> 25:15;35:6,10,13, 18;36:1,12,15,18; 38:3;46:8,23;47:16; 48:17;50:15;51:2; 59:15,18;60:1,2,6,23; 61:2,10;69:24;97:2; 103:11;165:8;191:9; 196:7;199:20; 201:19;204:4,4; 206:18 <b>ponds (11)</b> 24:19,23;25:1,18, 21;35:2,11,17,20; 36:24;37:1 <b>poor (2)</b> 156:4;159:6 <b>population (2)</b> 66:23;245:19 <b>portion (1)</b>	238:17 <b>portions (4)</b> 20:1;45:8;136:21; 215:9 <b>posed (1)</b> 87:8 <b>poses (1)</b> 32:7 <b>position (1)</b> 248:14 <b>positions (1)</b> 141:3 <b>positive (1)</b> 15:1 <b>possibility (6)</b> 27:14,18,19,22; 31:3;179:11 <b>possible (25)</b> 23:9;27:1,3,13; 28:2;47:7;50:2;86:3, 9;87:21;89:17;90:5; 94:24;129:19; 139:22;140:1; 145:23;150:9; 170:24;179:3;226:2; 249:7;254:13; 255:24;256:19 <b>possibly (3)</b> 23:5;36:3;121:11 <b>post-construction (5)</b> 81:7;124:7;125:3; 126:12;166:10 <b>potential (10)</b> 20:20;23:21;76:7; 115:17,22;125:8; 230:22;237:4;238:6; 243:18 <b>potentially (3)</b> 21:12;39:1;229:14 <b>Powder (1)</b> 36:12 <b>power (32)</b> 63:4;65:17;80:13; 81:4,4;98:8;109:9,9; 110:16;111:3; 121:12;127:2;151:1, 13;180:6,8,12,15,18, 23;181:3,5,7,9,13,14, 19;249:9,11;250:14; 253:4;254:4 <b>practice (3)</b> 84:4;152:24; 155:17 <b>precipitation (2)</b> 154:21;155:8 <b>precisely (1)</b> 41:8 <b>pre-construction (7)</b> 81:6;111:15;123:6, 22;125:7;126:10; 140:16 <small>pre-construction/post-construction (1)</small> 104:1	<b>predict (2)</b> 123:11;127:6 <b>predicted (5)</b> 124:19;127:3; 169:5;171:20;182:22 <b>prediction (1)</b> 18:13 <b>predictive (1)</b> 171:6 <b>predominates (1)</b> 192:19 <b>preface (1)</b> 33:17 <b>preferable (1)</b> 27:2 <b>prefiled (20)</b> 40:10;108:8,9; 111:9;115:5;117:13, 21;122:11;125:19, 22;204:8;207:5,19, 22;209:4,6;240:14, 20;241:4;242:17 <b>premises (1)</b> 192:20 <b>prepare (1)</b> 106:3 <b>prepared (3)</b> 167:22,23;186:18 <b>present (12)</b> 33:7;36:8;138:5; 139:5,6;145:10; 167:5;222:8,17; 228:15;229:20;230:9 <b>presented (5)</b> 145:1;156:2; 166:19;193:8,13 <b>presently (2)</b> 57:1;102:3 <b>preservation (1)</b> 40:14 <b>Preserve (4)</b> 36:3;47:19;60:23; 61:13 <b>preserved (1)</b> 103:19 <b>president (3)</b> 106:20;107:7,11 <b>pressure (11)</b> 126:24;127:6; 147:15,16;180:12; 181:19;242:2; 250:22;254:5,6,10 <b>presumably (4)</b> 207:3,4;219:16; 255:10 <b>presumed (1)</b> 199:6 <b>pretty (16)</b> 19:9;21:13;36:17; 47:20;78:22,22; 95:21;112:12; 131:12;180:21; 183:9,14;194:7;
---	---	--	--	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

202:5;210:11;222:16 <b>prevent (1)</b> 93:8 <b>previous (3)</b> 163:16;224:13; 249:1 <b>previously (2)</b> 209:23;255:6 <b>primarily (4)</b> 35:1;56:8;105:19; 132:3 <b>primary (2)</b> 17:18;223:10 <b>primitive (3)</b> 47:3;48:5;49:11 <b>principal (1)</b> 106:22 <b>principles (9)</b> 17:11;67:4,7,22; 68:14,19;69:19; 79:23;85:2 <b>prior (4)</b> 29:15;200:20; 213:7;216:5 <b>priorities (5)</b> 9:5,16;15:16; 17:13,22 <b>priority (9)</b> 6:4,14;9:13,18; 11:13;14:13,23;8; 34:12;71:11 <b>pristine (1)</b> 194:13 <b>private (2)</b> 57:15;72:8 <b>probability (2)</b> 238:15;244:3 <b>probably (21)</b> 25:9;36:6;37:24; 38:6;40:1,4;43:1; 44:11;54:11;56:7; 58:5;67:5;69:17; 73:6;81:13;87:22; 134:7,8;168:13; 180:10;227:10 <b>problem (9)</b> 30:11;92:24;121:9; 147:12;173:18; 210:10;239:21; 245:18;254:2 <b>problematic (2)</b> 179:12;238:7 <b>problems (1)</b> 178:24 <b>procedure (1)</b> 224:10 <b>procedures (1)</b> 157:17 <b>proceed (3)</b> 149:12;187:3,7 <b>proceeded (2)</b> 166:7;169:22 <b>proceeding (3)</b>	90:14;197:17; 202:23 <b>proceedings (8)</b> 13:15;106:6;121:6; 135:20;136:5;176:3; 208:19;211:4 <b>process (6)</b> 26:21;41:5;43:1; 65:23;66:12;85:18 <b>processed (1)</b> 211:9 <b>produce (5)</b> 154:7;169:22; 177:18;225:8;228:4 <b>produced (18)</b> 107:13;110:18,24; 111:22,23;116:15; 127:2;148:5;153:20; 185:18;186:4; 218:21;219:8;230:8; 234:3;236:12; 237:14;249:11 <b>produces (3)</b> 147:14;174:13; 234:2 <b>producing (1)</b> 250:14 <b>production (2)</b> 121:17;249:24 <b>profession (1)</b> 246:12 <b>professional (1)</b> 107:3 <b>professionals (1)</b> 104:20 <b>profile (1)</b> 225:12 <b>profiles (1)</b> 108:24 <b>Program (4)</b> 41:7,24;126:23; 154:20 <b>prohibited (1)</b> 96:4 <b>project (138)</b> 7:19,20,21;9:8; 10:14;11:11;12:12, 18;14:1;15:4,7;17:1; 18:2,3,4;19:23;23:12, 22,24;24:2,7,9,18,21; 25:2,8,14;27:15; 29:24;30:4,14;32:6; 33:16;34:14,19;36:8; 41:14;42:10;43:7,17; 44:1,8;45:3,11,15,18, 19,22,23;48:14;52:8; 54:11;55:11;56:2,19; 61:4,8;63:3,7;64:14, 17,20,22;65:6,23; 69:21;71:14;72:12, 14,18;73:16;74:1,2,8, 13,14;75:1,21;77:3, 22;78:19;80:24;81:1,	5,9,11;84:17,18,18, 19;85:4;87:24;91:3; 92:2,4,11;95:10,11, 17;96:17,19;97:21; 99:9;103:5,16;104:2, 3,4,8,12;105:1,21; 113:6;123:12; 128:21;133:15; 138:6;139:7;141:1,1; 142:5;150:24; 151:13;179:3;199:3, 4;200:7;202:15; 204:9,15;218:7; 220:12;233:4;245:9; 253:16;254:20,23,24 <b>projected (1)</b> 119:3 <b>projects (31)</b> 14:12,14;20:12; 65:8,12;66:3;69:6, 10;70:19;74:11,16; 76:6,13,16;77:16; 103:15;125:11,12,15, 23;126:9,13;127:16; 136:11;152:21; 153:9;155:13; 194:17;197:4; 202:16;245:13 <b>projects' (1)</b> 31:8 <b>project's (2)</b> 5:13;23:18 <b>pronounce (1)</b> 206:2 <b>propagation (2)</b> 127:12;248:23 <b>propensity (1)</b> 212:4 <b>properties (8)</b> 39:2;52:14,16; 53:1,4,5;55:4,8 <b>property (9)</b> 7:4;18:2,4;19:8; 41:6;47:19;53:8; 56:10;116:8 <b>proportionately (1)</b> 110:17 <b>proposal (4)</b> 26:16;28:9;42:22; 198:18 <b>proposed (22)</b> 11:12;18:3;22:7; 23:3;42:12;61:23; 62:2,3;72:18;73:7,22, 23;91:3;94:15,19; 96:3,7;110:6,11,18; 141:1;237:18 <b>proposing (2)</b> 198:5;203:17 <b>proposition (1)</b> 74:20 <b>Propounded (1)</b> 186:21	<b>protect (2)</b> 44:4;93:9 <b>protected (7)</b> 10:15;16:12,16; 41:1;45:7;246:17,18 <b>protecting (3)</b> 17:18;33:21;39:11 <b>Protection (5)</b> 6:13;9:5,13;10:17; 246:15 <b>provide (11)</b> 15:11;23:15;49:5, 7,12,16;100:8; 148:17;190:24; 226:22;232:13 <b>provided (14)</b> 165:18;187:2; 188:7;214:2,12,20; 216:11;224:14; 225:1,5;226:3; 231:23;246:16;253:7 <b>provides (1)</b> 50:16 <b>providing (1)</b> 232:19 <b>proximity (8)</b> 24:23;36:4;61:8,9, 12;98:12;217:12; 218:15 <b>proxy (1)</b> 255:4 <b>public (23)</b> 12:4,12,18,21; 20:24;23:6,10;39:10; 44:14;54:1,2;57:15; 65:12;66:5;70:6; 75:7;83:10;186:22; 211:22;214:3,12; 245:7;246:17 <b>pulses (1)</b> 31:19 <b>purchased (1)</b> 40:20 <b>purpose (5)</b> 129:14;130:5; 190:22,24;202:23 <b>purposes (1)</b> 210:16 <b>pursue (1)</b> 64:11 <b>push (1)</b> 52:19 <b>put (7)</b> 41:22;42:5;57:16; 87:14,17;141:21; 169:16 <b>putting (1)</b> 49:21 <b>puzzling (1)</b> 167:24	<b>Quabbin-to-Cardigan (9)</b> 33:11,16;55:23; 56:4;57:8,21;58:6; 71:23;103:2 <b>qualification (1)</b> 162:7 <b>qualifications (1)</b> 107:2 <b>qualified (1)</b> 18:17 <b>qualify (1)</b> 167:20 <b>qualitative (5)</b> 92:24;93:6;96:6; 109:13;202:5 <b>qualities (1)</b> 57:4 <b>quality (6)</b> 41:9;69:23;70:2; 79:7,8;163:20 <b>quantification (1)</b> 162:6 <b>quantified (2)</b> 184:17;238:13 <b>quantitative (2)</b> 92:24;93:5 <b>quantity (3)</b> 94:16;96:12,13 <b>quarter (1)</b> 251:8 <b>quick (2)</b> 28:21;171:15 <b>quiet (19)</b> 114:1,2;116:1; 117:18;118:4; 119:24;120:2,7,9; 129:15,20;130:7,8,8; 134:3,11;173:3; 238:7,8 <b>quieter (8)</b> 132:5;144:7; 146:16;200:8; 228:24;229:1,9; 230:2 <b>quietest (4)</b> 133:23;146:5; 229:1,16 <b>quite (22)</b> 22:16;34:17;35:4; 36:19;43:10;52:6; 54:9;65:10;80:10; 114:8;124:9;129:17; 136:18,19;158:10; 162:17;167:2; 174:21;180:11; 191:17;192:1;199:1 <b>quote (3)</b> 23:23;207:13; 216:18
				<b>R</b>
				<b>radar (2)</b>

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

30:23;31:4 <b>radar-activated (2)</b> 29:12,19 <b>radar-controlled (3)</b> 29:6,15;30:13 <b>rain (1)</b> 131:11 <b>raised (3)</b> 56:8;133:14; 194:22 <b>raises (2)</b> 50:23;191:8 <b>raising (1)</b> 10:23 <b>rambling (1)</b> 69:16 <b>range (17)</b> 48:4;49:6,8,12; 67:3;87:15,17,18; 151:16,23;178:4,11; 184:15;186:2; 187:13;200:7;201:24 <b>ranged (1)</b> 134:10 <b>ranges (6)</b> 171:2;185:23,24; 186:3,8;187:9 <b>ranking (1)</b> 41:5 <b>rare (6)</b> 34:5;50:18;112:4; 115:16;194:7;237:23 <b>rate (7)</b> 177:12,13,14,19, 21;184:8;187:17 <b>rather (5)</b> 148:9;157:13; 174:12;207:13; 228:20 <b>rating (3)</b> 49:1;67:16,24 <b>rationale (1)</b> 90:2 <b>reach (3)</b> 104:21;105:14; 205:18 <b>reached (4)</b> 105:1,10;124:5,6 <b>reaches (1)</b> 109:8 <b>reaction (3)</b> 162:14;164:7; 238:5 <b>reactions (1)</b> 238:9 <b>read (26)</b> 62:6;113:8;115:6; 117:13;119:4,23; 138:9,10,11,13; 149:14;150:5; 154:17;155:2;161:3; 163:1,11,12;173:13; 199:15;216:20;	218:9;219:2;221:1; 225:2;231:5 <b>reader (1)</b> 142:2 <b>reading (6)</b> 99:23;115:9; 119:11;123:19; 224:7;240:24 <b>reads (1)</b> 211:7 <b>real (3)</b> 65:19;75:5;147:23 <b>realistic (1)</b> 94:20 <b>really (21)</b> 13:9;14:18;64:8; 65:4;66:1;70:18; 91:6;109:11,12; 144:17;149:11; 153:19;161:8; 191:19;202:12; 203:15;230:9,17; 231:9;238:12;246:22 <b>reask (1)</b> 143:24 <b>reason (14)</b> 10:22;34:12;51:11, 14;65:15;75:23;85:5; 91:13;162:17;186:9; 206:12;227:17; 230:18;233:24 <b>reasonable (7)</b> 40:17;110:14; 120:6;146:6;157:5; 168:8;245:22 <b>reasonably (2)</b> 90:6;150:8 <b>reasons (10)</b> 9:16;33:20;82:24; 85:8;90:1;101:12,12; 108:21;160:10; 243:22 <b>reassess (1)</b> 233:14 <b>reassessed (1)</b> 167:4 <b>rebuttal (1)</b> 111:8 <b>recall (20)</b> 73:17;99:23; 123:15;126:15; 168:22;194:19; 196:22;205:9; 209:14;212:2,12,23; 213:24;214:4; 217:13,18,19;219:1, 20;221:7 <b>received (3)</b> 39:3;147:22; 215:18 <b>recently (2)</b> 101:7,20 <b>reception (1)</b>	232:22 <b>receptor (12)</b> 126:24;127:7; 159:12,22;160:7; 198:12;217:12; 218:15;250:22; 255:7;256:10,24 <b>receptors (1)</b> 183:4 <b>recess (5)</b> 5:1;93:21;102:13; 182:5;251:9 <b>recognition (1)</b> 49:23 <b>recognize (4)</b> 39:17;83:4,16; 242:5 <b>recognized (1)</b> 237:4 <b>recollection (4)</b> 33:4;223:24; 245:15;250:7 <b>recommend (4)</b> 93:20;133:3; 145:20;197:8 <b>recommendation (13)</b> 19:23;21:15,23; 22:4;45:18;50:9,11, 21;61:1;124:3,11; 233:1;235:2 <b>recommendations (12)</b> 13:10;17:12;19:22; 60:18;62:20;139:16; 150:4;152:18;198:1; 201:7;231:7,11 <b>recommended (4)</b> 60:12;72:21;124:6; 194:16 <b>record (28)</b> 5:5;7:9;13:20; 59:9;102:17;122:16, 21;138:18;142:24; 149:18,20,22;157:13; 158:2;182:8;201:12; 208:21,23,24;211:3, 6;212:9;215:9; 216:21;219:2; 225:22;251:8,12 <b>recorded (1)</b> 196:20 <b>recreate (1)</b> 153:10 <b>Recreation (6)</b> 47:4;48:12;49:7; 51:1,6;82:16 <b>recreational (9)</b> 23:20;46:17,21; 47:10;48:8;49:4; 85:13,16;98:4 <b>red (4)</b> 31:17;50:23;64:17; 65:4 <b>Redirect (8)</b>	4:9;102:9,18,21; 105:22;201:10; 251:1,13 <b>reduce (5)</b> 52:7;60:19;121:12; 188:8,12 <b>reduced (2)</b> 188:3,16 <b>reducing (4)</b> 50:13;148:4; 188:13;256:10 <b>reduction (5)</b> 168:11,13;172:12; 194:3;237:11 <b>Reed (1)</b> 133:19 <b>refer (5)</b> 59:8;131:15; 196:16,17;221:16 <b>reference (14)</b> 43:4;126:1;152:7; 154:2,3;175:24; 190:20;196:24; 223:2;224:14,15; 225:1,5,6 <b>referenced (4)</b> 10:6;71:9;161:16; 226:4 <b>references (2)</b> 8:15;137:1 <b>referencing (3)</b> 92:18;122:8,13 <b>referred (4)</b> 71:24;209:3; 239:11;251:21 <b>referring (13)</b> 7:16;10:14;37:21; 39:7;47:10,11;72:16; 165:14;193:18; 215:4,12;238:10; 241:5 <b>refers (2)</b> 16:19;185:4 <b>reflect (2)</b> 188:16;248:20 <b>reflected (1)</b> 251:18 <b>refreshed (1)</b> 213:22 <b>regard (8)</b> 56:10;71:16;80:20, 21;112:16;130:13; 139:23;157:13 <b>regarding (4)</b> 5:12;37:11;124:18; 146:19 <b>region (3)</b> 24:20;38:18;39:6 <b>regional (8)</b> 37:17,18,20;38:13, 17,19,24;40:5 <b>regions (1)</b> 38:14	<b>Register (1)</b> 55:5 <b>registered (1)</b> 154:24 <b>reggraded (1)</b> 75:12 <b>regulation (1)</b> 99:19 <b>regulations (4)</b> 13:11,12;18:14; 246:17 <b>regulator (1)</b> 234:20 <b>regulatory (1)</b> 178:23 <b>reiterate (1)</b> 130:6 <b>relate (1)</b> 84:7 <b>related (7)</b> 57:5;156:22; 177:20;182:19; 184:1;204:11;255:7 <b>relates (1)</b> 58:14 <b>relating (1)</b> 29:11 <b>relationship (1)</b> 247:21 <b>relative (4)</b> 69:23;131:16; 180:10;250:15 <b>relatively (2)</b> 151:2;160:11 <b>relevant (5)</b> 13:15;58:9;141:17; 151:17;201:1 <b>relied (1)</b> 25:23 <b>remained (1)</b> 80:13 <b>remaining (1)</b> 78:15 <b>remains (1)</b> 109:10 <b>re-measure (1)</b> 146:16 <b>remember (25)</b> 5:20,22;6:1;62:1; 66:13;104:22; 125:24;126:9; 158:13;161:11; 180:21;182:18,19; 183:6;213:3,16,21; 221:6,13;222:18; 223:5,7;251:19,22; 253:17 <b>remembered (1)</b> 213:15 <b>remembers (2)</b> 213:18,21 <b>remote (1)</b> 120:20
---	--	---	--	---

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>Removal (2)</b> 235:13;236:11	5:15;18:18;19:11; 13:61:12;74:4;77:6; 78:13	188:3	82:6;125:21;153:24; 190:9;195:4;210:23; 215:24;224:6;239:9; 20	141:18;201:8
<b>remove (2)</b> 166:6;235:16	<b>requirement (2)</b> 183:12;220:11	<b>responded (3)</b> 142:11;145:7; 248:10	<b>revisit (1)</b> 183:21	<b>road (26)</b> 30:1;47:15;76:23; 77:20;23;78:1,4,10, 16,17;97:2,3,4,8; 98:7;106:20;113:5, 21;118:6,7,11;119:6, 7;131:20;133:20; 134:19
<b>removed (3)</b> 111:21;114:3; 145:20	<b>requirements (2)</b> 42:6;220:16	<b>responding (1)</b> 244:1	<b>revolve (1)</b> 41:21	<b>roads (8)</b> 20:1,3,10;74:17, 21;75:21;76:2;97:22
<b>removing (2)</b> 168:12;230:18	<b>requires (1)</b> 21:8	<b>response (11)</b> 6:3;148:14;185:14; 186:19;187:15,17; 191:1;216:16; 223:21;247:19; 256:22	<b>Rhode (1)</b> 107:5	<b>roadway (2)</b> 61:11,14
<b>repeat (5)</b> 124:10;133:10; 167:8;225:13;256:3	<b>requiring (2)</b> 21:20;45:20	<b>responses (2)</b> 182:13;184:16	<b>ridge (21)</b> 11:4;16:24;44:8, 10;45:9;46:7;56:2, 17,24;65:17;69:8; 83:17,20;85:23;93:9; 95:7;99:2,9;113:14; 181:16;223:23	<b>roadways (1)</b> 227:13
<b>rephrase (2)</b> 18:19;177:4	<b>research (7)</b> 66:15;70:5;79:19; 80:5;163:16;226:6; 245:11	<b>responsible (1)</b> 58:18	<b>ridgeline (25)</b> 5:16;10:9,16;11:8; 14:8,22;20:1,4,17; 43:14,21;44:15,24; 45:6;57:7;58:14; 91:14,17;153:15; 155:22,24;156:5; 159:5;160:16;242:8	<b>Rob (2)</b> 108:10;173:12
<b>Report (58)</b> 8:9;21:4;54:7; 55:10;78:6;81:20; 82:3;122:13,24; 127:24;145:5,9; 149:17;151:8,12; 153:13,23;165:12,17; 167:22,23;168:21; 173:14;178:1;183:2, 7;189:4,7,9,10;195:6, 15,18;202:22;207:18, 21;209:3,6,9,24; 210:2,3;221:16,18, 23;222:1;224:2,2; 230:6;239:3,5,11,18; 241:10,16;248:20; 249:8;253:8	<b>Reservoir (1)</b> 103:11	<b>rest (1)</b> 92:4	<b>ridgelines (3)</b> 51:19;57:3;91:15	<b>Robb (1)</b> 103:11
	<b>residence (9)</b> 106:16;114:12; 116:11,14;133:22; 220:2,20,24;243:20	<b>restate (3)</b> 28:6,8;176:22	<b>ridges (1)</b> 70:21	<b>rocky (1)</b> 70:2
	<b>residences (8)</b> 198:22;199:12,16; 206:14;222:13; 246:22;256:11,12	<b>restates (1)</b> 217:17	<b>right (62)</b> 6:6,22;7:18;8:19; 19:4;26:16;32:12; 51:17;55:13;59:18; 61:24;66:4;71:6; 82:2;83:20,24;84:6; 86:9;87:19;88:7,11; 90:24;92:23;94:7; 101:2;108:7;116:2; 117:14,24;121:19; 124:8;126:6;133:4; 135:17;136:13; 165:4;166:13; 170:21;185:1; 187:19;189:7; 191:24;193:24; 195:19;206:2,3; 208:9;210:17; 214:14;225:13; 233:1;235:9;236:15; 237:12,21;238:19; 241:2,11,21;243:2; 244:7;248:2	<b>role (1)</b> 63:13
	<b>residential (15)</b> 18:16;19:1;113:9, 15;117:17;118:2,13; 120:3;164:11;166:8, 24;167:11;170:17; 198:12;243:19	<b>restrictions (2)</b> 44:4;219:19	<b>right-hand (3)</b> 61:18;185:1,9	<b>roof (2)</b> 175:1,19
	<b>residents (4)</b> 164:12;171:1; 191:1;196:20	<b>result (9)</b> 15:3;29:8;63:7; 74:21;168:5;211:8; 223:12;244:11; 248:16	<b>right-of-way (1)</b> 22:23	<b>room (3)</b> 180:17;251:18,19
<b>reported (6)</b> 187:8;188:2; 242:17;246:8; 249:13,14	<b>resides (1)</b> 166:22	<b>results (7)</b> 138:23;150:8; 171:11;186:10; 223:3;248:15,17	<b>riparian (1)</b> 16:12	<b>rooms (1)</b> 173:17
<b>Reporter (11)</b> 26:11;38:16;73:15; 93:21;94:2,4;106:8; 138:14;161:9,11; 208:22	<b>resisting (1)</b> 147:8	<b>resume (2)</b> 5:5;125:24	<b>Risk (2)</b> 218:22;219:9	<b>ROS (1)</b> 49:1
<b>reporting (1)</b> 239:22	<b>resource (18)</b> 27:4;33:14,22; 38:9;40:21;51:16,17, 20;54:21;55:2;79:9; 81:22;83:14;87:2,23; 98:3,4,6	<b>resumed (4)</b> 5:2;102:14;182:6; 251:10	<b>risk (2)</b> 207:10,16	<b>rotation (4)</b> 177:12,13,21; 184:8
<b>reports (3)</b> 185:22;195:6; 239:21	<b>resources (11)</b> 23:24;24:16;25:11; 34:23;37:13;39:17, 21;40:11;53:24; 65:13;105:15	<b>retain (1)</b> 50:2	<b>river (2)</b>	<b>Roth (69)</b> 4:9;7:6,15,22;8:4, 5,10;12:6,23;16:2,6; 18:12;58:23;59:6; 63:10;64:4;78:5; 93:16;94:6;97:10; 102:10,18,19,22; 106:11;112:17; 122:22;135:23; 136:8;144:15;149:3, 13;156:24;176:6,14, 17;184:21;187:1,4; 195:7,12,16;197:15; 200:13;201:4,11; 202:19;203:11,14; 204:23;207:23; 208:7,13,17;209:20; 210:20;213:2; 214:13;216:3,8; 217:21;221:19,24; 240:17,21;251:2,5, 12,14
<b>represent (1)</b> 218:5	<b>respect (15)</b> 10:5;18:16;71:22; 77:21;94:18;100:16; 104:11;183:16; 200:14;201:7; 229:24;237:13; 244:16;247:24; 248:11	<b>retaining (1)</b> 47:6		<b>rough (1)</b> 188:17
<b>representative (1)</b> 222:22	<b>respectively (1)</b> 119:8	<b>retains (1)</b> 95:12		<b>roughly (1)</b> 72:17
<b>represented (1)</b> 219:23	<b>respond (3)</b> 108:15;187:21;	<b>retyped (1)</b> 214:17		<b>Route (13)</b> 22:18,20;96:22,24;
<b>represents (3)</b> 146:4;163:21; 222:12		<b>reverse (2)</b> 170:7;190:11		
<b>request (1)</b> 23:14		<b>reversed (1)</b> 168:1		
<b>requested (1)</b> 23:10		<b>review (6)</b> 13:11;39:18;99:17; 213:7;214:2,12		
<b>requests (2)</b> 185:15;186:21		<b>reviewed (3)</b> 13:4,8;55:9		
<b>require (1)</b> 19:5		<b>reviewing (3)</b> 26:10;85:20;183:7		
<b>required (8)</b>		<b>reviews (13)</b> 16:1;59:17;78:9;		



**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

131:2,9,23;133:2; 213:10;217:23; 221:10;222:13,17 <b>RPM (3)</b> 177:11;184:12,13 <b>rules (3)</b> 99:18,18;234:23 <b>run (1)</b> 171:5 <b>running (1)</b> 255:9 <b>runs (2)</b> 22:18;57:10 <b>Rural (4)</b> 12:1,5,21;18:22 <b>rustle (2)</b> 131:3;222:14 <b>rustling (1)</b> 131:24	6:19;188:20 <b>saying (26)</b> 20:3;23:22;24:6; 29:10;33:17;38:24; 65:10;83:10,23;84:1; 92:6;138:2;166:23; 169:2;170:19;174:6; 183:22;193:4,16; 202:8;203:20; 213:15;219:1; 239:24;247:9;254:19 <b>scale (3)</b> 37:20;38:20;61:8 <b>scaled (1)</b> 65:24 <b>scatter (3)</b> 189:20;240:7; 241:20 <b>scatters (1)</b> 242:4 <b>scenario (2)</b> 154:14;256:20 <b>scenery (3)</b> 53:9,10;70:7 <b>scenic (19)</b> 16:14,19;36:15; 37:4;41:9;43:10; 56:14;57:2,3;66:14; 22,23;67:1,2;69:23; 70:1;79:7,7;85:14 <b>Schomer (4)</b> 136:14,24;137:17; 140:22 <b>scolding (1)</b> 214:22 <b>screen (9)</b> 146:24;147:3,14, 17,21;148:6,13; 150:11;153:2 <b>screening (2)</b> 22:2;23:11 <b>screens (4)</b> 147:5,7;148:3; 150:10 <b>Searsburg (5)</b> 80:24,24;104:2,3,4 <b>SEC (1)</b> 226:13 <b>second (38)</b> 17:16;29:5;44:17; 121:5;123:10,13; 144:19;150:20; 151:2;152:15,16; 154:8,11;156:1; 157:24;160:12; 161:18;170:17; 178:14,14;189:12; 190:2;224:7,8; 225:11;230:4; 238:23,24;240:12; 241:24;242:11,14; 244:22;248:24; 250:5,13;252:23;	253:1 <b>secondly (1)</b> 231:18 <b>Section (1)</b> 128:13 <b>seeing (9)</b> 25:17;35:9;61:6; 67:4;76:9;91:19; 119:2;125:24;169:3 <b>seem (6)</b> 75:5;81:24;92:23; 136:9;191:18;205:7 <b>seemed (4)</b> 74:11;77:2;112:2; 245:17 <b>seems (15)</b> 14:17;74:23; 120:12;146:6; 156:17,21;157:5; 192:21;203:5; 208:14;213:18; 215:16;224:12; 244:9;250:8 <b>selected (2)</b> 134:24;222:21 <b>self-induced (1)</b> 138:17 <b>self-reported (5)</b> 162:13,14;165:1; 185:6,8 <b>self-reporting (1)</b> 238:11 <b>senior (2)</b> 106:21,22 <b>sense (11)</b> 39:23;41:2;47:14; 49:23;93:6;110:4; 119:10,22;228:11; 232:5;234:7 <b>sensitive (11)</b> 5:19,23;10:6,10; 20:13;25:16;37:6; 98:5;100:5;120:2; 178:6 <b>sensitivities (2)</b> 82:9,10 <b>sensitivity (1)</b> 120:1 <b>sent (1)</b> 187:18 <b>sentence (12)</b> 117:24;137:23; 154:16;155:3; 198:20;199:10; 202:9,20;211:7; 216:18,24;240:6 <b>separate (1)</b> 44:16 <b>September (2)</b> 195:23,24 <b>serious (1)</b> 19:18 <b>served (1)</b>	40:4 <b>serves (1)</b> 38:4 <b>Service (6)</b> 23:7;44:14;48:22; 49:17;67:12;68:23 <b>Services (3)</b> 21:20;41:24;48:9 <b>Service's (3)</b> 47:24;48:22;66:18 <b>session (2)</b> 214:6;219:15 <b>sessions (1)</b> 176:21 <b>set (10)</b> 17:11;84:16;92:21; 123:2;165:20; 171:15;185:15; 186:20;216:2;256:21 <b>setting (14)</b> 32:7;33:7;48:19; 50:4,17;55:7;64:24; 75:13;85:6,7,8,9; 231:12;249:3 <b>settings (1)</b> 85:16 <b>setup (1)</b> 152:9 <b>seven (1)</b> 82:4 <b>seventh (1)</b> 21:23 <b>several (8)</b> 14:6;22:23;37:17; 43:14;127:16; 160:14;229:6,23 <b>shall (3)</b> 220:12,17,22 <b>sheet (1)</b> 59:3 <b>Sheffield (7)</b> 74:2,13;76:20,24; 77:3;78:20,24 <b>Sheffield's (1)</b> 74:4 <b>shelter (1)</b> 45:16 <b>sheltered (1)</b> 160:11 <b>shift (1)</b> 191:4 <b>shifts (1)</b> 42:15 <b>shine (1)</b> 31:21 <b>shocking (2)</b> 65:10,10 <b>short (2)</b> 182:3;247:4 <b>shorter (3)</b> 63:1;177:8,12 <b>show (13)</b> 15:22;60:16;	135:24;150:7;191:7, 14;213:17,19; 215:11;217:13,16; 220:5;227:21 <b>showed (4)</b> 148:2;156:3;159:6; 170:5 <b>showing (6)</b> 9:4;31:17;214:15, 18;218:5,8 <b>shown (3)</b> 189:10;249:1; 255:6 <b>shut (1)</b> 255:12 <b>shuts (1)</b> 235:10 <b>sickness (3)</b> 174:4,14;246:9 <b>side (6)</b> 61:18;78:12;97:5; 98:2;148:6;199:20 <b>sides (1)</b> 88:3 <b>sifting (2)</b> 82:20;85:18 <b>signal (1)</b> 147:16 <b>significance (18)</b> 37:12,14,18;38:23; 39:7,18,23;40:8,12, 57:18;58:4,5,7,15 <b>significant (29)</b> 20:11;21:24;31:7; 34:22;35:10;36:6; 45:8;86:8;87:14,18; 88:13,18;89:13; 113:15;116:2;121:3; 151:19;160:9; 163:20;164:10,16; 170:17;179:7; 190:12;198:18; 212:5;227:22; 233:20;243:19 <b>significantly (5)</b> 52:6;102:2;150:12; 207:10,14 <b>silo (1)</b> 69:13 <b>similar (10)</b> 27:7;43:8;86:11, 13;134:18;154:14; 174:4,14;198:3; 223:7 <b>similarly (1)</b> 218:18 <b>Simpkins (2)</b> 37:9,10 <b>simple (1)</b> 160:1 <b>simply (11)</b> 20:5;24:6;75:6;
<b>S</b>				
<b>sad (1)</b> 65:2 <b>Salmon (7)</b> 113:5,10,21;118:5, 7,11;119:6 <b>same (41)</b> 52:13;67:7,14; 72:12;79:23;83:6; 85:19;87:10,16,23, 23;88:9;89:7,14; 90:7;104:22;105:8, 12;107:13;108:3,5; 112:13;114:13; 140:13;141:10,23; 144:10;162:16; 168:14;188:24; 196:12;200:13; 201:18;204:1; 211:13;214:21; 232:8;244:11;248:6, 7;253:9 <b>sample (5)</b> 165:20;193:19,20; 194:11,11 <b>samples (1)</b> 165:19 <b>Sanctuary (4)</b> 39:3;50:15;59:20; 60:6 <b>sat (1)</b> 88:3 <b>satisfactory (1)</b> 13:17 <b>satisfy (2)</b> 42:5;96:6 <b>save (1)</b> 17:23 <b>saving (3)</b> 137:8;205:5; 213:18 <b>saw (2)</b>				

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

168:4,6;202:8;203:7, 20;218:22;219:8; 249:10 <b>simulate (2)</b> 31:13,22 <b>simulation (5)</b> 31:11;36:16;59:16; 60:16;100:16 <b>simulations (4)</b> 31:10;86:4,5; 105:20 <b>simultaneously (1)</b> 183:6 <b>single (3)</b> 77:6;104:7;232:16 <b>single-family (3)</b> 93:12;94:21;96:5 <b>site (25)</b> 22:8;23:13;27:2,8; 34:14;36:14;55:17; 63:15;65:16,24; 99:18;104:15,15; 133:4;139:5;142:2,6, 12;222:19;226:9,12, 13,13,20,22 <b>sited (1)</b> 139:11 <b>sites (12)</b> 14:11;23:21;35:3, 15;36:10,22;141:4, 20;142:3,14,18; 160:19 <b>siting (1)</b> 63:18 <b>situation (8)</b> 27:7;36:20;50:22; 53:21;73:9;108:21; 110:2;120:10 <b>situations (3)</b> 70:14,16;121:16 <b>six (6)</b> 30:10,21,22;45:16; 46:20;75:3 <b>sixth (1)</b> 21:15 <b>Sixty (1)</b> 134:12 <b>size (13)</b> 32:5,13,20;33:6; 43:17;72:17;73:10, 17,24;110:6,13,21; 146:23 <b>sizes (2)</b> 32:21;72:22 <b>skewed (1)</b> 223:4 <b>skewing (1)</b> 229:10 <b>ski (1)</b> 48:8 <b>skimmed (1)</b> 210:4 <b>slight (3)</b>	97:24;163:19; 242:6 <b>slightly (1)</b> 50:12 <b>slope (2)</b> 21:11;22:17 <b>slopes (8)</b> 19:2;20:2,19; 21:16;68:10,11;76:5, 8 <b>slower (1)</b> 184:7 <b>small (9)</b> 14:18;15:10;77:4, 12;93:21;104:6; 111:22;175:6;194:3 <b>smaller (4)</b> 38:19;50:12;70:10; 110:6 <b>snarky (1)</b> 214:22 <b>so-called (1)</b> 217:6 <b>Society (1)</b> 107:10 <b>software (5)</b> 126:20,23;127:9, 18;171:5 <b>solely (1)</b> 91:8 <b>solution (1)</b> 28:5 <b>somebody (9)</b> 10:10;57:23;87:10; 89:17;90:1;95:7; 100:12;128:2;255:15 <b>somehow (2)</b> 30:20;223:3 <b>someone (3)</b> 32:8;87:16;133:4 <b>someone's (1)</b> 171:24 <b>someplace (4)</b> 26:23;53:20;151:8; 204:24 <b>sometimes (1)</b> 39:8 <b>somewhat (5)</b> 46:4;55:6;64:15; 70:20;233:13 <b>somewhere (7)</b> 6:20;7:9;9:21; 27:12;43:23;78:1; 94:21 <b>sorry (33)</b> 11:21;52:21;58:16; 62:1;93:17;99:3,3; 101:1,24;125:22; 128:8;133:10; 134:17;143:8,19,23, 24;146:11;169:13; 174:5;177:3;178:13; 181:3;184:22;	188:12;195:23; 199:13;207:19; 208:18;210:24; 218:1;231:13;240:17 <b>sort (38)</b> 22:13;25:19;31:20; 33:2,14;36:2;37:22; 44:9;50:19;52:7,13; 66:9;67:22,24;68:5; 69:16;72:6;75:9,14; 77:14;79:10;81:18, 19;95:12,16;97:4; 98:3;99:14;110:21; 146:24;174:4; 190:21;203:6; 223:11;233:8;250:9; 252:1;256:8 <b>sought (1)</b> 139:8 <b>sound (296)</b> 108:23;109:6,8,9, 18;110:10,16,23; 111:3,21,23,24; 112:5,10,11;113:9, 23;114:4,7,9,11,20, 21,22,24;115:2,7,13, 15,23;116:13;118:14, 16;119:2;120:1,16, 19;121:1,9;122:14; 123:5,11;126:24; 127:2,6;128:14; 130:24;131:6;132:2, 8,10,13;133:7,13,20; 134:1,2,3,5;135:3; 138:2,4,16,18,20,24; 139:5,8,18;140:6; 141:13,15,17;145:3, 11;146:2,7;147:2,15, 21,24;148:5;151:14; 152:5,20,22;153:8, 16;154:2,7,23;155:5, 10,12,15,22;156:5; 157:4;159:1,2,12,17, 21,21;160:13; 162:14;163:10; 166:17;167:3;168:6, 8,9,10,12;169:9; 171:2;172:10,24; 173:1,2,19;174:3,10, 11;177:2,14;178:10; 179:12,14,19;180:6, 8,11,12,15,18,19,23; 181:3,7,9,12,14,18, 19,20;183:3;185:18, 24;186:4;187:10,12; 189:21,24;191:2,8; 192:15,19;193:1,9, 11,20;194:4,17,22; 195:17,24;196:4,5, 11,19,21;197:6; 198:7,14,22;199:2,5, 7,8,12,17,22;200:7; 201:2,21,24;203:18,	22;205:16,19; 206:19;209:10; 211:11;212:5;217:2, 11;218:14,21;219:7; 220:4,11,16,21; 222:12;223:10; 224:14,24;225:5,9; 228:5,9,14,18,20,21; 229:5,7,13,23;230:1, 5,7,8,11,11,14,15,17, 19,20,21,23;231:24; 232:20;234:2,7,10, 16;235:17,18;236:7, 12,14;237:11,14; 238:6,10;239:23; 240:8,10;242:2,6,7, 10;243:14,15;244:20, 20;245:8,12,18; 246:6;247:1,3,19; 248:8,9,18,21;249:8, 11,22;250:14,16,16, 21;252:9,10,13,16; 253:4,4,21,22;254:4, 4,6,8,10,12;255:5,9; 256:6,11,13 <b>sound-absorbed (1)</b> 252:5 <b>sound-collection (1)</b> 113:13 <b>sound-level (1)</b> 167:23 <b>sound-producing (1)</b> 155:7 <b>sounds (18)</b> 38:21;40:17;120:2, 6;121:15;131:14; 134:4;140:7;163:10; 172:5;180:19;200:3; 202:1;209:12;210:6; 211:8;229:8;232:22 <b>sound-transmission (1)</b> 175:5 <b>source (6)</b> 127:4;147:24; 174:21;181:20; 223:9,10 <b>sources (10)</b> 127:2;128:21; 129:23;130:15; 141:15;152:8; 175:17;227:12; 228:4;246:14 <b>space (2)</b> 252:9,17 <b>spaces (3)</b> 174:7;175:9;252:4 <b>speak (5)</b> 13:20;139:15; 153:12;197:18; 230:14 <b>speaking (2)</b> 12:20;54:14 <b>special (6)</b>	152:18,19;153:11; 154:15;155:10,12 <b>specific (7)</b> 13:10;21:10;47:5; 79:24;105:15; 162:18;185:3 <b>specifically (8)</b> 15:8;47:23;48:2; 51:5;53:11;54:17; 208:1;219:20 <b>specificity (1)</b> 14:9 <b>specifics (1)</b> 36:22 <b>specify (1)</b> 13:23 <b>Spectrum (7)</b> 46:18,22,24;47:4; 172:6;227:19;228:5 <b>speculative (1)</b> 173:23 <b>speed (22)</b> 151:3;152:24; 153:20;154:24; 155:16;156:4; 159:13,19;190:1; 205:20;206:3,4; 224:8,11,17,22; 225:10,16;240:12; 242:1,8;253:2 <b>speeds (8)</b> 151:22;154:11,19; 155:20;158:15; 242:10,14;244:21 <b>spelled (1)</b> 239:10 <b>spend (3)</b> 37:3;120:9;156:18 <b>spent (1)</b> 28:22 <b>spoke (3)</b> 46:17;101:16; 243:4 <b>spoken (2)</b> 169:14;213:12 <b>spreadsheet (3)</b> 189:11;239:15,16 <b>square (1)</b> 255:24 <b>stack (1)</b> 136:1 <b>staff (1)</b> 160:22 <b>stall (1)</b> 205:24 <b>stall-controlled (3)</b> 109:4;111:2; 205:15 <b>stand (3)</b> 32:2;93:18;179:21 <b>standard (6)</b> 29:14;126:17; 146:8,9;200:9;250:1
--	--	--	---	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

<b>standards (1)</b> 231:12	<b>statistics (1)</b> 116:3	140:23;142:14; 143:17;144:8;	202:1,4,7;236:9	231:7;235:23;251:4	
<b>standard-size (1)</b> 147:2	<b>steady (5)</b> 131:2;222:13; 223:8,11,19	145:20;146:15; 148:12;150:1;153:1, 8;156:20;157:14;	<b>suggestion (3)</b> 242:19;252:24; 253:12	<b>surface (2)</b> 151:17;175:18	
<b>standing (7)</b> 174:1,9;251:21,24; 252:2,15,19	<b>Stearns (2)</b> 116:21,22	158:22;164:19,21; 188:11,19,22;196:18, 24;207:6,8;221:5;	<b>suggests (4)</b> 53:8;159:19; 201:20;223:19	<b>surfaces (1)</b> 21:17	
<b>standpoint (2)</b> 90:21;91:5	<b>step (1)</b> 22:14	238:16;243:23; 245:20,20	<b>suitable (2)</b> 117:16;118:2	<b>surrounding (6)</b> 7:21;10:16;52:1; 53:8,10;120:21	
<b>stand-up (1)</b> 182:1	<b>Stephen (2)</b> 173:12,24	<b>stuff (1)</b> 226:5	<b>Sullivan (1)</b> 112:23	<b>surroundings (2)</b> 51:18;57:4	
<b>start (5)</b> 62:23;65:21; 106:14;182:8;208:14	<b>steps (2)</b> 234:19;237:24	<b>style (1)</b> 29:12	<b>summarized (1)</b> 155:8	<b>survey (13)</b> 81:2,6,8;122:14; 128:14;138:3,23; 139:9;140:17,17; 164:5;165:3;245:22	
<b>started (2)</b> 92:6;181:24	<b>Stewart (6)</b> 4:7;41:19,20; 245:2,3,5	<b>SUBCOMMITTEE (4)</b> 4:3;142:23;158:1; 225:21	<b>summer (12)</b> 101:22;199:23; 200:2,4;206:22,23; 207:2;230:3,13; 234:2,4,9	<b>surveys (8)</b> 125:7;152:20; 153:9;155:13; 162:12;163:7; 187:18;245:19	
<b>state (40)</b> 37:12,13;38:23; 39:24;40:2,7,19,20, 21;49:3,6,8,11;54:4; 57:14,18;58:4,5,7,11, 15,16,17;65:3;72:1,5, 6,7;74:11;83:14,15; 84:6;97:21;98:1; 103:9;106:15;107:4; 148:22;170:15,18	<b>still (14)</b> 20:7;27:4;34:4; 62:16;96:5,10;115:2; 127:23;147:19; 179:7;181:10; 183:14;230:16;231:6	<b>subdivision (3)</b> 23:2;99:19;100:2	<b>summertime (1)</b> 138:23	<b>Suter (1)</b> 162:20	
<b>stated (7)</b> 31:6;32:4;113:8; 140:14;145:17; 146:15;160:19	<b>stop (1)</b> 254:15	<b>subject (3)</b> 103:12;205:6; 255:15	<b>submit (2)</b> 45:17;78:4	<b>sworn (2)</b> 106:7,9	
<b>state-held (1)</b> 41:13	<b>store (1)</b> 77:9	<b>subjective (2)</b> 162:18;191:1	<b>summits (1)</b> 36:2	<b>symptoms (1)</b> 211:7	
<b>statement (9)</b> 5:14;40:16;97:16; 117:14;166:3;216:6, 18,24;217:16	<b>stores (1)</b> 51:22	<b>submit (1)</b> 215:15	<b>Sunapee (2)</b> 57:24;97:6	<b>Syndrome (6)</b> 217:7,11,23; 218:14;247:13,21	
<b>statements (1)</b> 108:14	<b>straight (1)</b> 28:10	<b>submitted (4)</b> 59:2;122:15;126:5; 148:8	<b>supervision (1)</b> 127:19	<b>synonyms (1)</b> 82:9	
<b>state-owned (2)</b> 40:7;60:2	<b>strategy (1)</b> 17:18	<b>subset (1)</b> 17:3	<b>supplemental (26)</b> 5:12;23:17;28:23; 29:3;56:1;108:9; 111:9;115:5;117:21; 122:12;161:17,19; 169:20;184:20; 191:5;192:21; 196:17;199:18; 227:20;231:9; 238:22;240:14,20; 241:4,9,13	<b>system (3)</b> 49:11;57:24;58:2	
<b>states (11)</b> 34:1;113:14; 128:14;133:20; 134:19;135:1; 140:22;141:3;150:7; 178:2,12	<b>Streams (2)</b> 130:1;227:13	<b>substantial (4)</b> 35:19;76:5;229:22; 254:14	<b>supplementary (2)</b> 158:24;159:1	<b>systems (1)</b> 33:23	
<b>state's (1)</b> 40:15	<b>street (1)</b> 51:21	<b>substantially (2)</b> 245:6,10	<b>support (1)</b> 212:15	<b>T</b>	
<b>state-sponsored (1)</b> 72:4	<b>strict (2)</b> 48:21;203:8	<b>substation (6)</b> 21:24;22:6,11,12; 23:2,12	<b>supports (1)</b> 24:1	<b>T10 (1)</b> 60:10	
<b>statewide (11)</b> 15:9;38:20;39:17, 22,22;40:12;41:3; 71:19,20;102:24; 103:8	<b>stringent (1)</b> 234:13	<b>subtract (4)</b> 165:24;166:15; 171:22;172:1	<b>supposed (2)</b> 234:21,21	<b>T9 (3)</b> 60:8,14,18	
<b>stating (8)</b> 27:21;115:7;130:5; 134:9;137:24; 151:21,23;167:10	<b>struck (3)</b> 31:8;43:11;44:23	<b>subtracted (1)</b> 243:10	<b>sure (40)</b> 10:13;20:22;29:9; 30:19;38:11;40:8; 45:6;47:1;58:10; 60:1,13;71:5;73:21; 90:16,18;116:1,16; 122:9;123:1;129:22; 132:7;140:7;143:12; 151:21;156:7;159:9; 163:3;180:20; 183:23;184:24; 185:13;189:19; 191:23;207:14; 214:14;216:8;225:4;	<b>suppose (1)</b> 203:1	<b>table (37)</b> 88:4;115:10; 117:15,24;155:2,23; 156:9;161:16; 165:11,13;169:16,22; 170:2;185:19,22; 187:9;188:24;189:3, 6,12,16;190:18,23, 24;208:8;238:21; 239:2,4,4,17,21; 240:1;241:3,8; 242:17;243:3,5
<b>station (1)</b> 22:8	<b>structures (1)</b> 186:2	<b>subtraction (1)</b> 138:22	<b>support (1)</b> 212:15	<b>tables (2)</b> 154:23;155:8	
<b>statistic (1)</b> 132:14	<b>studied (2)</b> 80:3;246:13	<b>such-and-such (1)</b> 30:9	<b>supports (1)</b> 24:1	<b>talk (5)</b> 132:19;144:20; 149:11;153:6;155:17	
	<b>studies (12)</b> 34:10;70:19,22; 80:15,20;111:15; 118:10;119:23; 126:10;129:6,15; 169:18	<b>Sudbury (1)</b> 106:19	<b>supposed (2)</b> 234:21,21	<b>talked (5)</b> 26:18;68:24;158:9; 176:20;207:12	
	<b>study (52)</b> 79:11,11;80:23; 84:4,6;104:1,7,9,14; 105:7,12,13;113:22; 115:20;123:4,16,23; 126:12;129:1,3,7,11, 12,14;130:19;	<b>suggest (4)</b> 167:2;184:13; 193:6;233:9	<b>sure (40)</b> 10:13;20:22;29:9; 30:19;38:11;40:8; 45:6;47:1;58:10; 60:1,13;71:5;73:21; 90:16,18;116:1,16; 122:9;123:1;129:22; 132:7;140:7;143:12; 151:21;156:7;159:9; 163:3;180:20; 183:23;184:24; 185:13;189:19; 191:23;207:14; 214:14;216:8;225:4;	<b>talking (28)</b>	
		<b>suggested (12)</b> 54:24;98:23;115:4; 152:24;155:17; 163:8;173:24; 190:11;223:22; 243:16;252:22; 254:18			
		<b>suggesting (9)</b> 27:20;59:7;94:24; 191:18;198:10;			

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

11:23;37:24;38:22; 66:17;72:14;75:15; 79:20;88:23;90:19; 20:91:11;92:8,15; 103:4;115:2;118:5; 154:1;155:11; 160:20;161:4; 172:18;201:19; 202:20;205:20; 207:20;226:15; 227:12;235:14 <b>talks (2)</b> 152:18;154:9 <b>tall (1)</b> 81:2 <b>taller (1)</b> 174:22 <b>taper (1)</b> 33:2 <b>taught (1)</b> 79:5 <b>technical (1)</b> 176:21 <b>technically (2)</b> 56:13;91:6 <b>technique (2)</b> 77:5;110:9 <b>techniques (2)</b> 100:11;152:7 <b>technologies (1)</b> 80:12 <b>technology (1)</b> 80:18 <b>tells (1)</b> 159:20 <b>temporary (9)</b> 28:24;29:7,10,11, 13,23;30:12;95:23,23 <b>ten (5)</b> 24:8,13;64:23; 94:1,7 <b>tend (6)</b> 38:8;40:4,6;52:5,6; 56:20 <b>tended (1)</b> 173:18 <b>tendency (1)</b> 242:6 <b>tends (10)</b> 13:14;49:11;69:15; 95:24;148:3;163:9; 172:11;177:15; 185:5;191:10 <b>term (10)</b> 49:18;162:2,7,19, 24;163:5,9;164:6,18; 207:14 <b>terminology (2)</b> 47:2;67:13 <b>terms (30)</b> 9:4;13:8;27:9; 30:11;39:9;40:4; 41:4;42:19;43:2,18;	58:15;61:7;67:8; 69:20;73:9;75:11; 80:5;88:17;119:24; 144:5;145:17;148:4; 164:8,20;205:15; 206:18;218:19; 237:2;245:11;253:21 <b>terrain (2)</b> 21:21;76:4 <b>test (1)</b> 231:15 <b>testified (9)</b> 81:19;90:11; 100:17;111:7;200:1; 217:8;255:20,21; 256:5 <b>testify (1)</b> 203:15 <b>testimonies (1)</b> 108:4 <b>testimony (101)</b> 5:11,12;10:7; 13:23;23:18;24:11; 28:23;29:3;34:18; 37:16;40:10;56:1; 59:5;62:12,18;72:10, 11;81:18;99:5;106:1; 107:14,19;108:8,10, 11,15,17;111:9,13; 113:8;115:5;117:13, 22;122:12,24; 123:19;124:11,18; 125:12,22;156:15,17, 20,23;157:20,22; 158:12,24;159:1; 161:17,19;167:12; 169:20;184:20; 190:19,20;191:5; 192:5,21;194:20; 196:17;197:7; 199:18;201:18; 204:8,18,24;207:5, 19,22;208:4,12; 209:4,6;212:2,12,23; 213:4,6,8,16,24; 214:16;216:5; 217:18;219:6; 227:10,20;231:5,9; 237:6;238:22; 240:15,20,24;241:3, 4,9,13;242:18;255:22 <b>testing (1)</b> 191:14 <b>tests (1)</b> 236:17 <b>texture (1)</b> 69:4 <b>theme (1)</b> 52:13 <b>thermal (1)</b> 256:7 <b>thinking (7)</b> 26:24;38:15,17;	48:20;49:2,6;162:10 <b>third (4)</b> 9:22,22;137:3; 209:15 <b>though (20)</b> 8:6;19:12;33:6; 34:20;39:1;55:12; 73:3;78:16;83:16,24; 90:5;114:9;140:8; 146:13;156:18,21; 187:15;205:7; 216:14;230:12 <b>thought (13)</b> 32:10,13;58:4; 65:15;67:1;74:3; 87:8;144:13;168:11; 185:11;190:6;192:5; 205:9 <b>thoughts (1)</b> 26:7 <b>thousand (1)</b> 204:13 <b>thousands (1)</b> 181:15 <b>three (11)</b> 98:16,17;140:1,8; 147:1;151:2;197:10; 213:4,13;231:20; 232:21 <b>three-acre (1)</b> 18:6 <b>three-step (1)</b> 231:15 <b>throughout (5)</b> 24:16;25:18,22; 35:1;78:18 <b>thus (2)</b> 120:21;202:9 <b>tie (2)</b> 159:11;162:18 <b>ties (1)</b> 155:3 <b>timber (4)</b> 79:24;83:20;84:5,8 <b>times (17)</b> 96:20;121:4; 132:11;144:7; 145:10;146:5,6; 159:11;167:4; 170:10;181:5; 206:21;228:13,24; 229:2,22;234:15 <b>tire (1)</b> 131:8 <b>tissue (2)</b> 218:24;219:10 <b>title (1)</b> 8:7 <b>titled (1)</b> 148:12 <b>Tocci (26)</b> 106:4,7,9,12,18,21; 107:13;117:10;	122:5;129:10; 137:17;156:19; 157:4;158:9;161:15; 171:4;176:10; 182:12;186:19; 195:7;214:7;218:12; 219:7;227:3;231:5; 251:15 <b>T-O-C-C-I (1)</b> 106:18 <b>Tocci's (1)</b> 201:6 <b>today (6)</b> 81:15;108:2,5; 125:9;231:6;257:4 <b>together (4)</b> 57:16;69:15;155:3; 169:16 <b>told (3)</b> 31:24;81:15;95:5 <b>tomorrow (1)</b> 149:6 <b>tonight (1)</b> 187:5 <b>took (5)</b> 66:19;136:20; 166:4;183:22;189:15 <b>tool (3)</b> 17:18;48:9,18 <b>tools (2)</b> 100:2,10 <b>top (7)</b> 69:8;92:2;98:17; 100:24;101:2;180:4; 181:15 <b>torn (1)</b> 32:1 <b>total (2)</b> 9:20;163:24 <b>totality (1)</b> 9:19 <b>totally (1)</b> 235:21 <b>towards (1)</b> 97:10 <b>tower (12)</b> 49:22;61:17,21,22, 23;62:3;69:13;180:4, 10;212:15;224:5; 225:17 <b>towers (7)</b> 33:3;60:8,16,19; 63:1;70:6;98:17 <b>Town (24)</b> 8:12;9:5,14;10:24; 11:4,7,7;13:13;15:8, 11,21;19:3;27:5; 51:8,12,16,20;85:9; 97:11,22;98:22; 99:23;104:12;106:15 <b>towns (2)</b> 38:2;67:10 <b>Town's (1)</b>	13:5 <b>traditional (1)</b> 30:23 <b>traffic (14)</b> 128:23;130:2; 131:1,8,22;132:5,12; 133:2,18;134:7,19; 166:5;222:15;228:3 <b>Trail (6)</b> 48:6;50:5,6,7; 57:24;203:3 <b>trails (6)</b> 35:2,16;47:20; 98:10;200:6;201:23 <b>trained (1)</b> 84:9 <b>transcript (4)</b> 171:18;212:10; 214:16;219:14 <b>Transcripts (4)</b> 226:10,11,14,16 <b>transduces (1)</b> 147:15 <b>transient (1)</b> 134:4 <b>transmission (3)</b> 22:24;172:10; 256:11 <b>transmits (1)</b> 252:16 <b>transport (1)</b> 53:22 <b>tree (1)</b> 21:12 <b>trees (2)</b> 52:6;54:10 <b>tries (1)</b> 164:6 <b>trouble (1)</b> 149:4 <b>true (12)</b> 11:20;12:3;18:22; 83:8;84:4;107:20; 111:17;145:18; 196:12;204:12; 224:1;253:20 <b>try (14)</b> 23:8;33:24;49:21; 50:2,23;86:24;145:8; 154:13;159:11; 185:12;205:2;208:1; 210:12,15 <b>trying (20)</b> 42:8,17,23;48:2; 49:15;59:8;62:1; 76:17;84:13;99:24; 100:4;146:3;153:10; 156:10;157:10,14; 184:4;190:22;216:2; 247:4 <b>tunnel (1)</b> 252:6 <b>turbine (93)</b>
---	---	--	--	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

20:2,4,11;32:23; 69:13;72:22;73:3,4, 21;74:18,21;75:21; 76:1,8;77:4,6,8,10, 10;108:23;109:3,23; 110:5,17,22;114:7; 116:15;119:15; 120:15,18;121:2; 127:11;148:15; 151:13;152:8,21; 153:9;155:6,13; 159:14,18,20;166:11; 173:19;174:10,21; 177:6,17;179:24; 181:14;191:2; 196:20;198:6; 201:21;202:1;203:5, 18,22;206:8,10,16; 212:6;214:11;217:4, 6,11,22;218:14; 229:14;230:8,11,14, 15,21,23;232:20; 234:1;236:13,14; 237:14;243:14; 246:1,3;247:12,20; 250:13,16,21;253:3, 22;254:12,15;255:13	<b>Twenty-three (1)</b> 134:15 <b>twice (2)</b> 43:17;72:17 <b>two (45)</b> 8:10;23:17;36:2; 43:12;44:13,23;48:7; 61:18;63:2;74:16; 76:13,15,24;77:16; 86:7;87:12;88:22; 90:6;93:19;94:12; 98:18;100:24;101:2; 112:11;114:22; 123:4;129:6;139:21; 149:11;154:22; 160:9;162:16;165:7; 175:22;206:19; 209:17;213:5,13; 229:18;232:2,12,17; 233:18;245:10; 248:21 <b>two-dimensional (1)</b> 31:14 <b>two's (1)</b> 103:15 <b>type (5)</b> 27:23;72:2;73:20; 206:10;248:15 <b>types (2)</b> 44:5;248:15 <b>typical (4)</b> 19:9;151:18;228:9, 12 <b>typically (4)</b> 152:14;160:13; 222:17;229:8	57:2 <b>undisturbed (2)</b> 91:16,21 <b>undoubtedly (1)</b> 19:18 <b>unfortunate (1)</b> 64:16 <b>Unfortunately (4)</b> 70:8,17;235:14; 239:10 <b>unfragmented (16)</b> 14:14;16:13,18; 27:11,12;33:22;34:4; 43:9;44:7;57:5; 90:12,14,19;91:7; 92:7,14 <b>uniformity (1)</b> 69:11 <b>unique (3)</b> 50:17,17;84:24 <b>unit (1)</b> 113:13 <b>units (1)</b> 42:21 <b>University (1)</b> 79:6 <b>unless (3)</b> 53:6;99:13;140:10 <b>unlike (3)</b> 31:14;109:4; 246:14 <b>unlikely (1)</b> 187:23 <b>unnoticed (1)</b> 179:14 <b>unquote (1)</b> 24:1 <b>unreasonable (13)</b> 20:6;24:2,10;25:6, 13;27:16;28:11;29:8; 36:9;62:19;64:1; 110:23;202:24 <b>unusual (3)</b> 21:10;63:11; 112:10 <b>up (61)</b> 11:22;26:22;28:10; 35:24;36:11;43:22; 49:21;52:13;53:17; 55:24;57:11;62:7; 64:8;65:18;70:2; 73:2;77:7;83:1;87:4, 11;88:15;89:7,9,11, 18;90:7,8,24;91:4,20; 95:1,4;97:1;100:20; 101:2;111:24; 127:22;128:1;134:9; 139:12,19,20;146:21; 150:19;169:3; 183:21;187:16; 189:14,17;204:22; 214:18;215:17; 216:2;218:4;230:13;	243:13;246:21; 252:9,17;254:11,12 <b>upon (11)</b> 18:3;47:12;79:11; 81:21;89:13;99:17, 22;173:7;220:10; 228:22;229:4 <b>upper (2)</b> 19:2;45:8 <b>upstream (1)</b> 212:14 <b>upwind-styled (1)</b> 212:3 <b>urban (1)</b> 120:4 <b>use (24)</b> 29:7,10,13;47:1; 67:8;68:7,15;73:20; 85:19;106:4;128:6; 153:1;163:15; 164:15;181:6; 186:10;191:15,22; 202:14;204:3,4; 250:6;252:24;253:9 <b>used (38)</b> 32:5;48:17;50:20; 55:16;68:23;77:5; 83:10;85:2;86:12; 105:12,18;110:11,13; 114:23;127:6,8,11, 17;139:1;142:14; 146:24;162:2,12; 163:5;164:18,19; 165:20;170:23; 181:2,4;189:10; 206:21,24;207:15; 221:4;249:5,17; 256:18 <b>useful (1)</b> 43:5 <b>uses (4)</b> 48:10;49:17;67:12; 164:6 <b>using (22)</b> 10:15;47:23;48:2; 72:24;73:1;74:22; 88:9;89:14;90:7; 100:1;105:14;132:9; 152:8;164:7,22; 168:6;203:3;224:9; 225:11;247:3; 248:15;252:22 <b>usual (1)</b> 247:2 <b>usually (5)</b> 13:14;48:17;51:23; 162:12;228:23 <b>utilities (2)</b> 12:4,21 <b>utility (3)</b> 12:12,18;22:22	<b>V</b> <b>valid (1)</b> 178:24 <b>valuable (3)</b> 19:7;33:22;104:10 <b>value (17)</b> 14:13;19:15;33:14; 39:9;41:10;42:3,16; 46:11;49:24;63:19, 21;82:12,15;83:1; 91:10;104:10;222:23 <b>valued (3)</b> 43:9;117:18;118:4 <b>values (17)</b> 14:17;15:18;16:14; 43:10;72:12;81:21; 82:1,9,18;83:5,24; 84:1,2,3,10;85:14; 90:13 <b>vantage (5)</b> 54:13;61:5,15; 75:8;76:10 <b>variable-pitch (2)</b> 109:17;110:5 <b>variables (2)</b> 31:15;84:22 <b>variety (5)</b> 33:19;67:15,24; 68:9;209:19 <b>various (5)</b> 9:15,16;44:5;72:5; 95:8 <b>vary (2)</b> 42:2;141:15 <b>varying (2)</b> 32:20;128:16 <b>vast (1)</b> 24:19 <b>vegetation (5)</b> 68:12,13;70:3; 128:22;131:24 <b>vegetative (1)</b> 23:11 <b>vehicles (1)</b> 133:19 <b>vehicular (5)</b> 131:1;132:5; 133:18;134:7;222:15 <b>velocity (7)</b> 109:7,10;111:4; 155:24;159:5; 160:16;241:23 <b>ventilation (1)</b> 256:18 <b>verified (1)</b> 114:16 <b>verify (2)</b> 123:2;134:23 <b>Vermont (9)</b> 23:7;38:7;43:6; 49:4;53:19;72:12;
<b>turbines (76)</b> 20:15;32:5,20; 35:7,8,14;36:18; 43:18;44:19;50:10, 10;61:7,7,9,18;62:10, 13,14;70:10;73:17; 74:4,22;75:20;80:21; 81:1;94:23;95:1,6; 98:12,13;104:5; 108:22;109:16; 110:19,24;111:2; 113:7,12,18;116:5, 11,16;151:18,24; 152:14;154:4;171:8; 172:23;173:1; 176:20,22;177:8,15; 182:18;183:6;186:7; 188:21;204:14,19; 205:15,18;207:9; 209:10;212:3,14,17, 18;217:13;218:16, 22;219:8;225:7; 247:14;248:6;249:9, 12 <b>turbulence (1)</b> 147:20 <b>turbulent (1)</b> 147:14 <b>turn (7)</b> 6:8;17:6;195:5; 221:15;243:4; 254:16;255:14 <b>turning (1)</b> 19:22 <b>Twenty-one (2)</b> 44:20,21	<b>U</b> <b>ultimate (2)</b> 63:13;64:7 <b>unable (1)</b> 55:11 <b>unappealing (1)</b> 80:14 <b>unattended (5)</b> 129:2,5,6,12,14 <b>under (18)</b> 45:1;81:1;104:5; 109:19;117:24; 127:18;128:13,16; 135:1;152:17;155:6; 170:15;178:2; 198:18;226:9; 234:13;236:17;250:1 <b>underlying (1)</b> 68:14 <b>understands (1)</b> 12:19 <b>understood (7)</b> 74:19;87:15;89:3, 5;170:9,11;209:17 <b>Undeveloped (1)</b>			

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

74:2;79:6;84:6 <b>version (1)</b> 195:21 <b>vertical (1)</b> 242:1 <b>vestibular (1)</b> 211:12 <b>viable (1)</b> 63:4 <b>vibroacoustic (2)</b> 218:20;247:12 <b>vice-president (1)</b> 107:7 <b>vicinity (5)</b> 43:23;78:1;92:11; 100:18;129:24 <b>view (22)</b> 14:24;32:4;37:2; 58:8;64:10,13;66:22, 23;70:12;85:3;86:6; 91:9;101:12,15,23; 102:1;104:24;110:8; 111:16;122:19; 124:15;129:19 <b>viewing (2)</b> 20:24;88:16 <b>viewpoint (5)</b> 91:24;100:19; 101:4,24;102:2 <b>viewpoints (4)</b> 61:3;82:21;91:23; 95:8 <b>views (5)</b> 45:15;66:15;67:1, 2;87:12 <b>viewscape (1)</b> 79:12 <b>viewshed (3)</b> 23:19;25:24;34:21 <b>village (2)</b> 35:3;97:7 <b>villages (1)</b> 52:4 <b>Vincent (1)</b> 136:11 <b>virtue (3)</b> 40:13;203:22; 227:23 <b>visibility (24)</b> 20:7,10;21:6,8,24; 22:17;23:21;24:17, 20;25:2,4;35:6,10,13, 18,22;36:5;74:20,24; 75:20;76:3;77:18; 98:1,11 <b>visible (29)</b> 20:3,5,18,24;24:7; 25:8,11;34:19;35:6,8, 14;36:18;50:11; 54:11,12;61:15; 64:21;69:8;77:15; 95:18;96:18,23; 97:14,17,21,24;98:6;	105:21;207:9 <b>visit (4)</b> 25:21,23;160:19, 21 <b>visited (5)</b> 118:6,7;141:12; 142:11,13 <b>visiting (1)</b> 38:10 <b>Vissering (12)</b> 5:6,10;8:23;16:2; 18:1;26:1,12;71:3; 78:5;94:6;102:23; 106:1 <b>visual (40)</b> 11:3;12:10;14:20, 21;20:19;23:3;29:8; 31:8;52:15,15;53:1, 13;55:1;56:18;60:16; 62:14,16,18;67:9,9, 17,20;75:18;79:9; 82:5,8,10;83:21;84:1, 2,3;86:10,12;90:20; 91:8,18;94:22;95:17; 103:24;105:7 <b>visually (6)</b> 5:18;31:21;76:12; 91:13,22;98:5 <b>voice (1)</b> 64:6  <b>W</b>  <b>wait (4)</b> 130:22;142:21; 215:23;244:7 <b>walking (2)</b> 52:4;181:10 <b>wall (2)</b> 174:24;175:18 <b>walls (4)</b> 173:20;175:14,15; 256:14 <b>wants (1)</b> 217:22 <b>Washington (1)</b> 97:11 <b>Water (9)</b> 41:23;68:11;70:2; 131:2;132:24;142:4; 222:14;223:9,19 <b>waterfall (1)</b> 67:19 <b>water-flow (1)</b> 133:11 <b>wave (6)</b> 174:9;251:21,24; 252:2,15,19 <b>waves (1)</b> 174:1 <b>way (31)</b> 22:11;49:13;57:11; 60:23;66:21,22;	69:17;82:19;87:6,15, 19;88:24;89:3,5; 90:1;95:10;100:12; 124:15;162:19; 176:15;183:1;203:4; 222:20;231:22; 232:8,18;249:3,5; 254:3,19;255:12 <b>ways (6)</b> 67:4;145:8;229:18; 231:21;247:2;255:3 <b>web (7)</b> 36:14;226:9,12,13, 13,20,22 <b>week (1)</b> 133:21 <b>weeks (3)</b> 111:8;114:22; 255:19 <b>well-being (1)</b> 163:24 <b>well-enclosed (1)</b> 180:21 <b>weren't (6)</b> 158:23;187:22,24; 198:3;214:19,19 <b>West (6)</b> 7:5;9:9;10:1;16:15, 22;79:21 <b>western (1)</b> 103:10 <b>Wetlands (6)</b> 41:24;42:1,3,7,14, 14 <b>what's (5)</b> 69:3;73:21;106:23; 184:11;251:24 <b>whenever (2)</b> 23:1;213:12 <b>whereas (1)</b> 204:14 <b>Whereby (1)</b> 251:9 <b>WHEREUPON (4)</b> 5:1;102:13;106:7; 257:6 <b>whichever (4)</b> 219:24;220:18,23; 233:17 <b>white (1)</b> 69:9 <b>whole (9)</b> 5:16;36:24;39:24; 40:1;83:19;138:13; 185:10;202:22;243:1 <b>Whose (1)</b> 57:13 <b>wide (2)</b> 78:11,18 <b>wide-band (1)</b> 178:16 <b>wider (3)</b> 76:1;133:13;228:5	<b>width (2)</b> 77:21;78:17 <b>widths (2)</b> 76:23;78:13 <b>wilderness (15)</b> 47:8;117:18;118:3, 14,17,21,23;120:14, 22;121:2;202:10,21; 203:3,21,23 <b>wildlife (4)</b> 16:17;33:23;59:20; 90:15 <b>Willard (22)</b> 36:1;38:3;46:23; 48:17;50:15;51:1; 59:15,18;60:23;61:2, 13;69:24;83:17;99:2, 2;103:11;165:8; 191:8;196:7;199:20; 201:19;206:18 <b>Willard/Tuttle (1)</b> 16:23 <b>Wind (193)</b> 9:24;14:12,14; 20:12;23:11;43:7; 44:1;45:3;62:10; 63:14,19,22;65:16; 66:6;69:6,10,12;70:6, 12,19;80:21;85:20; 92:3;95:10,11,17; 108:21;109:3,7,19, 21;111:4;119:15; 120:15,18;121:2; 125:4,8;128:16,22; 135:14;138:17; 139:23;140:7;141:1, 1;146:24;147:2,5,7, 13,13,17,20,21; 148:3,6,13,15;150:9, 10,11,16,23,24; 151:3,13,15,18,22; 152:8,11,13,20,23; 153:1,9,20;154:11, 13,19,24;155:6,13, 16,20,24;156:4,8,11; 158:15;159:5,13,17, 18,19;160:3,6,15; 166:11,11;171:8; 172:22,23,24;173:3; 179:3;183:16; 185:18,24;186:6,6; 188:21;190:1;191:2; 196:20;197:4;198:6; 201:20;202:1;203:4, 18,22;204:14,19; 205:15,19;206:3,4,7, 10,15;207:9;209:10; 211:23;212:3,13,16; 214:10;217:3,6,10, 12,22;218:7,13,15, 21;219:8;224:8,11, 16,22;225:7,10,16; 229:14;230:8,10,14,	14,20,22;231:14; 232:20;234:1,11; 236:13,14;237:14; 240:11;241:23,24; 242:8,10,13;243:14; 244:21;246:3; 247:12,13,20;248:11; 249:9,11,24;250:13, 16;253:2,3,20;254:4; 255:12 <b>wind-development (1)</b> 63:18 <b>wind-induced (8)</b> 139:24;146:19; 147:8,11;148:13; 152:10;160:2,2 <b>windmill (1)</b> 42:23 <b>windmills (2)</b> 42:13;44:19 <b>wind-monitoring (1)</b> 158:18 <b>Windows (5)</b> 171:24;172:1; 256:7,14,15 <b>winds (5)</b> 152:6;153:15; 154:6;223:22;225:8 <b>winter (5)</b> 206:24;234:3,5,6; 235:20 <b>wish (1)</b> 187:5 <b>withdraw (5)</b> 13:19;143:11,13, 20;146:11 <b>within (32)</b> 5:18;6:4;7:20;9:9, 17;10:1;17:1,3;19:7, 20;25:1,12;34:14,22; 41:13;48:11;58:22; 75:12;101:9,20; 113:7;116:6;120:14; 130:9;141:20;179:5; 181:11;204:20; 227:11;231:19; 254:17;255:10 <b>without (11)</b> 14:8;129:17;139:1; 145:4,5;147:13; 155:7;169:23;181:7; 199:21;235:18 <b>witness (39)</b> 12:10,17;16:1,4,7; 32:2;59:17;78:7,9; 82:6;93:18;94:9; 112:17;125:21; 142:10;151:7; 153:24;156:15,22; 157:1;176:18; 179:21;186:17; 190:9;195:4;203:10, 13,15;209:23;
---	---	---	---	--

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012  
SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

210:23;211:22; 213:3,14;214:7; 224:6;239:9,20; 240:19,22 <b>Witnesses (1)</b> 186:21 <b>witness's (3)</b> 156:15,17;216:5 <b>wonder (2)</b> 184:3;216:20 <b>wondering (3)</b> 162:5;163:1; 175:16 <b>woods (1)</b> 68:6 <b>word (4)</b> 29:10,13;68:7; 206:1 <b>wording (1)</b> 138:11 <b>words (13)</b> 24:18;67:16;72:3; 87:13;92:3;112:3; 168:2;172:12; 188:15;230:6;245:9; 248:17;252:16 <b>work (7)</b> 30:2;124:17;156:3, 3;157:5;173:12; 245:23 <b>worked (5)</b> 73:16;136:12; 194:18;245:8,14 <b>World (1)</b> 163:22 <b>worst-case (9)</b> 154:2,7,14,24; 224:14;225:5,9; 253:22;256:20 <b>worth (1)</b> 103:15 <b>wrapped (1)</b> 214:18 <b>written (3)</b> 137:18;163:2; 219:12 <b>wrong (6)</b> 33:5;66:5,21; 206:1;233:6;244:15 <b>wrote (3)</b> 132:15,16;163:4	<b>year-round (4)</b> 139:1;233:19,22, 24 <b>years (11)</b> 41:16;42:3;95:24; 116:1;120:9;213:4,5, 13;245:10;246:4,5 <b>yellow (6)</b> 6:14,17,18;9:6; 10:1;31:17 <b>yield (1)</b> 249:21 <b>yielding (1)</b> 138:23 <b>York (1)</b> 54:19	180:8,18 <b>10-meter (5)</b> 154:3;224:15,17; 225:1,6 <b>10-meter-above-grade (1)</b> 159:5 <b>10-meter-per-second (1)</b> 151:16 <b>10-mile (1)</b> 23:19 <b>10-minute (7)</b> 189:23;193:19,19; 194:10,11;240:9; 242:3 <b>10th (1)</b> 208:11 <b>11 (3)</b> 35:15,17;207:6 <b>11th (3)</b> 40:11;161:22; 169:17 <b>12 (2)</b> 42:3;243:15 <b>12-1/2 (1)</b> 257:5 <b>13 (7)</b> 154:9,17;240:19; 241:7,12,14,19 <b>1300 (3)</b> 204:20;205:8,11 <b>13A (1)</b> 128:10 <b>14 (7)</b> 35:11;42:4;117:20; 192:23;193:7,17,20 <b>15 (23)</b> 111:14;112:1,1,5; 171:22;172:2; 192:23;193:1,7,17, 21;194:7,13,16,22; 195:2;196:1,10; 199:21;235:17; 243:9,10;244:2 <b>156 (1)</b> 113:5 <b>15-decibel (1)</b> 168:11 <b>16 (4)</b> 17:6;78:2,10,17 <b>1600 (3)</b> 44:6,7;46:4 <b>16-foot-wide (1)</b> 78:15 <b>17 (9)</b> 6:9;8:6;16:5,9; 71:9;119:8;194:5; 243:12,12 <b>17-1/2 (1)</b> 244:6 <b>175-meter (1)</b> 153:1 <b>18 (4)</b> 170:19;194:20;	195:23;250:7 <b>18-percent (1)</b> 243:20 <b>19 (13)</b> 112:5;119:7; 165:22;184:20; 189:20;195:24; 196:16,23;197:10; 231:8;235:17,24; 240:5 <b>1950s (1)</b> 163:7 <b>1960s (1)</b> 163:8 <b>1A (1)</b> 100:22 <b>1B (1)</b> 59:16 <b>1C (1)</b> 100:24 <b>1D (2)</b> 101:1,1	<b>23 (2)</b> 134:10,14 <b>231 (1)</b> 4:5 <b>238 (1)</b> 4:6 <b>24 (1)</b> 239:22 <b>245 (1)</b> 4:7 <b>247 (1)</b> 4:8 <b>24-hour (2)</b> 160:14,14 <b>25 (8)</b> 98:9;120:16,17; 128:10;170:18; 172:3;191:9;244:5 <b>251 (1)</b> 4:9 <b>25-percent (2)</b> 164:11;243:19 <b>2600 (1)</b> 204:16 <b>27 (1)</b> 243:12 <b>28 (1)</b> 116:1 <b>29 (8)</b> 134:2,13,16;169:3; 236:1,1,19,22 <b>2A (1)</b> 192:14 <b>2nd (1)</b> 148:21 <b>2resources (1)</b> 25:16
<b>Y</b>	<b>Z</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>yard (1)</b> 142:3 <b>year (21)</b> 101:21;103:15; 141:16;143:17; 144:6,7;146:5,6,17; 228:13,14,24;229:2, 12,17,21,22;233:15; 234:15;235:15,22	<b>zero (2)</b> 24:14;190:8 <b>zoning (13)</b> 11:21;12:3,14,20; 13:4,8,11,12,19; 18:10,14;19:11; 99:19	<b>1 (17)</b> 59:14;130:21; 131:15;152:7;153:3; 165:23;166:3;167:9; 168:15;169:8;170:6; 190:10;208:10,12; 216:22;221:9;234:24 <b>1,000 (1)</b> 116:8 <b>1,800 (1)</b> 116:8 <b>1:39 (1)</b> 5:2 <b>10 (33)</b> 42:3,13;60:18; 61:7;96:22,24; 151:17;152:15; 153:14;154:9,17; 155:21;158:15; 171:22;172:1;178:4; 196:1;198:15,17; 220:3,21;223:23; 232:18,18;233:10,17; 235:4,24;236:18,22; 242:21,24;243:12 <b>100 (2)</b> 142:5;181:11 <b>107 (8)</b> 179:23;180:6,23; 181:9,13,13;249:12; 250:14 <b>107.4 (1)</b> 225:9 <b>107-decibel (2)</b>	<b>2 (26)</b> 15:23,24;17:7; 33:5;78:6;107:15; 115:10;117:15,24; 119:3,6;122:12; 164:13;167:15,19; 170:8;187:14,14; 189:12;207:5;235:2, 12;236:16;242:17; 243:3,5 <b>2,000 (1)</b> 227:22 <b>20 (13)</b> 117:14,20;161:21; 184:21,22;187:14; 188:7,24;190:18; 191:9;231:8;234:17; 244:2 <b>200 (3)</b> 81:2;104:5;178:4 <b>2005 (1)</b> 8:14 <b>2008 (1)</b> 245:16 <b>2009 (3)</b> 185:17;196:18; 245:21 <b>2011 (3)</b> 189:4;195:23; 218:6 <b>21 (1)</b> 199:18 <b>2-1/2 (3)</b> 32:9,10,17 <b>22 (1)</b> 216:21 <b>227 (1)</b> 4:4	<b>3 (28)</b> 29:1,2;113:22; 114:10,14;119:6; 128:9;150:20;151:6; 152:15;168:17,19; 170:8,16;209:9,15; 210:18;212:9,10,20; 214:6;222:24; 235:12;238:24; 239:8;240:13;243:2, 6 <b>3- (1)</b> 151:15 <b>3,000 (1)</b> 116:6 <b>3:49 (1)</b> 102:13 <b>30 (30)</b> 106:19;115:17; 172:3;185:23,23; 187:12;188:14; 196:21;198:23; 199:3,5,5,14,17;

**DAY 7- AFTERNOON SESSION ONLY - November 28, 2012**  
**SEC 2012-01 ANTRIM WIND ENERGY HEARING ON THE MERITS**

200:7;201:24; 208:12;231:14,19; 232:11;233:10,17; 235:4;236:19,23,23; 243:13,14,16;250:2	<b>42 (6)</b> 114:7;115:8,23; 116:14,17;243:15	<b>60 (1)</b> 134:10	<b>87 (1)</b> 212:20
<b>30-foot (1)</b> 78:11	<b>45 (5)</b> 179:5,11;220:2,22; 232:10	<b>600 (2)</b> 43:23,24	<b>88 (1)</b> 216:17
<b>31 (2)</b> 207:21;209:4	<b>5</b>	<b>60-millimeter (1)</b> 150:10	<b>9</b>
<b>31st (1)</b> 207:18	<b>5 (20)</b> 34:22;107:16; 122:12;135:14; 170:6;190:10;191:5; 198:13,15;219:24; 220:2,12,18,23; 232:1,3,11,17,18; 236:24	<b>6-1 (1)</b> 155:8	<b>9 (11)</b> 22:18,20;131:2,9, 23;133:2;191:6; 192:23;221:10; 222:13,17
<b>32 (9)</b> 113:24;114:3; 115:16;239:7,23; 240:2;241:6;243:6, 10	<b>5.2 (1)</b> 128:13	<b>6-2 (11)</b> 153:22;155:9; 165:11,13;189:3,16; 224:1,7;239:2,17,21	<b>9.3 (12)</b> 154:10;155:24; 190:2;240:12; 242:11,14;244:21; 250:4,13;252:22,22; 253:1
<b>32.4 (2)</b> 242:15,16	<b>5.6.1 (1)</b> 130:21	<b>625 (2)</b> 42:12;92:8	<b>9.3-meter-per-second (1)</b> 154:18
<b>33 (1)</b> 23:20	<b>5.53 (1)</b> 182:5	<b>63 (1)</b> 187:21	<b>9.9 (2)</b> 224:8;225:10
<b>34 (4)</b> 137:11;195:20; 208:15;235:17	<b>50 (3)</b> 179:6,11;219:15	<b>675 (2)</b> 92:9,19	<b>90th (7)</b> 132:9,13;133:24; 189:22;240:8;242:1, 12
<b>35 (11)</b> 171:21;185:23,23; 187:12;200:7; 201:24;235:8;236:4, 6,6;243:24	<b>500 (1)</b> 73:11	<b>685 (3)</b> 7:20;9:23;14:3	<b>913 (1)</b> 249:18
<b>365 (1)</b> 229:20	<b>5-1 (2)</b> 127:24;128:13	<b>6c (4)</b> 240:14;241:7,17, 18	<b>92 (1)</b> 224:9
<b>37 (1)</b> 243:24	<b>52-page (1)</b> 137:5	<b>7</b>	<b>95 (1)</b> 34:21
<b>37-percent (1)</b> 187:17	<b>5-3 (1)</b> 134:23	<b>7 (4)</b> 188:13;196:3; 227:21;244:6	<b>9613 (1)</b> 249:4
<b>39 (1)</b> 169:5	<b>5-4 (4)</b> 130:19;221:21; 222:2,4	<b>7.2 (1)</b> 183:2	<b>9613.2 (1)</b> 249:19
<b>3-A (1)</b> 227:21	<b>55 (4)</b> 219:23;220:17; 232:1,9	<b>7:42 (1)</b> 251:9	<b>9613-2 (2)</b> 126:17;183:13
<b>3-B (1)</b> 227:21	<b>5-5 (1)</b> 221:21	<b>7:51 (1)</b> 251:10	<b>9-foot (1)</b> 78:11
<b>3-megawatt (1)</b> 73:1	<b>5-6 (1)</b> 221:21	<b>7:58 (1)</b> 257:7	
<b>3rd (1)</b> 219:15	<b>57 (2)</b> 224:18;241:24	<b>70 (3)</b> 188:4,8,12	
<b>4</b>	<b>57-meter (7)</b> 154:19;190:1; 224:4,11,21;225:16; 240:11	<b>70s (2)</b> 66:16;67:2	
<b>4 (10)</b> 16:3;29:1;82:4; 134:1;140:13,22; 168:23;169:2;170:6; 190:10	<b>6</b>	<b>7-1 (1)</b> 221:17	
<b>4,000 (1)</b> 120:15	<b>6 (11)</b> 59:2;108:17; 185:14;196:3,9; 207:5;218:6;220:4, 21;227:21;236:8	<b>7-2 (1)</b> 183:3	
<b>4:00 (1)</b> 102:12	<b>6.1 (1)</b> 156:9	<b>7-meter-per-second (1)</b> 154:6	
<b>4:12 (1)</b> 102:14	<b>6.2 (1)</b> 156:9	<b>7-meters-per-second (1)</b> 225:8	
<b>40 (8)</b> 110:12;111:6; 115:23;171:21; 172:2;185:23; 220:12;232:3	<b>6:05 (1)</b> 182:6	<b>8</b>	
		<b>8 (6)</b> 61:6;187:14,14,14; 208:11;209:9	
		<b>800 (2)</b> 113:10;114:10	
		<b>81 (3)</b> 217:8;218:8;219:4	
		<b>86 (3)</b> 212:10,20;220:9	