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STATE OF NEW HAMPSHIRE

SITE EVALUATION COMMITTEE

November 3, 2010 - 1:54 p.m.  
Public Utilities Commission  
21 South Fruit Street  
Suite 10  
Concord, New Hampshire

DAY 3

AFTERNOON SESSION ONLY

RE: SEC DOCKET NO. 2010-01  
Application of Groton Wind, LLC,  
for a Certificate of Site and  
Facility for a 48 Megawatt Wind  
Energy Facility in Groton,  
Grafton County, New Hampshire.  
(Hearing on the merits)

PRESENT:

Chairman Thomas B. Getz  
(Presiding)

SITE EVALUATION SUBCOMMITTEE:  
N.H. Public Utilities Comm.

Robert Scott, Director	Air Resources Division - DES
Brook Dupee, Bureau Chief	Dept. of Health & Human Serv.
Richard Boisvert	N.H. Div. of Historical Res.
Stephen Perry, Chief	Inland Fisheries - N.H. F&G
Charles Hood, Administrator	Dept. of Transportation
Donald Kent, Administrator	Dept. of Resources & Econ. Dev.
Eric Steltzer	Office of Energy & Planning
Michael Harrington, Engineer	Public Utilities Commission

\* \* \*

Counsel for the Committee: Michael Iacopino, Esq.

COURT REPORTER: STEVEN E. PATNAUDE, LCR No. 52

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**ALSO PRESENT:**

<b>Counsel for the Applicant:</b> (Groton Wind, LLC)	Susan S. Geiger, Esq. Douglas L. Patch, Esq. (Orr & Reno)
<b>Counsel for the Public:</b>	Peter Roth, Esq. (Sr. Asst. Atty. General) Evan Mulholland, Esq. (Asst. Atty. General)
<b>Reptg. the Buttolph Group:</b>	Cheryl Lewis, Intervenor
<b>Reptg. the Mazur Group:</b>	Dr. Lawrence Mazur, Intervenor Sarah Mazur, Intervenor

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1 P R O C E E D I N G

2 CHAIRMAN GETZ: Okay, everyone. We're  
3 back on the record in Site Evaluation Committee Docket  
4 2010-01. And, --

5 MR. ROTH: Mr. Chairman, I'm sorry to  
6 interrupt. I'm still in the moment -- I need a moment to  
7 continue my setup, because we were conversing in the hall  
8 about how to deal with Exhibit 44.

9 CHAIRMAN GETZ: Okay.

10 MR. ROTH: Like 60 seconds. And, I  
11 apologize.

12 CHAIRMAN GETZ: All right. While we're  
13 doing that, I believe Mr. Gravel can come up to the  
14 witness stand. He's been sworn in. And, the next  
15 activity is cross-examining by Mr. Roth.

16 (Whereupon Adam J. Gravel was recalled  
17 to the stand, having been previously  
18 sworn.)

19 CHAIRMAN GETZ: And, Mr. Roth, just let  
20 us know when you're ready.

21 MR. ROTH: We are now, once all the  
22 thumping is done, we're ready.

23 CHAIRMAN GETZ: Please proceed.

24 MR. ROTH: Thank you. Good morning,

1 Adam -- or, afternoon, good afternoon, Adam.

2 WITNESS GRAVEL: Good afternoon.

3 MR. ROTH: I'm sorry I missed your  
4 initial cross-examination this morning. And, just for  
5 everybody's benefit and yours, I'm going to ask some  
6 questions about post mortality surveys primarily, and a  
7 little bit of information about hawk migration. And,  
8 Attorney Mulholland has a few questions, maybe five  
9 minutes, about bats. So, if it's all right with  
10 everybody, we'll split it up that way, with Mr. Mulholland  
11 handling bats and me doing other things.

12 CHAIRMAN GETZ: That's fine.

13 MR. ROTH: Thank you.

14 ADAM J. GRAVEL, Previously sworn

15 CROSS-EXAMINATION (Resumed)

16 BY MR. ROTH:

17 Q. Adam, is it true that there are no sort of generally  
18 applicable guidelines for assessing, and I'm trying to  
19 articulate this well, applicable guidelines for  
20 understanding the impacts and, in particular, the  
21 mortality of avian species caused by a wind farm?

22 A. If I understand this correctly, you're wondering about  
23 post-construction monitoring?

24 Q. Well, in terms of understanding what the impacts are

1 and how to evaluate those impacts in general, is there  
2 a set of statutes or rules that provide strict guidance  
3 or strict interpretation about how to do it?

4 A. Not rules, but there's definitely a series of  
5 guidelines, recommended guidelines, and also, you know,  
6 several years of similar studies.

7 Q. Okay. So, I hope yesterday your attorney gave you, or  
8 I understand somebody gave you this morning, a document  
9 that is Public Counsel Exhibit 14, the Wind Turbine  
10 Guidelines Advisory Committee Report?

11 A. Yes.

12 Q. So, are you familiar with that?

13 A. Yes, I am.

14 Q. Okay. And, isn't it the case that the Wind Turbine  
15 Guidelines Advisory Committee was a fairly large group  
16 of people that consisted of representatives of  
17 industry, including Iberdrola, academics, regulators,  
18 did I miss anybody?

19 A. Special interest groups, but, yes.

20 Q. Yes, that's right. Environmental groups?

21 A. Yes.

22 Q. So, this was not, you know, a bunch of  
23 environmentalists or a bunch of regulators, a bunch of  
24 industry types. This was a broad group of people that

1           came together over a several year period to develop  
2           these guidelines, correct?

3    A.    That's correct.

4    Q.    And, they submitted these guidelines to the Secretary  
5           of Commerce, I guess, or Interior?

6    A.    Interior.  Department of Interior.

7    Q.    Interior.  Okay.  I keep thinking of fishery stuff.  
8           So, I -- I do a lot of fisheries work, and it's all to  
9           the Secretary of Commerce.  Would you consider this  
10          approach to be a fairly balanced approach, with respect  
11          to how you would go about putting together a study and  
12          how to handle the various issues that arise between  
13          wind turbines and avian species?

14   A.    Yes.  I think it's a reasonable approach.  I think  
15          that, I mean, each project has its own issues that may  
16          vary from this a little bit, but the standard approach  
17          to the tiered approach outlined here is reasonable.

18   Q.    And, doesn't the tiered approach, in fact, have a great  
19          deal of kind of flexibility for accounting for  
20          project-to-project kinds of issues?

21   A.    Yes.

22   Q.    And, in fact, previous sets of Fish & Wildlife  
23          guidelines were criticized for being motivated or being  
24          sort of directed by experiences in western wind farms,

1 and not necessarily applicable to wind farms in the  
2 eastern part of the country, correct?

3 A. That's partially correct. And, it was also just a lack  
4 of -- it didn't account for any recent information.

5 Q. Okay. And, it was very regulator-driven as well, is  
6 that your understanding?

7 A. Yes, I would say that it was -- it was designed more in  
8 the regulatory framework.

9 Q. Okay. And, you know, you've been here before, and you  
10 probably remember the discussions about, you know,  
11 whether it makes sense in every case to have absolutely  
12 you must have three years of pre-construction, you  
13 know, radar studies, right?

14 A. Uh-huh.

15 Q. And, this doesn't say "you must have three years of  
16 pre-construction radar studies", right?

17 A. No, not that I'm aware of.

18 Q. Okay. But would it be fair to say that these  
19 guidelines have a particular sensitivity about listed  
20 species?

21 A. Yes.

22 Q. And, by "listed species", we mean creatures that are on  
23 the Endangered or Threatened Species List, correct?

24 A. Yes.

1 Q. And, in your studies of the Project site, you observed  
2 several listed species passing over or at the Project  
3 site, correct?

4 A. That's correct.

5 Q. And, what were those listed species?

6 A. We had -- we had one observation, well, two  
7 observations of one golden eagle, and four observations  
8 of peregrin falcons.

9 Q. And, weren't there northern harriers exhibited or  
10 viewed as well?

11 A. Yes.

12 Q. And, bald eagles as well?

13 A. Yes, I said "bald eagles".

14 Q. Oh, I'm sorry. And, --

15 A. Actually, excuse me. Sorry. No, I said "golden  
16 eagles". Bald eagles were delisted.

17 Q. Okay.

18 A. I don't know that they're -- I don't know that they're  
19 still on the state list.

20 Q. I don't know the answer to that either.

21 A. I can find it for you.

22 Q. Okay. And, the common loon as well?

23 A. Yes.

24 Q. While we're looking, Evan just gave me a List of

1           Endangered and Threatened Species in New Hampshire, I'm  
2           not sure where he got this, but it does not appear that  
3           the bald eagle is any longer on the list. So, I  
4           suppose that's good news.

5                           Now, with respect to the golden eagle, I  
6           understand there were some questions this morning about  
7           the HMANA approach, and whether your assessment was  
8           appropriate. Is that correct?

9   A.   That's correct.

10  Q.   And, as I said, I'm sorry I missed that. But is it  
11       your understanding that -- ah, Evan has pointed this  
12       out again to me. I'm sorry, I'm going to interrupt  
13       myself. But the bald eagle is actually still on the  
14       Threatened List, according to this document. This is  
15       from the Fish & Game Department.

16  A.   Which document is that?

17  Q.   I don't have an exhibit number on it.

18                           MR. ROTH: Do you mind if I show this to  
19       him?

20                           MS. GEIGER: No.

21                           MR. ROTH: Okay.

22                           (Atty. Roth handing document to the  
23       witness.)

24                           WITNESS GRAVEL: So, what's the

1 difference between the two lists? Is it a different year?

2 MR. ROTH: I'm sorry?

3 WITNESS GRAVEL: I was just wondering  
4 what the difference between the list you were just looking  
5 at that didn't --

6 MR. ROTH: It's the same list. I just  
7 didn't read the second part of it.

8 WITNESS GRAVEL: Oh. Okay. Got you.  
9 Yes.

10 BY MR. ROTH:

11 Q. So, the list, just I'll go through it. We have the  
12 northern harrier is listed as "endangered", the golden  
13 eagle is listed as "endangered". Is that your  
14 understanding?

15 A. Yes.

16 Q. And, then, the Threatened List we have the common loon,  
17 the bald eagle, and the peregrin falcon.

18 A. Yes.

19 Q. And, you observed all of those birds at or over the  
20 site?

21 A. Over or in proximity to the site.

22 Q. Okay. And, you understand that, I think your studies  
23 showed that there were nesting peregrin falcons at two  
24 locations within a couple of miles of the site? Is

1           that correct?

2       A.    Our studies didn't show that.  That information was  
3           provided to us by New Hampshire Audubon.

4       Q.    Okay.  I'm sorry, I didn't -- but there was a study  
5           submitted by the Applicant showing that they were  
6           there, correct?

7       A.    Yes.

8       Q.    Okay.  Now, going back to the golden eagle, there was  
9           some question about what's -- questions about whether  
10          you followed the HMANA guidelines.  And, it's my  
11          understanding that you did the raptor survey sometime  
12          basically over the month of September in 2009, correct?

13      A.    September and October.

14      Q.    Okay.  Now, and when you did that, did you observe  
15          golden eagles?

16      A.    Yes.  I think the golden eagle was observed in the fall  
17          season.

18      Q.    Okay.

19      A.    Yes.

20      Q.    And, you didn't do any studies after -- what was the  
21          date in October?

22      A.    October 26th.

23      Q.    Okay.  And, does the migration period continue for any  
24          of these species, and in particular the golden eagle

1 and the bald eagle, after October 26 and further into  
2 the fall?

3 A. Yes, it does.

4 Q. And, how long?

5 A. It continues in through November.

6 Q. Okay. And, would you agree that, with respect to those  
7 two species, in fact, they are generally later in the  
8 migration period?

9 A. Later or earlier, yes.

10 Q. Okay. And, that it's possible, by choosing the  
11 migration period that you did to do the observations,  
12 the ten days in September and October, that you may  
13 have missed, either you came too late or you came too  
14 early, to see the golden eagle and the bald eagle?

15 A. Well, we, in both, as you just described our results,  
16 we did see both species. So, we did survey or sample  
17 within the appropriate time periods. The objective of  
18 the survey wasn't to document specific golden eagle  
19 use, it was to document hawk migration through sampling  
20 the appropriate time periods.

21 Q. And, I'll agree that, yes, you did see the golden  
22 eagle. But, in terms of understanding what sort of  
23 frequency or numbers there might be to fully assess the  
24 risk, if you didn't see what is considered to be the

1 bulk of the eagle migration, you would have only a  
2 limited ability to understand what the risk would be,  
3 correct?

4 A. That's correct. If we -- you missed this part earlier  
5 this morning, too. But the fact is is that  
6 pre-construction survey results are not correlating  
7 with post-construction mortality. So, that's part of  
8 the challenge. And, that's why we sample the  
9 appropriate window.

10 Q. Okay. All right. Now, I want to go back to the Wind  
11 Turbine Guidelines Advisory Committee recommendations.  
12 Do you have that document in front of you?

13 A. Yes, I do.

14 Q. Okay. Now, there's a tiered approach. And, one of the  
15 tiers, Tier 4, is post-construction fatality studies,  
16 correct?

17 A. That's correct.

18 Q. And, there's a table in here that I found very  
19 interesting, and I guess I want to call your attention  
20 to it and ask you to see if you agree with me about a  
21 particular construction that I have of it.

22 A. Is that the one on Page 48?

23 Q. Page 48, exactly.

24 MR. IACOPINO: We're speaking about

1 State -- PC Exhibit 14, correct?

2 BY MR. ROTH:

3 Q. Now, as I understand this table, is it says, and maybe  
4 I don't get the logic totally, but I think I understand  
5 it, but it says that you determine what you do in Tier  
6 4 based on what you found in Tier 3, correct?

7 A. Yeah.

8 Q. And, if you look at -- there's two columns there, and  
9 then in each column there are basically three rows of  
10 text. And, if you look at the first -- well, I guess  
11 there's three columns. If you look at the second  
12 column in the bottom row, and it says "number of years  
13 of monitoring", and I assume that the -- the first  
14 column says "number of years of monitoring". And, I  
15 assume that that means, for purposes of Tier 4, the  
16 number of years of post-construction fatality  
17 monitoring, correct? Is that what that's referring to?

18 A. Yes. I had a hard time interpreting this table as  
19 well, but I believe that's correct.

20 Q. So, that, for instance, in the first one, it says  
21 "number of years of monitoring zero". If the -- the  
22 "Tier 3 studies...show -- predict [that] risk is low;  
23 comparable Tier 3 studies indicate low risk; [and] no  
24 ESA species likely to be at risk." Is that -- that's

1           what it says, right?

2       A.    That's what it says.

3       Q.    And, so, "ESA species" are the Endangered Species Act  
4           List, and that would include --

5       A.    Yes.

6       Q.    And, those would include endangered and listed -- or,  
7           threatened, rather?

8       A.    Yes.

9       Q.    Okay.  And, then, "number of years of monitoring" for  
10           the second row is "1", and then it has the same kind of  
11           text there.  And, if you go to the bottom, it says "2  
12           or more".  And, so, that would suggest that you do two  
13           or more years of post-construction fatality monitoring  
14           under those conditions that are listed there, which is  
15           "did not meet all [the] conditions above", right?

16      A.    (Witness nodding in the affirmative).

17      Q.    And, one of those conditions in the box above it is "no  
18           ESA species likely to be at risk", correct?

19      A.    That's correct.

20      Q.    So, maybe this is -- this is the difficulty with this  
21           table, but, deductively, to me, that says, "if you have  
22           ESA species likely to be at risk, you cannot meet all  
23           the conditions above", and so you default down to the  
24           bottom, to the bottom row, where it says "two or more",

1 correct?

2 A. Yes. That's if your assessment showed "likely to be at  
3 risk."

4 Q. Okay. And, an "ESA species at risk" is one that might  
5 be -- fly into or be harmed by a wind turbine, correct?

6 A. Correct.

7 Q. Okay. And, if you have them present, you have peregrin  
8 falcons to the south, and I guess to the north as well,  
9 or maybe directionally I may be a little mixed up.

10 A. That's correct.

11 Q. And, all of these species have been observed flying  
12 over the site. Don't you consider that there is some  
13 risk that there may be an impact of one of those listed  
14 species with a wind turbine?

15 A. Yes. I would agree that it's a potential risk, but  
16 "not likely to be at risk", as the table says.

17 Q. Okay. So, that's your interpretation?

18 A. That would be my interpretation.

19 Q. So, a likelihood is up to the Project to decide?

20 A. No. It's up to the data and all the information we  
21 know about the species post-construction.

22 Q. Now, if you look at the -- on Page 47. Does your copy  
23 have Page 47 in it?

24 A. Yes, it does.

1 Q. It does.

2 A. It's the copy I brought.

3 MR. IACOPINO: Yes, ours doesn't.

4 MR. ROTH: Forgive me. We're having  
5 technical difficulties.

6 BY MR. ROTH:

7 Q. Now, on Page 47, there's a --

8 MR. ROTH: Does the Committee not have  
9 Page 47?

10 MR. IACOPINO: We do not have Page 47.

11 DR. BOISVERT: No.

12 CHAIRMAN GETZ: 47 or 46.

13 MR. ROTH: Okay. I'm not going to ask  
14 that question then.

15 BY MR. ROTH:

16 Q. Now, I'm going to look at the Iberdrola policy, which  
17 is Appendix 16 of the Application. And, I understand  
18 this morning that you testified that you weren't sure  
19 whether Iberdrola would, in fact, follow this policy in  
20 this case, is that --

21 A. That's not correct, actually. There was a  
22 misunderstanding with that question. At least on my  
23 part, I misunderstood the question being asked.  
24 Basically, what was asked of me is "if Iberdrola plans

1 on following this policy?" And, what I -- how I  
2 misunderstood it is that I was asked about the protocol  
3 for post-construction monitoring. The policy has been  
4 followed from day one, which includes all of the  
5 initial site evaluations, investigations, agency  
6 consults, and then field studies. So, that's where I  
7 -- I'm just correcting my misunderstanding of the  
8 question earlier this morning.

9 Q. Okay. I guess I'm more confused by your answer than I  
10 was before, not having heard the answer before. But  
11 does that mean that they have followed the policy thus  
12 far, but you're not sure whether they're going to  
13 continue to follow them?

14 A. No. They followed it thus far, and intend to continue  
15 to follow that.

16 Q. Okay. Okay. Then, that's fine. I understand that  
17 now. Now, on Page 3.1, the first paragraph, about  
18 three-quarters of the way down, the words that says  
19 "Typically at least 1 year of post-construction  
20 mortality monitoring will occur". Are you familiar?  
21 Can you find that?

22 A. Yes.

23 Q. Okay. Would you read that.

24 A. "Typically at least 1 year of post-construction

1 mortality monitoring will occur, more where specified  
2 by permit or voluntary agreement, where the first  
3 years' monitoring suggests an extraordinary fatality  
4 rate and/or [where] weather conditions are highly  
5 variable, substantially affecting migration timing and  
6 intensity."

7 Q. Okay. Now, Iberdrola entered into this policy for its  
8 projects all over the country, correct? This isn't  
9 just for New Hampshire?

10 A. Yes.

11 Q. Okay. So, when they write a statement like that, they  
12 have to account for different projects in different  
13 parts of the country?

14 A. Yes.

15 Q. Okay. Now, would you consider that the weather in New  
16 Hampshire is highly variable?

17 A. Yes, I would consider it highly variable.

18 Q. Okay. And, do you think that weather conditions affect  
19 migration timing and intensity at various times?

20 A. Within the season, yes.

21 Q. Okay. Thank you. And, is it true that this is -- this  
22 "ABPP", as they call it, the Avian and Bat Protection  
23 Policy is not an enforceable rule or regulation or  
24 anything like that?

1 A. That's true.

2 Q. They just -- they voluntarily do this. And, they  
3 could, presumably, next week write a new policy or  
4 voluntarily decide not to do this, correct?

5 A. I mean, I don't know that that's what they would do.

6 Q. Okay. But they're not bound to this by law, right?

7 A. I think that, for them to put this out in the public  
8 domain, it's a commitment.

9 Q. Okay.

10 A. But, no, they're not bound by law.

11 Q. Okay. Thank you. Now, in our data requests, let's  
12 see, do you have -- were you responsible for the  
13 answers on avian and -- avian issues in the data  
14 requests?

15 A. For avian issues?

16 Q. Yes.

17 A. Yes.

18 Q. Okay. Do you remember answering a number of data  
19 requests that we made where we asked, you know, what's  
20 going to be your mitigation for --

21 A. I remember answering a large number of questions.

22 Q. Yes. And, we asked for a whole bunch of different  
23 species of birds what was the mitigation plan for that  
24 particular species of bird, do you remember that?

1 A. Yes.

2 Q. Okay. And, can you, without looking at that data  
3 requests, which is in Public Counsel Exhibit 5, I'll  
4 bet you could remember what you said, because you had  
5 to say it a lot of times, I'm sorry to say?

6 A. But you could remind me.

7 Q. Okay.

8 A. Because I don't have it in front of me.

9 Q. How about if I provide you my copy of it, and you can  
10 read --

11 (Atty. Roth handing document to Witness  
12 Gravel.)

13 CHAIRMAN GETZ: Where are we in this?

14 MR. ROTH: Public Counsel Exhibit 5,

15 Page 4.

16 BY MR. ROTH:

17 Q. And, this is basically what the Project is committing  
18 to for post-construction fatality monitoring, correct?

19 A. Yes.

20 Q. And, can you read, let's just do the first one, the one  
21 that's at the top of Page 4, if you could -- if you can  
22 read that whole paragraph, where it says "Answer", if  
23 you don't mind, unless that --

24 A. "Although on site field surveys indicate a low

1 potential impact, Groton Wind will conduct at least one  
2 year post-construction monitoring at the Project.  
3 Monitoring efforts will be similar to those currently  
4 underway at the Lempster Project, and will involve  
5 standardized fatality searches at turbines, searcher  
6 efficiency trials, carcass removal rates, and a habitat  
7 analysis. Reports will be submitted to the Fish &  
8 Wildlife Service and Fish & Game for review. If the  
9 results of the first year of monitoring indicate  
10 mortality beyond the range of mortality documented at  
11 other projects in the Northeast, a second year of  
12 monitoring will be conducted and efforts will be  
13 focused on determining the factors that influence  
14 increased mortality at the site. As outlined in  
15 Iberdrola Renewable's Avian and Bat Protection Plan, if  
16 unexpectedly high mortality or unexpected impacts to  
17 protected species or their habitat is determined by  
18 monitoring, the appropriate adaptive management  
19 mortality reduction and/or mitigation measures will be  
20 identified and developed in consultation with New  
21 Hampshire Fish & Game."

22 Q. Okay. And, this was the mitigation provided for  
23 peregrin falcon in that particular question. And, if  
24 you continue, and I'm not asking you to read this, but,

1 in response to Data Request Number 15,16, 18, 19, and a  
2 number of others, going through to Page 9, we asked  
3 questions about a variety of different species of  
4 birds, and you gave essentially the same answer,  
5 correct?

6 A. Essentially, yes.

7 Q. Okay.

8 A. Not exactly, because it does vary by species, to some  
9 extent.

10 Q. So, for the listed species anyway, that was basically  
11 that answer, is that fair to say?

12 A. Yes.

13 Q. Okay. Now, I want to turn to a report that you  
14 provided to us in response to one of our data requests,  
15 which was also included in Public Counsel Exhibit 5.  
16 And, it is the Curry & Kerlinger Report. And, it comes  
17 after your resumé. And, unfortunately, I don't list --  
18 I haven't done sort of -- have you found that?

19 A. No.

20 Q. Okay. It's under Public Counsel Exhibit 5. And, it's  
21 an attachment to it. Beginning a dozen or so pages  
22 after Page 31.

23 A. I don't have Exhibit 5.

24 (Atty. Roth showing document to the

1 witness.)

2 WITNESS GRAVEL: Thank you.

3 MR. ROTH: My blue painter's tape is  
4 marking the exact spot.

5 BY MR. ROTH:

6 Q. Now, if you turn to Page 5 of the Curry & Kerlinger  
7 Report, you see down there, about two-thirds of the way  
8 down the page, it says "Post-construction Studies"?

9 DIR. SCOTT: Mr. Chair, could we get  
10 direction on where we are?

11 MS. GEIGER: If you look in the --

12 CHAIRMAN GETZ: Well, this is off the  
13 record.

14 (Brief off-the-record discussion  
15 ensued.)

16 CHAIRMAN GETZ: Okay. Back on the  
17 record.

18 MR. ROTH: Yes. Someday we need to work  
19 out a system of having things Bates numbered in all the  
20 exhibits, or I know I've had this conversation with  
21 Attorney Iacopino.

22 BY MR. ROTH:

23 Q. So, Adam, you found this particular paragraph, under  
24 "Post-construction Studies", the first arrow there?

1 A. Yes.

2 Q. And, can you read that paragraph for us please?

3 A. "A mortality study following best practices should  
4 ideally be conducted during a two-year period  
5 post-construction, with the second year of study being  
6 contingent upon what is found during the first year.  
7 If fatalities are recorded at levels that could be  
8 construed as biologically significant, or if  
9 significant numbers of rare species are involved, a  
10 second year of study should be undertaken. The design  
11 of the post-construction protocol should follow best  
12 practices now being used and refined at existing  
13 wind-power sites and approved by various government  
14 agencies."

15 Q. Okay. And, the methodology that was used at the  
16 Lempster, for the post-construction fatality survey,  
17 that's up to industry standards, correct?

18 A. Yes. Yes, it is.

19 Q. You think so?

20 A. I mean, I think it is. I think that the protocol is up  
21 to industry standards, yes.

22 Q. Okay. You have some questions about the actual study  
23 implementation?

24 A. No. No.

1 Q. Okay. That's a separate hearing, I guess, right? Now,  
2 the thing that I struggle with in all of these is  
3 getting a grasp of what's "biologically significant".  
4 Because Curry & Kerlinger say "at levels that [are]  
5 biologically significant". And, what does that mean?  
6 What is "biologically significant" for a golden eagle?

7 A. Well, it depends on the scale, really. It depends on  
8 are you talking about golden eagles in New Hampshire or  
9 are you talking about golden eagles nationwide? Or,  
10 are you talking about golden eagles in Rumney? Except  
11 they don't reside in Rumney.

12 Q. Well, we don't really know. So, we don't really know  
13 whether we're talking about biologically significant in  
14 Rumney or Groton Hollow, or the Western Hemisphere of  
15 the globe, right?

16 A. Not really. And, that's why we are using acceptable  
17 levels of take found at other wind sites.

18 Q. Okay.

19 A. Because the other issue is that mortality, outside of  
20 wind, is also largely unstudied. So, that's what makes  
21 it hard to get to that "biologically significant"  
22 determination, without knowing what else -- what else  
23 is killing these guys.

24 Q. Okay. But isn't that somewhat circular? You say

1 "acceptable levels of take." And, I understand from  
2 the Migratory Species Act that there is no acceptable  
3 level of take, and that's a separate question. But,  
4 thus an acceptable level of take, according to Curry &  
5 Kerlinger, is one that is "not biologically  
6 significant", correct?

7 A. That's what they say here.

8 Q. Yes. And, so, we don't -- and, that's really, you  
9 know, that's the problem that I have, I think, and the  
10 Committee should have, is this is kind of circular.  
11 There's no clear understanding of what that means.  
12 And, then, he also -- Curry & Kerlinger also speaks  
13 about rare species. With rare species, he says  
14 "significant numbers". And, again, what's a "rare  
15 species"?

16 A. Threatened or endangered.

17 Q. Okay. So, that's -- because, to me, "rare species" is,  
18 okay, "are there very few of them here?" Right? Is  
19 there a definition of "rare species" that you can refer  
20 us to that --

21 A. I mean, it's the law. It's the threatened or  
22 endangered species. That's how we're asked to evaluate  
23 impacts.

24 Q. Okay. But is that -- so, you're saying that "rare" as

1 Curry & Kerlinger use it is simply anything on the --  
2 that's listed, correct?

3 A. Yes.

4 Q. Okay. So, if it's not listed, but it's still rare in  
5 New Hampshire, that one wouldn't count?

6 A. I'm not sure what -- I mean, if it's rare in New  
7 Hampshire, it would be listed.

8 Q. Is that always true?

9 A. Not always true, but like, if they're special concern  
10 species, but they're still not regulated under policy.

11 Q. Okay. So -- but they're not listed?

12 A. Exactly.

13 Q. But you would also call them "rare"?

14 A. I mean, if -- I guess it depends on the definition  
15 you're using "rare". I mean, if the habitat's not  
16 there, and you find one bird that could be considered  
17 rare, but maybe it's just not supposed to be there.

18 Q. So, who gets to decide? When you're trying to figure  
19 out, at the end of a mortality survey, and you've got a  
20 bunch of dead birds and, admittedly, from the Lempster  
21 study, a "bunch" is not all that many, but what's  
22 biologically significant and whether this particular  
23 dead bird is a rare one or not? Who gets to decide  
24 that?

1 A. That's why the recommendation is to consult with state  
2 and federal agencies. They're the experts on  
3 populations.

4 Q. Okay. And, now, when I asked you to read the  
5 provisions of the Iberdrola policy, says they're going  
6 to "submit the results to the agencies", but it doesn't  
7 say they're going to consult with them and take their  
8 advice, does it?

9 A. Maybe not specifically in that plan, but in my  
10 testimony it does, and, in response to data requests,  
11 we say that. I can think of a few occasions that  
12 that's been said.

13 Q. Okay. Now, when you -- in your answers to the data  
14 requests, see, maybe you answered it that way, you said  
15 you would "submit it to Fish & Wildlife and Fish & Game  
16 for review", and then it says "if the results of the  
17 first year...indicate mortality beyond the range of  
18 mortality documented at other projects..., a second  
19 year...will be conducted and efforts...focused on  
20 determining the factors." Now, that doesn't say that  
21 you're going to take the direction or consult with Fish  
22 & Wildlife and Fish & Game, does it?

23 A. Maybe not specifically in that data request.

24 Q. And, that doesn't -- your response to the data request

1 doesn't talk about "significance" or "biologically  
2 significance" or anything like that, does it? It just  
3 says "beyond the range" of what's common somewhere  
4 else?

5 A. Not just somewhere else, somewhere else in New England,  
6 with similar habitat.

7 Q. Okay. So, --

8 A. So, I'm not going to compare to mortality levels, you  
9 know, in the West Coast, let's say. I would expect to  
10 be evaluated within the Northeast, you know, evaluate  
11 impacts in the context of projects in the Northeast.

12 Q. So, it's kind of a "if everybody is doing it, it must  
13 be okay", is that the idea?

14 A. The idea is that -- I guess my opinion is that wind  
15 power projects, when you evaluate all sources of  
16 mortality, wind power projects are already very low  
17 compared to other sources of mortality. And, for that  
18 reason, that's, and we're talking a wind project,  
19 that's why I think it's reasonable to use known  
20 mortality ranges at operational wind projects as that  
21 threshold.

22 Q. Okay. But you don't, you know, you look at Curry &  
23 Kerlinger, and they say it has to -- it's "biologically  
24 significant", that's how you decide. Not based on what

1 the count was at another project nearby. There's some  
2 at least attempt at looking at the impact on the  
3 species, not the impact on the wind farm, isn't that  
4 true?

5 A. Yeah. And, if we're talking "impact on the species",  
6 though, and "biologically significant", you have to  
7 known -- you have to know population levels, which is  
8 something that the state and federal agencies have a  
9 hard time getting, and you have to know -- you have to  
10 calculate other sources of mortality.

11 Q. Okay. So, I guess that's all by way of saying that  
12 isn't it kind of difficult to sort of look at the  
13 contingency on any of these scales, other than a very  
14 simple one that really, in my view, just says "if  
15 everybody is doing it, it must be okay"? So, if, for  
16 example, at Lempster Wind Farm, they counted next year  
17 four dead peregrin falcons. And, next year or after  
18 post-construction at Groton, they counted five dead  
19 peregrin falcons, which happen to be all of the nesting  
20 pairs in the immediate vicinity. Would that be an  
21 acceptable level of mortality for Groton Wind, based on  
22 your way of looking at it?

23 A. No. I mean, that's not, if you're talking about -- you  
24 just said "all the nesting pairs in New Hampshire"?

1 Q. No. The nesting pairs in the immediate vicinity of the  
2 project.

3 A. That would be a -- that's where you would have to take  
4 that information to the state and federal agencies for  
5 discussions.

6 Q. Okay. Now, you represented or you worked for the  
7 developer in the Granite Reliable case, correct?

8 A. Correct.

9 Q. And, so, you're familiar with the Certificate and  
10 conditions that were imposed on Granite Reliable?

11 A. For the most part.

12 Q. Okay. And, do you recall, I'm going to read to you the  
13 following language from that Certificate, and the  
14 Committee can take judicial notice of it in its record,  
15 it's at Page 55. And, the Committee there said "The  
16 Subcommittee recognizes, as testified by

17 Dr. Lloyd-Evans, that pre-construction studies serve as  
18 baseline studies and have no predictive value as to the  
19 actual effect on the various wildlife species." And, I  
20 think you just agreed with that a couple of times.

21 "Thus, it is important that the Applicant conduct  
22 similar post-construction studies in order to obtain a  
23 measure of the actual effect of the project on the  
24 wildlife in the area. Therefore, the Applicant shall

1           implement a post-construction bird and bat mortality  
2           study designed by its consultants and reviewed and  
3           approved by New Hampshire Fish & Game." Now, that's  
4           not what you're proposing, is it? You're going to do  
5           -- the Applicant is proposing to essentially design its  
6           own study protocol, correct, not consult with Fish &  
7           Game about the design of that?

8       A.    I think that it's -- it would propose a study protocol  
9           based on standard protocols in the industry.

10       Q.   Okay. And, seek the review and approval by the Fish &  
11           Game Department?

12       A.    I can't answer that. I don't know if that's --

13       Q.    Okay. "The study should be conducted for three  
14           consecutive years and a full report and analysis should  
15           be produced after each complete year." Now, that's not  
16           what you're proposing for this project, is it?

17       A.    We're talking two different projects here, too, for  
18           one.

19       Q.    Okay. But that's not what's being proposed here, is  
20           it?

21       A.    That's correct.

22       Q.    Okay. And, then, it says, "In addition,...those  
23           breeding bird [studies]", and we're not going to talk  
24           about that, because that's not an issue in this case,

1 correct? And, then, it says "New Hampshire Fish & Game  
2 shall review and approve the protocols for said  
3 studies." So far, that's not what's being proposed  
4 here, is it?

5 A. That's correct.

6 Q. Okay. "The post-construction studies must occur one  
7 year, three years, and five years after construction  
8 has been completed." And, nothing like that here  
9 either, right?

10 A. That's correct.

11 Q. And, then, it says, "If the Applicant and Fish & Game  
12 cannot achieve consensus on such studies then either  
13 party may petition the Committee for a determination",  
14 correct? And, you're not doing that here?

15 A. Correct.

16 Q. Okay. So, shouldn't this project be subject to the  
17 same kind of condition that its nearby competitor is  
18 being subjected to? Because we're dealing with same  
19 kind of problem, isn't it?

20 A. Not really. You're talking about a different  
21 environmental setting. You're talking about two  
22 different projects.

23 Q. Yes, they are two different projects. But we still  
24 have species of concern that are sighted at or around

1 the facility, correct?

2 A. Not breeding or a resident of the project area.

3 Q. Okay. So, if we -- does this say anything, other than  
4 the requirement of doing a breeding bird study, do you  
5 think that that means that no post-construction  
6 mortality study would be necessary?

7 A. We -- the Applicant hasn't -- has committed to  
8 post-construction studies.

9 Q. Okay. But not ones that are going to be approved in  
10 advance by Fish & Game, right?

11 A. That's correct.

12 Q. And not three years' worth, correct?

13 A. That's -- well, I mean, it's going to be more than  
14 that, really, if you --

15 Q. All right. Now, I want to go back to your response to  
16 the data requests. And, in your responses, at least  
17 with respect to listed species, you said that "if  
18 [there's] unexpectedly high mortality or impacts to  
19 [the] protected species or their habitats..., [then]  
20 the appropriate adaptive management mortality reduction  
21 or mitigation measures", excuse me, "will be identified  
22 and developed in consultation with Fish & Game."

23 MS. GEIGER: Excuse me. Mr. Roth, could  
24 you reference the particular question, the number of the

1 question that you're speaking of.

2 MR. ROTH: This was Public Counsel  
3 Exhibit 5, the response to Question Number 13, and the  
4 response being on Page 4.

5 MS. GEIGER: Thank you.

6 BY MR. ROTH:

7 Q. Can you just give us some idea of what would be  
8 "appropriate adaptive management mortality reduction  
9 and/or mitigation measures"?

10 A. No, I can't, because it depends on what the -- what the  
11 issue is.

12 Q. Bird kills?

13 A. There currently isn't -- hasn't been effective  
14 mitigation strategies for nocturnal migrants, for  
15 example. So, that's why it has to be designed with New  
16 Hampshire Fish & Game.

17 MR. ROTH: Okay. I think that is all  
18 the questions I have. Let me just make sure.

19 (Short pause.)

20 MR. ROTH: Yes. I'm all set. Thank you  
21 very much. Now, Evan will ask you about bats.

22 MR. MULHOLLAND: Good afternoon. A  
23 short series of questions along the same lines.

24 BY MR. MULHOLLAND:

1 Q. Mr. Gravel, you did a pre-construction survey of bats  
2 at the site, right?

3 A. That's correct.

4 Q. And, you couldn't tell whether or not there are any  
5 small-footed bats at the site, right?

6 A. That's correct.

7 Q. And, the small-footed bats are state-listed?

8 A. Yes.

9 Q. They're in the myotis genus?

10 A. Yes.

11 Q. But, do you agree that, even if you did find some, it  
12 would be hard to predict mortality, because of that  
13 lack of correlation that you testified about, right?

14 A. Yes.

15 Q. You would also agree that there's very little  
16 information about the number of small-footed bats in  
17 New Hampshire, right?

18 A. Yeah. But I can -- I would add to that by saying that  
19 there's quite a bit known about their breeding habitat  
20 and their roosting habitat. So, you have a good chance  
21 of figuring out where they would be.

22 Q. Uh-huh.

23 A. And, the habitat was not found on the site.

24 Q. But you did hear the calls of myotis bats at the site,

1 right?

2 A. Yes.

3 Q. And, you can't really tell the difference between one  
4 type of myotis genus and another type?

5 A. That's correct.

6 Q. So, it's possible there could have been a small-footed  
7 bat that you heard, but you couldn't identify it?

8 A. That's correct. But, because of the timing of the  
9 calls and the lack of habitat, the likelihood is lower  
10 for small-footed bats.

11 Q. But it's possible?

12 A. It's possible.

13 Q. And, at the Lempster post-construction mortality study,  
14 there weren't any small-footed bats found?

15 A. That's correct.

16 Q. But you'd agree it's possible that they missed the  
17 carcass because they're so small, they're small bats?

18 A. I wouldn't agree with that. I mean, they're not --  
19 they're no different than a long-eared bat, I'd say. I  
20 mean, myotis species are small bats. And, they were  
21 found at Lempster in other post-construction studies.

22 Q. But you would agree that you have to do the searcher  
23 efficiency studies, because you can't find every bat,  
24 though?

1 A. Well, every -- that's what was done at Lempster, and,  
2 yes.

3 Q. And, so, it's possible one was killed and you didn't  
4 find it? Not you, but the searchers?

5 A. It's possible.

6 Q. Now, in terms of just impacts to bats as a whole, all  
7 of the bats that you assessed, your conclusion was that  
8 there's not going to be a unreasonable adverse impact  
9 on their population, right?

10 A. Yes. Yes, I believe that.

11 Q. But you made that conclusion without having any  
12 knowledge of what the population is, right?

13 A. Well, you have -- yes. I mean, you make -- you are  
14 forced to make some predictions without having all the  
15 specifics, yes.

16 Q. And, in fact, you didn't take into account the effect  
17 of white-nose syndrome, which has decimated some of the  
18 populations, right?

19 A. Well, that's -- yes. We're talking magnitude different  
20 in terms of mortality, too.

21 Q. You mean that the white-nose syndrome has killed a lot  
22 more bats than the turbines will?

23 A. Than any wind project has.

24 Q. Right. In fact, for some hibernacula, it's been

1           totally wiped out?   Some of the bat hibernacula?

2   A.   Yes.

3   Q.   What's a "hibernacula"?

4   A.   It's a place where bats spend the winter.

5   Q.   Large quantities of bats?

6   A.   Yes.

7   Q.   Now, --

8   A.   Could be your attic or a cave.

9   Q.   Right.  Now, in your pre-construction survey, you made  
10       a prediction that you expect between I think it's three  
11       to seven bat kills per turbine per year?

12  A.   Where is that?

13  Q.   Actually, that might be in the Lempster study.  That's  
14       in the Lempster post-construction study.  That was  
15       their conclusion.  Do you remember reading that?  That  
16       they extrapolated --

17  A.   I don't.  I'm not very good with numbers.

18  Q.   That's Page 35.

19                           MR. ROTH:  What's the exhibit?  What's  
20       the exhibit number?

21  BY MR. MULHOLLAND:

22  Q.   That's Supplemental Volume 1-A.

23  A.   What page did you say?

24  Q.   Page 35.

1 CHAIRMAN GETZ: Off the record here.

2 (Brief off-the-record discussion  
3 ensued.)

4 CHAIRMAN GETZ: All right. Back on the  
5 record.

6 BY MR. MULHOLLAND:

7 Q. You see where it says, in the third paragraph, the  
8 estimates of birds and bats killed; for bats it was  
9 "6.21 bats per turbine"?

10 A. Yes.

11 Q. And, you know they only found, I think, ten bats  
12 killed, total actual carcasses?

13 A. Yes.

14 Q. So, the "6.21" is an extrapolation based on searcher  
15 efficiency and predator -- predation?

16 A. Scavenger removal, yes. Scavenger removal trials.

17 Q. If they found no carcasses, would they have had to  
18 extrapolate some number above that?

19 A. Depending on the searcher efficiency trials and  
20 scavenger removal rates.

21 Q. Well, assuming the ones they used in the Lempster  
22 survey?

23 A. It varies. It varies by site, it varies by year.

24 Q. Okay.

1 A. I mean, you understand what they are, right?

2 Q. Yes. Now, it's possible that some turbines in some  
3 seasons there could be more bats killed than six and  
4 less bats killed than six, per turbine per year, right?

5 A. Yes.

6 Q. And, you already agreed that the pre-construction  
7 survey can't predict quantitative risk of bat kill,  
8 right?

9 A. Yes.

10 Q. So, wouldn't it make sense to do more than just one  
11 year of study? Maybe two?

12 A. Well, because I think that's where we're -- I feel like  
13 we're missing the point here. I mean, the project's  
14 going to operate for more than two years. And, even if  
15 you survey two years, you still are not documenting the  
16 other 18, let's say the life of the project's 20. What  
17 Iberdrola has committed to, which is above and beyond  
18 other projects, which allows some level of assurance,  
19 is that, yes, formal post-construction studies, one  
20 year, but monitoring, daily monitoring, with on-site  
21 personnel, use, you know, with photographs and GPS of  
22 any mortality throughout the project. So, we're  
23 getting hung up on one to two years here. But  
24 mortality will or can occur outside of those two years.

1 Q. Well, I would agree. And, I think that's why I would  
2 argue you need more than one. And, the question I  
3 would ask you is that, those studies you're talking --  
4 not "studies", but the carcass removal, that doesn't  
5 take into effect -- account searcher efficiency or  
6 scavenger rates. It's a different --

7 A. What doesn't?

8 Q. What they're going to do for the next 18 years or 19  
9 years. They're not studies.

10 A. Well, it's monitoring, though. It's recording  
11 fatalities when they're observed. I mean, even with  
12 the estimates, you still, even with the estimates -- I  
13 guess what I'm getting at is that monitoring for that  
14 period of time, regardless of the formality of how, you  
15 know, whether you're doing searcher efficiencies or  
16 scavenger removals, if there are significant events,  
17 significant mortality events that we all, I think,  
18 would agree are adverse, that would be documented.

19 MR. MULHOLLAND: Okay. Thank you.

20 CHAIRMAN GETZ: Does that complete your  
21 questions, Mr. Mulholland?

22 MR. MULHOLLAND: That does.

23 CHAIRMAN GETZ: At this point, let's  
24 talk about schedule. I think yesterday we indicated that

1 we would accommodate Mr. Tocci's schedule, because he's  
2 only available this afternoon. Is that correct, Mr. Roth?

3 MR. ROTH: That's correct.

4 CHAIRMAN GETZ: So, I would suggest that  
5 we interrupt Mr. Gravel's examination, put off the  
6 Subcommittee's questions. That we take a 15 minute  
7 recess, and then have the direct and the cross-examination  
8 of Mr. Tocci. I mean, I would hope to be -- that we could  
9 complete the day by 5:00. But I think it's important to  
10 get the examination of him completed, so we're prepared to  
11 go somewhat later than 5:00 at this point. Is there any  
12 discussion? Any questions then, before we recess?

13 (No verbal response)

14 CHAIRMAN GETZ: Okay. Let's take about  
15 15 minutes.

16 (Whereupon a recess was taken at 2:52  
17 p.m. and the hearing resumed at 3:09  
18 p.m.)

19 CHAIRMAN GETZ: Okay. We're back on the  
20 record. And, turning to the direct examination of Mr.  
21 Tocci?

22 MR. TOCCI: Tocci. Yes.

23 CHAIRMAN GETZ: "Tocci". Mr. Roth.

24 MR. ROTH: All right. Would you swear

1 him in.

2 (Whereupon Gregory C. Tocci was duly  
3 sworn and cautioned by the Court  
4 Reporter.)

5 GREGORY C. TOCCI, SWORN

6 DIRECT EXAMINATION

7 BY MR. ROTH:

8 Q. Mr. Tocci, I'm showing you copies of what have been  
9 marked as Exhibit Public Counsel Number 1 and Public  
10 Counsel Number 2, being your original prefiled  
11 testimony and your supplemental prefiled testimony. Do  
12 you recognize those documents?

13 A. Yes, I do.

14 Q. Okay. And, are those your testimonies in this case?

15 A. Yes, I do.

16 Q. And, did you prepare those at my request for filing  
17 here?

18 A. Yes, I did.

19 Q. Okay. And, is there anything about your testimonies,  
20 in particular your supplemental testimony, that bears  
21 additional correction?

22 A. Yes.

23 Q. Can you provide the intervenors and parties and the  
24 Committee that correction please?

1 A. Yes. On Page 11, Table 1, there is a table with six  
2 columns.

3 Q. This is Public Counsel Exhibit 2?

4 A. That's correct.

5 Q. Okay.

6 A. On Column 2, last row, for "Baker River Campground", I  
7 had estimated the wind farm sound levels to be "36 to  
8 38 dBA". The correct numbers should be "32 to 33 dBA",  
9 on the basis of the original Epsilon report. That  
10 makes the entries in Column 4 of that row, instead of  
11 being "36-38", should be "33-34", which would, I  
12 believe, make the entries in that row for Column 5 "8  
13 to 9 dBA".

14 Q. Okay. And, based on those changes, are there any other  
15 changes to your testimony?

16 A. Yes. That changes the impact, as indicated on Page 14,  
17 in Table 2, the second column labeled "noise impact",  
18 from "significant impact" to "minor impact".

19 Q. "Minor impact"?

20 A. Yes. "Minor impact".

21 Q. Any other changes or corrections?

22 A. Not at this time, no.

23 Q. Okay. And, if you were to be asked the same questions  
24 that you were asked in this testimony today, would you

1 give the same answers, other than the corrections that  
2 you just made?

3 A. Yes. Yes, I would.

4 MR. ROTH: Okay. Thank you. The  
5 witness is available for testimony -- for  
6 cross-examination.

7 CHAIRMAN GETZ: Okay. Dr. Mazur.

8 DR. MAZUR: Hi, Mr. Tocci.

9 WITNESS TOCCI: Yes, Dr. Mazur.

10 CROSS-EXAMINATION

11 BY DR. MAZUR:

12 Q. Hello, Mr. Tocci. Regarding your assessment of this  
13 project proposal, is there anything that the Committee  
14 needs to hear from you about risk of adverse health  
15 issues on human beings?

16 A. Could you ask me a specific question? I have dealt  
17 mostly in this report dealing with what I understand to  
18 be annoyance. I'd prefer to hear a more specific  
19 question, if you could.

20 Q. Regarding your assessment, is there anything that this  
21 Committee needs to hear from you regarding annoyance of  
22 human beings potentially exposed to this turbine site?

23 A. Okay. In ascribing impacts as being "none", "minor" or  
24 "significant", that was basically an interpretation

1 saying that, at times, for "no impact", sound levels  
2 produced by the facility would be hardly ever  
3 auditable, they might be audible at times, but not  
4 frequently. For "minor impact", there would be  
5 occasions when sound levels produced by the facility  
6 would be a major contributor to sound in the  
7 environment. And, "significant" is that that major  
8 contribution would occur perhaps more frequently.

9 Q. Would you go as far as to agree that it is possible  
10 that some inhabitants of the Baker River Valley or  
11 Route 25 area, including Plymouth and Rumney, might  
12 have adverse effects compromising their health?

13 A. I do not see any basis for any health effects on the  
14 basis of the technical literature that I'm aware of.

15 Q. Are you familiar with the concept of "Wind Turbine  
16 Syndrome"?

17 A. Yes, I am. I heard the term used and, you know, read a  
18 bit about it, yes.

19 Q. Could you share with us what your take is on that  
20 hypothetical syndrome?

21 A. Yes. From what I've read, investigators have reported  
22 effects that appear to be associated with sound,  
23 infrasound produced by wind turbine facilities.  
24 However, none of the literature ties specific sound

1 levels measured at those receptor locations, in order  
2 to be able to create a relationship between incidences  
3 of Wind Turbine Syndrome with sound levels at those  
4 receptor locations. So, as a result, you know, I, as a  
5 professional, can't dismiss those claims, but it's not  
6 possible to use them in a practical sense for  
7 evaluating sound produced by wind turbine facilities at  
8 this time.

9 Q. Would you say that more research would be valuable in  
10 further assessing this speculative clinical syndrome  
11 hypothesis?

12 A. I would say so. If it's a real hypothesis, and  
13 somebody wants to pursue and feels that it's necessary  
14 to pursue, yes, more research is required.

15 Q. Are you familiar with the syndrome referred to as  
16 "vibroacoustic disease"?

17 A. Yes. I've heard it discussed, yes.

18 Q. Will you agree that it is plausible that sound waves  
19 propagated by turbines could affect the connective  
20 tissue of such body organs in humans as hearts and  
21 lungs, as is purported by the authors of this syndrome?

22 A. At levels that I understand are greater than those  
23 produced by wind turbines, yes, I understand that to be  
24 the case.

1 Q. Bear with me. Bear with me. If a turbine is located  
2 on a flat plain, and, in turning, propagates air  
3 disturbance, which we refer to as a "sound wavelength",  
4 regardless of whether the sound is perceptible,  
5 imperceptible, infra or ultra, on a flat plain, what  
6 distance of time would it take until the energy of the  
7 sound wave is dissipated and would no longer have a  
8 propagating effect, on a flat plain?

9 A. If I might help you there, you're mixing a bit,  
10 propagation losses associated with distance, with the  
11 time it takes the sound to propagate. I think we are  
12 really referring to is "what is the dissipation effect  
13 with distance?"

14 Q. That what's I meant to ask.

15 A. Yes.

16 Q. I apologize if I was confusing. And, what would be the  
17 dissipation distance on a flat plain emanating from a  
18 turbine?

19 A. Okay. Beginning at a location far from a wind turbine,  
20 for example, two or three diameters away from the wind  
21 turbine, sound would reduce by about 6 dB per distance  
22 doubling, plus an additional reduction, which is very  
23 frequency dependent, on ground effect and air  
24 absorption.

1 Q. So, in a theoretical flat plain, what is the  
2 theoretical distance until it's fully dissipated?

3 A. It never fully dissipates. It will always exist to  
4 some extent. But it will certainly drop down below  
5 ambient sound levels, in which case it would be masked.

6 Q. In what distance?

7 A. It depends upon the masking level. It could be many  
8 thousands of feet, as it would be in a quiet area, or  
9 it could be, you know, much less, a much lesser  
10 distance in a noisier area.

11 Q. So, I appreciate that the answer is truly dependent  
12 upon a number of complex variables that have to be  
13 considered?

14 A. That is correct.

15 Q. Thank you, sir. So, my follow-up question is, if the  
16 turbine is elevated on a mountain ridge, such as the  
17 present project proposal, and the sound waves propagate  
18 out of the turbine, over an underlying river valley  
19 where humans are inhabited, surrounded by other  
20 mountains where echo effects might come into play,  
21 could you hazard a guess about the propagation  
22 distance of those wavelengths? Or, is that also quite  
23 a complicated answer?

24 A. Well, that's also complicated. It depends upon sound

1 levels in the -- in the ambient sound levels at that  
2 particular location. And, I address that in my  
3 supplemental testimony.

4 Q. Would you be kind enough to clarify, as long as you  
5 reference your supplemental testimony?

6 A. Sure. In the supplemental testimony, on Page 11, for  
7 example, Baker River Campground, with the corrected  
8 numbers of estimated turbine sound levels of "32 to  
9 33", that would cause sound levels, during quiet times,  
10 to exceed the baseline sound level as I've defined it  
11 by "8 to 9 dBA". At that time, the sound levels would  
12 be clearly audible produced by wind turbines.

13 Q. Do you have one or two other examples of sound levels  
14 that you've monitored in the Baker River Valley, in  
15 addition to the campground?

16 A. We monitored sound levels at Halls Brook Road and  
17 Groton Hollow Road at approximately the same -- and  
18 Tenney Mountain at approximately the same locations as  
19 did Epsilon Associates.

20 Q. Did you have similar results?

21 A. Yes. Well, in fact, our sound levels at Halls Brook I  
22 believe were slightly higher than -- I believe they  
23 were approximately the same, but, in some cases, they  
24 were slightly higher than what was monitored by

1 Epsilon.

2 Q. So, may I conclude that the estimate of wavelength  
3 propagation is a complicated issue to calculate out,  
4 given a complicated mountainous valley terrain, as is  
5 applicable to this project proposal?

6 A. To the extent those effects can be accounted for, I  
7 assume Epsilon has done so in their computer modeling,  
8 yes.

9 Q. Have you had an opportunity to study Epsilon's computer  
10 model?

11 A. No, I have not.

12 Q. Would that be helpful for you in answering my question?

13 A. Possibly. What we would be doing is checking settings  
14 and input files.

15 DR. MAZUR: Is it possible to ask for an  
16 opportunity for Mr. Tocci to have opportunity to study  
17 those computer models and voice an opinion on them?

18 CHAIRMAN GETZ: Well, certainly, there  
19 was an opportunity for discovery during this case. I  
20 think, at this point, are you asking him to ask for  
21 discovery?

22 DR. MAZUR: I'm asking Mr. Tocci to  
23 comment as an expert witness on another expert witness's  
24 computer model that he's referenced in his testimony.

1 MR. ROTH: Mr. Chairman, I think Mr.  
2 Tocci has already testified that he has not examined the  
3 computer modeling, and we did not ask him to do that. I  
4 think it would be inappropriate to ask him to do that at  
5 this point in the middle of the hearing.

6 CHAIRMAN GETZ: Mr. Mazur, do you have  
7 any other questions?

8 DR. MAZUR: Okay.

9 BY DR. MAZUR:

10 Q. Mr. Tocci, about 20 minutes ago I asked you if you  
11 would be kind enough to review what's described as  
12 "Mazur 3".

13 DR. MAZUR: Do we have an extra copy?  
14 Is this the only copy? Do you have Mazur 3?

15 MR. ROTH: I gave him a copy.

16 WITNESS TOCCI: I have a copy.

17 DR. MAZUR: Okay.

18 WITNESS TOCCI: Thank you.

19 BY DR. MAZUR:

20 Q. Mazur 3 is brought to our attention by fellow  
21 intervenor Richard Wetterer. And, it's a carbon copy  
22 of Vermont Bill H.677, introduced this legislative year  
23 for consideration. My understanding, it has not been  
24 voted upon. Of concern is the recommendations

1           regarding setbacks, which I informally inquired of Mr.  
2           Tocci, and I would like to formally now ask him,  
3           regarding, on Page -- well, it's the second page of the  
4           exhibit, but it's listed as "Page 5", regarding  
5           "Setback Recommendation Number 2".

6           A.    Yes.

7           Q.    "Two miles from an occupied building, if the elevation  
8           change between the wind turbine and the occupied  
9           building exceeds 500 feet."  And, I believe you were  
10          kind enough to say that the elevation on Fletcher  
11          Mountain is higher than 500 feet.  So, I would ask you,  
12          if you would be kind enough to, do you agree or  
13          disagree with this recommendation for a setback now  
14          pending in the Vermont State Legislature, between  
15          turbines and inhabited buildings by humans?

16          A.    The previous conversation we had was the -- I had  
17          assumed that the difference in elevation between hub  
18          height and the Baker River Campground was greater than  
19          500 feet.  That was my understanding.  And, I think  
20          that's true, but I'm not certain.

21          Q.    Well, if it's less than 500 feet, would you also  
22          comment on the first setback recommendation, when the  
23          altitude distance is less than 500, and they  
24          recommended one and a quarter miles setbacks?

1 A. 7,000 feet, that's quite far from the facility, and  
2 sound levels would be much less audible than we're  
3 predicting them to be right now. As I mentioned, the  
4 problem with ascribing a setback is it does not  
5 necessarily represent a uniform sound level, nor does  
6 it represent a uniform impact either. The impact  
7 depends upon the existing background sound levels. So,  
8 although, in principle, setbacks are easier to ascribe  
9 for regulation purposes, they don't necessarily --  
10 don't necessarily represent a specific sound level  
11 limit, nor do they represent a specific noise impact.

12 Q. So, is it fair for me to surmise that, although the  
13 author of this bill, whomever it might or might --  
14 whomever it might be, is making these sort of setback  
15 recommendations, were you as an expert called to vote  
16 upon these recommendations, your position would be that  
17 you find them overly generous?

18 A. I would find them perhaps overly protective, perhaps.

19 Q. Would you hazard a guess why the author of the bill  
20 might choose to want to be overly protective?

21 A. I assume that that's their motive.

22 Q. Overly protective of human beings?

23 A. Yes.

24 Q. Is there anything wrong with that, sir?

1 A. Possibly.

2 Q. Interesting answer. Could you be kind enough to share  
3 with us why you think there might be something wrong  
4 with being overly protective, in regard to the issue at  
5 hand?

6 A. Well, this gets outside my expertise. My expertise is  
7 in terms of annoyance. But, I think that there is a  
8 pretty good history, and, certainly, experience that we  
9 have on how people might react to sound. And, it seems  
10 that -- that equitable guidelines don't necessarily  
11 mean that there won't be people that won't complain.  
12 And, I'm sure that will be the case here, too.

13 Q. Okay. Are you suggesting that some folks who complain  
14 of irritation or discomfort from wind turbines might  
15 have secondary motives, other than pure physiological  
16 symptoms?

17 A. That's speculation. I can't really say.

18 Q. So, then, I'm not sure I understand your prior  
19 statement, regarding rationale for not wanting to be  
20 overly protective. Could you please explain to me  
21 again, why might not this Committee want to be -- bend  
22 backwards and be overly protective for human beings  
23 possibly exposed to the hypothesis of health hazard  
24 risks from turbines? Why would they not want to be

1           overly protective?

2                           MR. ROTH: Mr. Chairman, I guess I'm  
3 sort of wondering where this is going, and I'm going to  
4 voice an objection here. Because the witness is not an  
5 expert on health hazard risks, he's not an expert on the  
6 public policy of setbacks. So, I guess I'm looking for a  
7 little bit of reining in here from the Committee.

8                           CHAIRMAN GETZ: Well, let me put it this  
9 way. I think, on the one hand, the witness has opened the  
10 door by talking about the standard as being "over  
11 protective". So, I guess there is only so far that he can  
12 explain himself, Dr. Mazur. And, certainly, I don't think  
13 he can be asked to explain what was in the mind of the  
14 individuals who drafted this, this proposed legislation in  
15 Vermont.

16                           But, I think return to that last  
17 question, I'll give you an opportunity to close up this  
18 line of questioning.

19 BY DR. MAZUR:

20 Q. Mr. Tocci, let me try to rephrase my question please.  
21 It sounds like you're suggesting that the author of  
22 this Vermont bill proposal went a bit farther in your  
23 perspective in setting -- in proposing a setback to  
24 absolutely protect human beings from the ill effects of

1 wind turbines?

2 A. Yes. The problem is is I don't know the basis on which  
3 those setback limits were made. They may be  
4 appropriate, but I don't know the technical reason  
5 behind it.

6 Q. Okay. Do you believe that any type of setbacks  
7 recommendations are appropriate for the Groton Wind  
8 Project?

9 A. I would resist setback requirements, because they don't  
10 represent a uniform sound level, and they don't  
11 represent a uniform noise impact either. They are  
12 certainly easier to implement, but they don't represent  
13 uniformity with respect to either impact or sound  
14 levels.

15 DR. MAZUR: Is it -- with your  
16 permission, may Intervenor Sarah Mazur ask a question?

17 CHAIRMAN GETZ: Please.

18 BY MS. MAZUR:

19 Q. I'm not sure where I read this, although it might be in  
20 your supplemental testimony, but I could be wrong. The  
21 notion that "there is no monitoring devices or  
22 recording equipment for infrasound or low frequency  
23 noise at this time"?

24 A. There's one device that I know of, it's a Norsonic 140

1 sound level meter. That its specification is that it  
2 can measure sound levels as low as I think it's 0.3  
3 Hertz, which would be able to measure sound at blade  
4 passage, which is what I had indicated as being  
5 information that would be helpful to have in order to  
6 investigate or to evaluate potential infrasound  
7 effects.

8 DR. MAZUR: That's it for us.

9 CHAIRMAN GETZ: Thank you. Ms. Lewis.

10 MS. LEWIS: Good afternoon.

11 BY MS. LEWIS:

12 Q. Mr. Tocci, have you ever heard of the term "community  
13 noise rating"?

14 A. Yes, I have.

15 Q. Could you explain that to help me better understand it?

16 A. Yes. In the late '60s/early '70s, there was an author  
17 named Ted Schultz, who created a relationship between  
18 community response and sound levels in the community,  
19 expressed as, I believe, day-night average sound levels  
20 or equivalent sound levels. Now, that relationship  
21 formed a characteristic that could be slid up and down  
22 the sound level range, depending upon the conditions of  
23 a new project. It's used for rating new projects.

24 And, the conditions include whether the area is a quiet

1 area, whether the new facility being evaluated operates  
2 in the winter only or in the summer only, whether the  
3 new facility produces tonal or impulsive sound, and  
4 whether or not the community has any -- is previously  
5 familiar with the type of sound that that new facility  
6 would produce. So, that's -- it gives it a mechanism  
7 to be able to accommodate all of these characteristics  
8 into a rating that would translate into what the  
9 expected community response would be, either in terms  
10 of frequent complaints or sporadic complaints.

11 Q. Is there special equipment to determine that or is it  
12 -- is it basically a mathematical chore that's done to  
13 create that?

14 A. It's a process that is done on paper, with perhaps  
15 measurements as a background, to know whether or not  
16 the facility -- the neighborhood is a quiet area or a  
17 noisier area.

18 Q. In your opinion, is that something you think would be  
19 appropriate to attempt to do in the neighborhood or  
20 within the community of where the Project is being  
21 proposed?

22 A. I think it would be, yes.

23 Q. Could you elaborate a little more on that?

24 A. It would be a matter of implementing the CNR method.

1 And, the CNR method is described in a number of places,  
2 among them the Edison Electric Institute program  
3 manuals, and I believe it's also reported in other  
4 places, too.

5 Q. And, can you explain why you think that would be  
6 appropriate in that particular community, versus other  
7 communities where wind farms have been built?

8 A. Why would it be appropriate?

9 Q. Why would it be more appropriate? In other words, why  
10 is this not done in every situation?

11 A. That I can't answer. Is it appropriate? I think it  
12 would be a good consideration, yes.

13 Q. Were you here all day yesterday when Mr. O'Neal was  
14 testifying?

15 A. Yes, I was.

16 Q. Okay. And, do you remember some testimony regarding  
17 Vinalhaven, in Maine?

18 A. Yes, I do.

19 Q. Are you familiar with the issues that have gone on  
20 there?

21 A. I've only heard that residents have explained about  
22 noise from a recently -- a wind farm that has just  
23 recently begun operations.

24 Q. Were you familiar with the fact that the residents had

1           been in full support, because this was an area that the  
2           wind farm would reduce their electric bills and have a  
3           major financial benefit on the residents there?

4       A.    On the basis of comments made yesterday, yes. That's  
5           my understanding.

6       Q.    Okay. If you would, I'd like you to look at  
7           Exhibit 30, Buttolph 30, which is way at the back of  
8           the big pile that --

9                           MR. ROTH: He doesn't have that. Can  
10           you give it to him?

11                          MS. LEWIS: I thought there was a pile  
12           over there.

13   (Off the record.)

14                          CHAIRMAN GETZ: Okay. Back on the  
15           record.

16       BY MS. LEWIS:

17       Q.    If you could take just a moment to read, glance through  
18           that.

19                          CHAIRMAN GETZ: And, for the record,  
20           indicate that this is Buttolph Exhibit 31. And, it's --  
21           the line at the top says "Subject: Forward: July 17-18,  
22           2010 Complaint Review."

23                          DIR. SCOTT: Mr. Chair, just to be  
24           clear, at least that we have submitted --

1 (Court reporter interruption.)

2 CHAIRMAN GETZ: Let me clarify for the  
3 record that there is a document that has been circulated  
4 that says "Buttolph 30" on it. It's a mistake. It should  
5 be "31". And, that's the 3-page document that has within  
6 it a e-mail from a Mr. Warren Brown to a Blais, Becky.

7 (Short pause - Witness reading  
8 document.)

9 MS. LEWIS: All set?

10 WITNESS TOCCI: I've done the best I can  
11 to try to understand it, but go ahead.

12 BY MS. LEWIS:

13 Q. Okay. Well, my question is going to be pretty basic on  
14 it. Would you agree that this is basically a review of  
15 a complaint from a neighboring resident, and a Mr.  
16 Warren Brown wrote up this review of the complaint?

17 A. Yes.

18 Q. And, he is the Radiation Safety Officer, and he was  
19 submitting it to a Ms. Becky Blais, who works for the  
20 Maine Department of Environmental Protection. Do you  
21 agree?

22 A. Yes.

23 Q. Okay. On Page 2, the third and four paragraphs there?

24 A. Yes.

1 Q. It explains that the limit for the wind farm was  
2 "45 decibels"?

3 A. It exceeded 45 decibels.

4 Q. And, that the sound testing actually did exceed those  
5 levels?

6 A. Yes.

7 Q. And, could you tell me what the levels were that they  
8 found?

9 A. There's a comment here in the third paragraph that says  
10 "I have attached measured sound levels at the Webster  
11 property", which are not attached to this exhibit, "and  
12 EnRad estimated sound levels at the property line of  
13 the Farnham ML-A, which indicates that FIW exceeded the  
14 nighttime noise limit of 45 dBA for 7 to 10 minute  
15 intervals during the complaint period."

16 And, then, the following paragraph  
17 mentions "The July 17 and 18 complaint conditions were  
18 very similar with regards to surface wind speeds and  
19 WTG output or 80 meter wind speeds as FIW complaints  
20 previously submitted for May 1, 4, 5, and 6 all of  
21 which reported sound levels between 46 and 48 dBA."

22 Q. Are you surprised by these fairly low levels in  
23 consideration of the fact that the limit was at 45, and  
24 these were just above it?

1 A. I'm not familiar with it. I don't know what the  
2 predicted sound levels were at this location, the  
3 original, the original report for the farm before it  
4 was constructed.

5 Q. I guess I'm more looking for the fact, are you  
6 surprised that people that are being financially  
7 benefited and had supported the wind turbines to be  
8 there, would be voicing complaints, when it's only one  
9 decibel over the limit?

10 A. Well, I would be surprised if they were participants in  
11 the project that they should be complaining. But I  
12 would also expect that, when numbers are told to them  
13 about what sound levels would be ahead of time, that  
14 they may not really comprehend how they would respond  
15 after the farm was built. Second, these numbers exceed  
16 the recommended limits that I had in my report, based  
17 on the European -- the WHO European guideline.

18 Q. Okay. I guess just to clarify a little bit, the people  
19 there that were involved, they were not participating  
20 landowners. It was a situation where the wind company  
21 was a community electric company that was sponsoring  
22 these wind farms, so that all the residents would  
23 benefit by reduced electric bills. And, that's how  
24 they were being benefited by it. Not the fact that

1           they were being paid directly by the Company.

2   A.   Uh-huh.  Very good.

3   Q.   Now, at the bottom of this, it suggests that  
4        "Substantial changes are recommended for [the]  
5        nighttime operations, [to limit the] sound levels to  
6        45 decibels."  What type of substantial changes could  
7        take place or, rather, why would substantial changes  
8        need to take place in order to just reduce that by one  
9        to two decibels?

10  A.   Well, there are two questions there.  First, what steps  
11       might be taken?  I understand that feathering the  
12       blades reduce their power output, would also reduce the  
13       sound they generate.  That may or may not be one  
14       solution to reducing sound levels.

15                               With respect -- and your second question  
16       was, again please?

17  Q.   Why would there be a need to come up with a substantial  
18       change to their operations in order to just bring that  
19       level down one or two decibels?

20  A.   Well, I understand that the limit is 45 dBA at  
21       residences.  And, if that's the case, and sound levels  
22       exceed 45 dBA, then controls would be appropriate.

23  Q.   I guess, just from a lay person, I'm trying to  
24       understand a little better.  I would think that one

1           decibel would be not a significant difference beyond  
2           what the limit is. So, I would just think that it  
3           would be a minor change that would take it to get back  
4           to what that limit is. Am I mistaken in the way I'm  
5           thinking?

6    A.    It would be a very small change, and probably  
7           negligibly detectable.

8    Q.    My next question would be, yesterday Mr. O'Neal  
9           testified that the sound level of 45 decibels was  
10          basically the sound in this room with nobody speaking.  
11          Do you agree with that?

12   A.    Yes, I would agree. Yes.

13   Q.    Okay. Given that, why do you think people would be  
14          upset? I think all of us can understand that, if  
15          nobody's talking, it's basically dead-silent here. How  
16          could people be upset by one decibel higher than this  
17          quiet room, unless there's either a different tone or  
18          something different that's coming from the sound levels  
19          of the turbine at 45 decibels?

20   A.    I think the case is this. Is that, if they find 46 or  
21          47 or 48 dBA unacceptable, they would also find 45 dBA  
22          unacceptable.

23   Q.    Okay. Do you believe that the turbines themselves  
24          would have anything more specific to them that people

1 may find unpleasant? In other words, could somebody  
2 hear 45 decibels of motor vehicle traffic and not be  
3 bothered by it, but yet hear a wind turbine at 45  
4 decibels, can there be something within that sound,  
5 whether it's a particular tone or something within it  
6 that creates more, you know, uncomfortable feelings or  
7 whatever, rather than just hearing vehicle traffic,  
8 which they may be able to block out easily?

9 A. The question is, given an equal level, would a person  
10 potentially be more annoyed by wind turbine sound than  
11 traffic sound? I would agree that that very well could  
12 be the case.

13 Q. Okay. So, given that, when we're talking  
14 "45 decibels", and we're saying that a silent room is  
15 equal to that, you really can't compare it to a  
16 45-decibel level of a wind turbine?

17 A. I think that we have to be careful about making  
18 out-of-context comparisons, and this is one in  
19 particular. This background sound is entirely  
20 satisfactory for the function of this room. But it  
21 doesn't represent a woodland scene by any means. And,  
22 so, what might be found acceptable here, probably would  
23 not be acceptable in an area that would be in a  
24 woodland area.

1 Q. Okay. On Page 13 of your supplemental testimony, if  
2 you could turn to that. Could you just explain a  
3 little bit more about the "modulated broadband sound"?

4 A. Yes.

5 Q. As well as the "infrasound"?

6 A. Yes. It is one of the characteristics that has been  
7 described as "potentially problematic" or has been a  
8 source of complaints for other wind farms under certain  
9 circumstances, not all circumstances. Basically, as I  
10 understand it, "modulated broadband sound" is a  
11 broadband "swishing" sound, so to speak, generated by  
12 the turbine blade passing through the air, that is  
13 bounded by an envelope that allows it to rise and fall  
14 with sound. It's a -- think of it as a random noise  
15 that undergoes fluctuation with time, a very uniform  
16 cyclic fluctuation.

17 Q. And "infrasound"?

18 A. "Infrasound" is not modulated broadband sound, it's  
19 quite different. "Infrasound" is low frequency sound  
20 produced by the blade under a couple of different  
21 mechanisms.

22 Q. Okay.

23 A. "Infrasound", by the way, is defined as "sound below 20  
24 Hertz", below the nominal range of human hearing.

1 Q. Will you agree that there is some disagreement as far  
2 as what is the level of hearing of infrasound, or  
3 shouldn't say the "level of hearing", but the fact  
4 that, even though somebody does not hear something at  
5 20 Hertz, it may still affect them physiologically?

6 A. At high enough levels, yes, that's correct.

7 Q. Okay. So, if I understand you correctly, as far as the  
8 modulated broadband and the infrasound, they can be  
9 minimized by limiting the change in the sound level --  
10 as far as both the modulated broadband and the  
11 infrasound, that those two aspects of the sound could  
12 be minimized specifically by limiting the change in the  
13 sound level, so that it's less than five, as far as the  
14 wind turbines? In other words, by keeping -- making  
15 sure that level is at 40 decibels, rather than 45, your  
16 -- you would, in effect, keep an increase of anybody's  
17 background noise that's at 35, it would keep it within  
18 that five decibel range and reduce the amount of  
19 modulated broadband and infrasound. Is that correct?

20 Am I --

21 A. Yes. Well, if I could help you --

22 Q. Okay.

23 A. -- a little bit. First of all, what we need to do is  
24 separate the discussions of "modulated broadband sound"

1 from "infrasound". They're really quite different.  
2 And, we'll cover both of those. With respect to  
3 "modulated broadband sound", it's sound within the  
4 normal hearing frequency range. Yes, the modulation  
5 effect would -- becomes less and less perceptible as  
6 the sound level becomes closer and closer to the  
7 background sound. And, I would -- it would be my  
8 judgment that wind turbine sound, though, modulation  
9 may be present at the time, if that broadband sound  
10 were within five dB of the background sound, defined as  
11 the 90th percentile, that the modulation probably would  
12 not be particularly detectable, at least for long  
13 periods of time. And, so, that is the benefit of  
14 holding sound levels to within five dB of the  
15 background. That, you know, it certainly helps prevent  
16 the perceptibility of modulated sound, however --  
17 modulated broadband sound. However, modulated  
18 broadband sound is not observed to occur all the time  
19 in wind farms. And, the understanding about when and  
20 when it doesn't occur is not fully developed.

21 Now, with respect to "infrasound", I  
22 think, by holding A-weight sound levels to within  
23 five decibels, I think that goes a long ways towards  
24 ensuring that infrasound is also going to be

1 acceptable. However, the tie between infrasound and  
2 A-weighted sound levels, and holding A-weighted sound  
3 levels down to within five dB of background, as a way  
4 of avoiding noise complaints, is not -- it does not  
5 guarantee any kind of, you know, response to low  
6 frequency sound. It's not -- I'm tangling myself up  
7 here, but the guideline that we use of a margin of five  
8 dB above background sound is helpful in controlling  
9 infrasound as well, but the tie together is not quite  
10 so strong as it is with the modulated sound.

11 Q. Okay. Now, given what you just stated, the five  
12 decibel change, if we were to apply that directly to my  
13 campground, that had an ambient sound of 24.8, that  
14 would bring it to basically a 30-decibel limit for my  
15 campground not to be impacted?

16 A. That's correct.

17 Q. Or, minimally impacted, I guess?

18 A. Yes. That's correct.

19 MS. LEWIS: Okay. All right. Thank  
20 you. No further questions.

21 CHAIRMAN GETZ: Thank you. Mr. Patch.

22 MR. PATCH: Thank you. Good afternoon,  
23 Mr. Tocci.

24 WITNESS TOCCI: Good afternoon.

1 BY MR. PATCH:

2 Q. I wanted to start with your supplemental prefiled  
3 testimony, and the portion that relates to the Baker  
4 River Campground ambient sound level measurement data.  
5 I think that's the same table that you've already  
6 corrected, is that correct, on Page 11?

7 A. Yes. That's correct.

8 Q. And, you state there that the baseline sound level is  
9 "24.8 dBA". And, that's based on the 90th percentile  
10 of the L90 sound levels, if I understand correctly?

11 A. That's correct.

12 Q. So, just to try to explain that a little bit better, as  
13 I understand it, this means that, of the -- I think  
14 there were 2,016 measurements over two weeks. And, the  
15 way I got that number was 14 days, times 24 hours in a  
16 day, times 6 measurements in an hour. So, would you  
17 accept that number subject to check, that that would be  
18 a correct number of the number of measurements that  
19 were done over that period of time?

20 A. That's right. We did 10 minute intervals, I think. If  
21 we did 10 minute intervals, that's correct, yes.

22 Q. And, if I understand correctly, there were then, out of  
23 those 2,016 measurements, there were 1,814 that were  
24 louder than 24.8 dBA. Would that be correct?

1 A. Yes, that would be correct.

2 Q. In examining the time periods when sound levels were  
3 quieter than 24.8 dBA, if I'm reading your charts  
4 correctly, and I think these were charts that were  
5 actually a little bit earlier in your prefiled  
6 testimony, it appears that most of those times when  
7 sound levels were quieter than 24.8 dBA were during  
8 periods when winds were calm as measured at the  
9 Plymouth Airport, is that correct?

10 A. That is correct.

11 Q. And, during such periods, we went through some of this  
12 yesterday, but, during a period when the winds are calm  
13 at least at the Plymouth Airport, do you know whether  
14 the wind turbines would be operational?

15 A. I don't know that.

16 Q. Now, as I understand it, this is the data that you used  
17 to set background levels and to compare project  
18 impacts, this data again that we're talking about, the  
19 data in Table 1, is that correct?

20 A. Yes, that's correct.

21 Q. And, again, Table 1, on Page 11, the first six rows say  
22 "Monitored by Epsilon August 6 to 21, 2009." But, in  
23 fact, that's not correct, is it? They should be the  
24 Table 8-1 numbers from Epsilon. So, the numbers that

1           you have there aren't really the ones that were used by  
2           Epsilon, are they?

3    A.   No.  No.  Column 3 reports my re-analysis of the  
4           Epsilon data to develop a baseline.  My baseline is  
5           different from Epsilon baseline.  Epsilon baseline was  
6           the lower of the median and average sound levels at --  
7           when the wind velocity exceeded 9.3 meters per second  
8           at a 10-meter elevation.  My baseline was the higher of  
9           the 90th percentile of that data above 9.3 meters per  
10          second.

11   Q.   So, that's, in effect, your own baseline sound level,  
12          isn't it?

13   A.   That's correct, yes.

14   Q.   And, that, I mean, we have that -- or, I should say  
15          that Mr. O'Neal had that discussion yesterday, about  
16          the fact that your methodology for doing that is  
17          something that seems to be unique to you, is that  
18          correct?

19   A.   I have seen it used in other places, and it's been  
20          used, been argued at different places.  Neither of our  
21          methodologies are, how would I put it, described as  
22          part of a standard procedure, that I know of.

23   Q.   But your numbers are really quite different than the  
24          ones in Table 8-1 from -- associated with Mr. O'Neal's?

1 A. Some of them are a couple dB different, some -- they  
2 range between half a dB lower and ten dB lower.

3 CHAIRMAN GETZ: Excuse me, Mr. Patch, if  
4 I can inquire, I want to make sure I understand. Is it --  
5 the point is that, in the upper half of that chart, that  
6 the August 6 to 21 information, that it's -- you have  
7 re-interpreted the raw data collected by Epsilon between  
8 August 6 and 21, and using that raw data, you come to  
9 this, a different conclusion than Epsilon did?

10 WITNESS TOCCI: I re-analyzed it using a  
11 different -- to develop a different criteria, using  
12 different rules, so to speak.

13 CHAIRMAN GETZ: Okay.

14 BY MR. PATCH:

15 Q. So, that would mean then that the labeling that you  
16 used for that Column 2, it isn't correct, is it? You  
17 know, when it says "Monitored by Epsilon", I mean, it's  
18 been re-interpreted by you. It isn't the Epsilon  
19 numbers?

20 A. No, they aren't. But, let me -- Column 2 is estimated  
21 wind farm sound levels, which is computed using CADNA,  
22 that's a computed number from computer modeling.  
23 Column 3 is our re-analysis of the noise data collected  
24 by Epsilon and reported in their original report.

1 Q. Okay. But, just so we're clear, I mean, it isn't the  
2 Epsilon numbers, it's your --

3 A. It's my re-analysis of the numbers, yes.

4 Q. Okay. Thank you. And, I was going to ask you a couple  
5 of questions, I think you've covered them in direct.  
6 But the changes that you made, you know, not just to  
7 the table on Page 11, but, in addition to that, to the  
8 -- I guess it's, yes, Table 2 on Page 14. So, the  
9 impact at the Baker River Campground has now,  
10 obviously, been changed?

11 A. It has.

12 Q. It's now "minor" versus "significant"?

13 A. Yes, that is correct.

14 Q. Is it fair to say that your monitoring data found  
15 higher ambient levels at Halls Brook Road, as compared  
16 to the Epsilon ambient levels? Again, I think you said  
17 this in response to an earlier question, but I just  
18 want to be clear.

19 A. Yes, I did.

20 Q. And, then -- and, by "higher", you know, again, this is  
21 ambient levels?

22 A. That's correct.

23 Q. And, the same with regard to the Groton Hollows Road  
24 location, which, again, was similar to the location

1           where Epsilon had monitored?

2       A.    That's correct.

3       Q.    You actually found higher ambient levels at both of  
4           those locations?

5       A.    Yes, I did.

6       Q.    I want you to focus for a minute on your statement on  
7           Page 9.  And, I believe this is your supplemental  
8           testimony.  And, it's under (c), with regard to Tenney  
9           Mountain Ski Area.

10      A.    Yes.

11      Q.    You said that the Tenney Mountain baseline would be  
12           even lower in the winter.  You know, without insect  
13           activity, as I understand it.  Is that correct?

14      A.    Yes.

15      Q.    But how do you know that?  During the winter,  
16           especially at a ski area, wouldn't there be other types  
17           or sources of noise that wouldn't be there in October,  
18           wouldn't be there in the summertime, but they'd be  
19           there in the wintertime?

20      A.    During the day, that would be true.  At night, during  
21           early morning hours, I expect that it would be a quiet  
22           area.

23      Q.    Well, what about snowmaking guns or grooming machines,  
24           aren't those typically used at night?

1 A. Yeah, they are. And, that would be a major noise  
2 source.

3 Q. So, presumably, that would -- well, you tell me, I  
4 don't know want to presume anything. Would that raise  
5 or lower the nighttime ambient background sound levels?

6 A. Could very -- under those circumstances, probably would  
7 raise it.

8 Q. And, how about as compared to the Epsilon data that was  
9 collected in August with regard to that location?

10 A. Wintertime, sound levels at night, with snow guns  
11 going, probably would be even noisier than those  
12 measured in August.

13 Q. Now, I mean, the term "audibility" is one that I think  
14 has been used so far in this proceeding, and I think  
15 you've used it as well. Is it your position that  
16 audibility of a sound source is a reasonable criteria  
17 for noise impacts?

18 A. No, it is not.

19 Q. So, if audibility was the criteria, then, and that was  
20 something that all sources had to meet, then a lot of  
21 other development in this area, for example, the  
22 Wal-Mart, the Tenney Mountain Ski Area, the municipal  
23 airport, those are all things that are audible, traffic  
24 noise on Route 25?

1 A. That's correct.

2 Q. So, that's not an appropriate standard to use with  
3 regard to, you know, any sort of standard that was  
4 established for sound limitations?

5 A. I would agree.

6 Q. And, what about sound levels that, say, logging trucks  
7 and machinery have made in this case, in the project  
8 area, for years? I mean, again, that's -- do you know  
9 what the audibility of that kind of an operation is?  
10 And, do you know whether there are any criteria that  
11 they would have had to meet?

12 A. Depends upon how far away it is from a receptor  
13 location, what the background sound level is at the  
14 time. And, I am not aware of any regulations that --  
15 regarding noise that those operations would produce.

16 Q. In your supplemental testimony, you described the two  
17 monitoring areas for Halls Brook Road and Groton Hollow  
18 Road. And, as I read your supplemental testimony, and  
19 you correct me if I'm wrong, but it looks to me as  
20 though you may have mixed up the Halls Brook Road and  
21 Groton Hollow Road location description. I'm looking  
22 at Pages 8 and 9 of your testimony. And, I just want  
23 to get that clarified.

24 A. I may have mixed up the labeling. Yes, I may have

1 mixed them up. If you can correct me on this, I took  
2 Halls Brook Road to be the one near the residences  
3 located just within the project area, and I guess  
4 that's the Groton Hollow Road. Okay, I did mix them  
5 up, yes.

6 Q. Okay. I just wanted to make sure that was clear in the  
7 record.

8 A. Yes.

9 Q. Because you actually located the Halls Brook Road  
10 monitor about 100 yards further up the access road to  
11 minimize the water flow sound, as I understand it?

12 A. That's correct.

13 Q. Okay.

14 CHAIRMAN GETZ: So, what would need to  
15 be changed on Page 8 then to make it accurate?

16 WITNESS TOCCI: What I'd suggest is,  
17 anywhere I say in the supplemental testimony "Halls Brook  
18 Road", please change that to "Groton Hollow Road". And,  
19 where I say "Groton Hollow Road", change that to "Halls  
20 Brook Road". I just mixed up the two locations, the  
21 naming of the two locations.

22 MR. STELTZER: Mr. Chairman, can I just  
23 ask a clarifying question on that?

24 CHAIRMAN GETZ: Please.

1 MR. STELTZER: I just want to make sure  
2 that, as I understand it then, on Page 11, of the Table 1,  
3 that the Halls Brook Road and Groton Hollow Road names  
4 should be switched there as well?

5 WITNESS TOCCI: That is correct, sir.

6 MR. STELTZER: Thank you.

7 BY MR. PATCH:

8 Q. Are you sure that's the case? That those names should  
9 be switched on Page 11, in Table 1?

10 MR. ROTH: Mr. Chairman, if I may  
11 interrupt. And, perhaps it would make sense for Mr. Tocci  
12 to have an opportunity, after the hearing, to review the  
13 testimony a little more carefully with respect to this  
14 question, and make appropriate corrections as he believes  
15 are necessary to clarify this issue, and then refile it?

16 CHAIRMAN GETZ: Okay. Let's --

17 MR. ROTH: Errata pages, so to speak.

18 CHAIRMAN GETZ: Yes. I think errata  
19 pages would be helpful in this, and just keep the same  
20 exhibit number.

21 MR. PATCH: And, I would just ask you,  
22 Mr. Tocci, when you do that, just to take a look at the  
23 figures on Pages 4 through 7, just to verify that there  
24 isn't anything that should or shouldn't be changed there?

1 WITNESS TOCCI: I will.

2 MR. PATCH: Okay. Thank you.

3 BY MR. PATCH:

4 Q. And, just to go back to something that you said  
5 earlier, and I think we want to be clear on. On Pages  
6 2 and 3 of your supplemental testimony, you say that  
7 sound level data were collected in "10-minute  
8 intervals", is that correct?

9 A. Yes, that's correct.

10 Q. On Page 8, you say that the L90, Leq, L01 that you  
11 report is "for each hour"?

12 A. It should be "each 10 minutes".

13 Q. So, on Page 8, it should be "each 10 minutes"?

14 A. That is correct.

15 MR. HARRINGTON: Can you give us the  
16 answer or is it an answer/question top of the page?  
17 There's a couple of things on Page 8 there.

18 MR. PATCH: I think it's the first Q&A.  
19 It's the answer to the first Q, I guess.

20 MR. ROTH: The fourth line, I think.

21 MR. PATCH: Four, five, and six? Well,  
22 no, I'm sorry. At least four and five.

23 WITNESS TOCCI: Wherever it says "each  
24 hour", it should be "each 10-minute interval".

1 MR. PATCH: Yes. Okay.

2 BY MR. PATCH:

3 Q. In your prefiled testimony dated August 31st, you had  
4 stated that modern upwind-styled wind turbines "avoid  
5 the propensity to generate the significant levels of  
6 low frequency sound common in older [turbine]  
7 arrangements." Again, that was Paragraph 11 of your  
8 August 31 prefiled testimony. Do you remember that? I  
9 think it's the second sentence, in Paragraph 11,  
10 Page 5.

11 A. Yes, I do.

12 Q. And, modern upwind-styled wind turbines are what are  
13 going to be used in this project, is that your  
14 understanding?

15 A. Yes. That's my understanding.

16 Q. Now, there was a February 2008 letter to the Clayton  
17 Planning Board that you had sent that was attached to  
18 Mr. O'Neal's supplemental testimony. So, it would be  
19 found, for Committee members, in Volume 5, I believe it  
20 is. And, again, it was an attachment to Mr. O'Neal's  
21 supplemental testimony, Attachment 1 to that testimony.  
22 And, in that letter, you had said, and I'm quoting,  
23 "Designing wind turbines so that the blades are  
24 upstream of the tower support has mostly eliminated low

1 frequency excitation in newer wind turbines." Is that  
2 correct?

3 A. Yeah, that's correct.

4 Q. And, isn't it fair to say that, when it comes to low  
5 frequency sound issues, there's little or no scientific  
6 backing, thus making it hard to implement an  
7 engineering analysis to evaluate impact? And, I don't  
8 want to play games. I'm taking that from the e-mail  
9 that you sent to Cheryl Lewis, which was an attachment  
10 to Mr. O'Neal's supplemental testimony.

11 A. Could I see it please?

12 Q. Sure.

13 (Atty. Geiger handing document to the  
14 witness.)

15 BY THE WITNESS:

16 A. Yes, I wrote that.

17 BY MR. PATCH:

18 Q. Okay. So, that's correct?

19 A. Yes.

20 Q. Are you familiar with the paper by G. Bellhouse on "Low  
21 frequency noise and infrasound from wind turbine  
22 generators"? It's a literature review that was  
23 provided by Public Counsel?

24 A. I recall the name, but it's been a while since I've

1 reviewed the paper, if I've actually reviewed it.

2 Q. There's a set of our exhibits right there on the table.  
3 But, if you look at that literature review, and I'm  
4 looking at I think it's the third page in, it's at the  
5 very end of the abstract, the last sentence in that.

6 CHAIRMAN GETZ: Mr. Patch, what's the  
7 citation for this?

8 MR. PATCH: The exhibit number, is it  
9 "14"? I think it says right on the front. Applicant's.

10 WITNESS TOCCI: Exhibit 14.

11 MR. PATCH: Applicant's Exhibit 14.

12 BY MR. PATCH:

13 Q. It's actually Page 1, but it's the third page into the  
14 document. And, there's an "Abstract" there. And, I'm  
15 asking you if you would look at the last sentence in  
16 that Abstract. And, if you would, if you'd be willing  
17 to read that into the record?

18 A. I'd be pleased to. It says, this is the last sentence  
19 of the Abstract to a paper by Bel Acoustic Consulting,  
20 the author being George Bellhouse. The date is "30  
21 June 2004". The last statement or last sentence of  
22 that Abstract is: "There is no evidence to indicate  
23 that low-frequency sound or infrasound from current  
24 models of Wind Turbine Generators should cause

1 concern."

2 Q. Now, you talked a little bit about "modulated broadband  
3 sound", I believe it was in response to some questions  
4 from Dr. Mazur, is that correct?

5 A. Yes.

6 Q. And, did you discuss this in Paragraph 14 of your  
7 August prefiled testimony?

8 A. What point was that? Which?

9 Q. Well, it was August 14, and I'm not so concerned about  
10 the specific language there, but, obviously, you're  
11 familiar with modulated broadband sound, Paragraph 14  
12 of your August testimony. But all I want to ask you  
13 really is whether you are aware of any objective  
14 criteria to which modulated broadband sound levels  
15 could be compared and evaluated?

16 A. No, I'm not.

17 Q. Now, in your supplemental October 22nd, 2010 testimony,  
18 I think it's PC-2, in terms of exhibit number, on Page  
19 3 you described the, and I'm quoting, "existing quiet  
20 environment of the campground", and said it was "an  
21 important attribute [in attracting] those wishing [for]  
22 a quiet woodland experience." Is that correct?

23 A. I did say that, yes.

24 Q. Now, do you know how far the campground is from the

1 Plymouth Airport?

2 A. No, I don't.

3 Q. Would it surprise you to learn that it is 1.26 miles  
4 from the campground?

5 A. I had understood it was about a mile and a half away,  
6 yes.

7 Q. Okay. On Page 3 of your supplemental testimony,  
8 though, I think you had said that the airport was  
9 "several miles from monitoring locations"?

10 A. Yes. That was not the case, I guess. I have not seen  
11 the airport myself. And, I've not seen it indicated on  
12 a map.

13 Q. How far is the campground from Route 25? Do you have  
14 an understanding of that?

15 A. Yes. I indicated in my prefiled testimony, in my  
16 supplemental testimony.

17 Q. I think I can help you with that, if you can't find it.  
18 Page 9. I think it says "960 feet". Does that sound  
19 familiar?

20 A. That's right.

21 Q. Now, would it surprise you to learn that the owner of  
22 that campground has said that "the campers can hear the  
23 traffic on Route 25 at times, but that it does not  
24 affect their ability to sleep. And that, when she has

1 asked campers about traffic noise, the response has  
2 been that they are "used to vehicular noise at home and  
3 therefore do not even notice it"." And, I'm going to  
4 show you, just to help you with that, it would be  
5 Applicant's Exhibit 13, which is a response to a data  
6 request from Ms. Lewis.

7 A. And, how can I answer your question?

8 Q. Well, I asked "would it surprise you to learn what she  
9 had said?" I mean, is that something you were familiar  
10 with before?

11 A. I can't speak for campers. Whether or not you can hear  
12 traffic on 25, I'm sure you can. And, whether or not  
13 it's a problem for campers, that I can't say.

14 Q. Now, if I understand your analysis as described in your  
15 supplemental testimony, you describe "baseline sound"  
16 as "the existing environment at its quietest." Is that  
17 correct?

18 A. That's correct.

19 Q. I think that's Page 10 of your supplemental testimony,  
20 but that's kind of a general question. You indicated  
21 that the baseline sound level at the campground "is  
22 much lower than monitored at other locations" and that  
23 it "is the result of very low sound levels typically  
24 occurring between midnight and 3:00 A.M." Correct?

1 A. That's correct.

2 Q. Now, given the changes that you've made to your  
3 testimony with regard to the campground sound level,  
4 would you characterize it any differently now than you  
5 did in your testimony? I mean, it's "minor" compared  
6 to --

7 A. I don't think so. Because the -- my characterization  
8 of background sound is on the basis of the measured  
9 90th percentile sound levels, and the way I considered  
10 all of those sound levels together throughout the 14  
11 days of measuring.

12 Q. Well, and speaking of the measurement that you did,  
13 again, that was done in October. Could you give us the  
14 dates in October when it was done?

15 A. Yes. It's hard for me to read, but I believe it was  
16 beginning October. Yes, October 4 to October 19.

17 Q. Do you think that the baseline sound level at the  
18 campground would have been different if it had been  
19 done during the summer, when there were campers in the  
20 campground, or more campers than were there during that  
21 period of time in October?

22 A. Sure. There were campers there at the time, as I  
23 understand it, and it was over a foliage weekend. But  
24 would it be noisier with more people? I would expect

1 so.

2 Q. And, that Columbus Day weekend at the most would have  
3 been two or three days of the 14 that you measured,  
4 correct?

5 A. I believe so, yes.

6 Q. So, presumably, in the summertime, with RVs there,  
7 generators, TVs, more leaves on the trees, more insect  
8 noise, the ambient level would have been higher?

9 A. Possibly.

10 Q. And, isn't it the summertime sound levels that really  
11 matter at this selection, not the sound levels done in  
12 October?

13 A. I believe that Ms. Lewis had testified that it's a  
14 business aspect that she requires, would like to offer  
15 her campers a quiet environment. So, it was my  
16 understanding that, if people were going to come to the  
17 camping area for a quiet experience, yeah, they might  
18 not get that in the summer, but they might get it when  
19 the camping ground is open later on in the season. But  
20 this is, you know, my comments regarding the impact  
21 upon campers is not firsthand experience, that's the --  
22 it was related to me by the campground owner.

23 Q. When you say that "the wind farm would be audible for  
24 one to three hours beginning at midnight, but only

1           intermittently audible", could you explain what you  
2           mean by "intermittently audible"?

3       A.    Yes.  If you look at the data on Page 7, the 90th  
4           percentile sound level dips down below 20 dBA for some  
5           periods of time.  So, during those periods of time, the  
6           wind farm sound levels, as they're being predicted now,  
7           would be a major contributor to the environment.  And,  
8           that would occur for relatively brief periods during  
9           those early morning hours.

10       Q.   Relatively brief periods?

11       A.    I would say so.

12       Q.    If I understand -- are you familiar, first of all, with  
13           the sound criteria that the Site Evaluation Committee  
14           established for the Lempster Wind Project?

15       A.    I believe so.

16       Q.    And, if I understand the chart that you provided on  
17           Page 14, even at the Baker River Campground, the sound  
18           levels would be well low the criteria that were  
19           established by this Committee for that wind farm?

20       A.    If I understand correctly that the Lempster limit was  
21           45 dBA, yes.  The predicted sound levels at the  
22           campground are lower than at the Lempster limit.

23       Q.    That's a pretty significant difference, isn't it?  45  
24           dBA to what was the lower limit that you're now at,

1           worst case?

2       A.    Yes, it is.  By about 10, 10 decibels or more.

3       Q.    And, we're talking about a logarithmic, I'm no  
4            mathematician, but logarithmic.  So, when you say, you  
5            know, "10 decibels more", I mean that's a pretty  
6            significant difference, isn't it?

7       A.    To give you some perspective, a 3 dB change in sound  
8            level, in broadband sound level, is barely detectable;  
9            5 dB is clearly detectable; and a 10 dB change is  
10           considered to be generally experienced as a halving or  
11           doubling of loudness.  I would say that that probably  
12           would be significant, yes.

13      Q.    I'm going to ask you if you would look at our Exhibit  
14            21, which is Baker River water flow levels on a daily  
15            basis for the period August 16th to 21.  Now, just to  
16            back up for one minute, as I understand it, the Epsilon  
17            measurements were done August 2nd through 21, 2009 --  
18            I'm sorry, August 6 through 21, 2009, is that your  
19            understanding?

20      A.    Yes, it is.

21      Q.    And, Exhibit 22, you know, again, and you've said this,  
22            yours were October 4th to the 19th?

23      A.    Yes.

24      Q.    Now, did your period have less water flow than the

1 Epsilon time period?

2 A. According to the data that you provided, there was more  
3 water flow during the period when I monitored sound  
4 than when Epsilon monitored sound.

5 Q. And, if you look at Figures 1a and 1b from your  
6 supplemental prefiled testimony dated October 22nd,  
7 were these locations influenced by water sound during  
8 your measurements?

9 A. Which locations again?

10 Q. 1a and 1b.

11 A. Which figures you're looking at? Figures 1a and 1b.

12 Q. Yes.

13 A. Yes. Those were influenced by water flow sound. Yes.

14 Q. I mean, the bottom line on that, your results were not  
15 all that different than the Epsilon data, right?

16 A. They were a little bit higher, yes.

17 Q. A little bit higher.

18 A. A couple. Uh-huh.

19 Q. Now, Exhibit 23, if you could take a look at that.

20 This is 60 years of USGS long term water flow data from  
21 the Baker River. And, I realize there are a lot of  
22 numbers there on three pages. But I would just ask you  
23 if you could -- if you would agree that the month with  
24 the lowest flow of the year is the month of August, you

1 know, the month during which the Epsilon study was  
2 done?

3 MR. ROTH: Mr. Chairman, I'm going to  
4 object to this line of questioning at this point. The  
5 witness is here for the question of sound and not  
6 hydrology. There has been no foundation laid that there's  
7 any connection necessarily between the flow of a river,  
8 the volume of a river, and sound measurements. Now, it's  
9 been I think clearly established and undisputed in this  
10 case that in two locations there was measured noise of  
11 water. And, I think we have also heard testimony that  
12 there, in fact, that the noise of water at the campground  
13 was not measured, not measurable, perhaps.

14 But I'm not sure what's going on here,  
15 but there's a suggestion that somehow the witness should  
16 have some knowledge of hydrology and be able to properly  
17 read these charts and this data and draw conclusions from  
18 it that I think is not within the scope of his testimony,  
19 his expertise, and certainly no foundation has been made  
20 for it.

21 CHAIRMAN GETZ: Mr. Patch.

22 MR. PATCH: Well, I could ask a couple  
23 more questions to make the foundation for it. But I think  
24 it's been pretty clear, and I think it's clear from the

1 prefiled testimony, that, clearly, water flow has an  
2 impact on sound. And, all I'm trying to establish here is  
3 that, at the time that the Epsilon study was done, if you  
4 look at historical records, they, in fact, took it at a  
5 time in August, you know, when the water flow data  
6 suggests that that's the lowest flow of the year. So, --

7 CHAIRMAN GETZ: Well, I guess, at this  
8 point, I don't think he's calling for any expert testimony  
9 or conclusions with respect to hydrology. But I think  
10 it's fair to ask whether the river flow sounds have some  
11 effect on his -- on his opinions and/or do the -- to his  
12 knowledge, does the flow of the river, the magnitude of  
13 the flow of the river, as it changes over the year, have  
14 some impact? And, I think that's a fair question.

15 MR. ROTH: Mr. Chairman, I respectfully  
16 suggest that it depends on the hydrology of the river.  
17 The amount of water flowing through the river and the  
18 amount of noise it makes, I mean, just think of it from  
19 your own experience. You could walk up to the Merrimack  
20 and hardly know it's there. But you could walk up to a  
21 tiny brook, with a lot of rocks and sticks in it, and it's  
22 really loud.

23 CHAIRMAN GETZ: Well, certainly, --

24 MR. ROTH: So, you're asking the witness

1 to make a conclusion about hydrology that I think is  
2 unwarranted.

3 CHAIRMAN GETZ: I think he can give the  
4 same answer you just gave, if that's his opinion. So,  
5 we'll proceed with the question.

6 MR. PATCH: I think the Chairman asked  
7 the better -- the question better than I could ask it.  
8 Did you understand the question?

9 WITNESS TOCCI: Could you repeat it for  
10 me please?

11 MR. PATCH: Yes.

12 BY MR. PATCH:

13 Q. I mean, I guess maybe just to start out with, does the  
14 flow of a river or stream have an impact on sound  
15 measurements that are taken?

16 A. If water flow is audible and measurable, as it was on  
17 occasions, yes.

18 Q. So, obviously, if during the particular time of the  
19 year the water flow was either lower or higher, it  
20 could affect the results?

21 A. Possibly, yes.

22 Q. And, so, again, you know, I don't mean to go into this  
23 in great detail, but the exhibit that has been provided  
24 to you, Applicant's Exhibit 23, just from having taken

1 a quick look at it, does it appear to you to support  
2 the fact that August, in fact, is the month  
3 historically that typically has the lowest flow of  
4 water?

5 MR. ROTH: Again, I object to this  
6 question, because he's asking the witness to interpret  
7 data charts that are not within his expertise or within  
8 the scope of his testimony.

9 CHAIRMAN GETZ: Well, I think it's --

10 MR. ROTH: And, he's seeing them perhaps  
11 for the first time today.

12 CHAIRMAN GETZ: I think it's fair to ask  
13 him, again, are those the lowest flow numbers of the year,  
14 typically. But whether there's anything to be made of it  
15 from his expert opinion, then he's free to say whether  
16 there's something that can be drawn from it or not.

17 WITNESS TOCCI: Okay. Answer it? All  
18 right.

19 BY THE WITNESS:

20 A. The flow rate in August, as it's reported here for the  
21 mean over those many years, is about half of what it is  
22 in October.

23 BY MR. PATCH:

24 Q. And, the reason for doing this is just that I think

1           there was a suggestion that maybe the Epsilon numbers  
2           were skewed, because they were taken at the time of the  
3           year when sound level data was unusually high because  
4           of water flow. But these figures, in fact, suggest the  
5           opposite, don't they?

6    A.    No. The original questioning of Epsilon data wasn't so  
7           much regarding water flow as it was whether the stream  
8           was frozen. Remember, this was prior to my ever seeing  
9           it, so I had no clue what was there. I only said that,  
10          if the stream was frozen over, that that may mitigate  
11          sound. And, after having seen it, I'm not even certain  
12          that would be the case. It may or may not be.

13   Q.    In your supplemental testimony, Pages 12 to 13,  
14          Criterion Number 2 reads: "In addition, computed  
15          Groton Wind Farm sound should not exceed 40 dBA at  
16          residential uses." Criterion 2 is the "WHO Night Noise  
17          Guideline (NNG) proposed in Night Noise Guidelines for  
18          Europe", is that correct?

19   A.    That is correct.

20   Q.    And, I'm going to show you Exhibit -- it would be  
21          Applicant's Exhibit 19. Is this a guideline or a  
22          regulation?

23   A.    Are you referring to Applicant's Exhibit 19?

24   Q.    Yes. Well, not just Exhibit 19, but the "WHO Night

1 Noise Guideline proposed in Night Noise Guidelines for  
2 Europe".

3 A. I assume it's a guideline. I don't know the status of  
4 its legal applicability in Europe.

5 Q. Okay. But it's just in Europe, it's not the U.S.?

6 A. That's my understanding, yes.

7 Q. Is it an interior or an exterior guideline?

8 A. I understand that it's an exterior guideline.

9 Q. And, is this a short-term worst case sound level as  
10 modeled by the Applicant and shown in Figure 7-1 of the  
11 January 14th Epsilon report? Do you understand the  
12 question?

13 A. No, I don't.

14 Q. Okay, maybe I can reformulate that.

15 MR. PATCH: If I could just have a  
16 minute, I'm sorry. I don't seem to have that exhibit  
17 right here.

18 (Short pause.)

19 BY MR. PATCH:

20 Q. In a footnote at the bottom of the page, there's a  
21 definition of "Lnight,outside". And, I don't know if  
22 you could explain -- again, we're at Applicant's  
23 Exhibit 19. It's a one-page sheet. It's an Executive  
24 Summary of the European guideline.

1 A. What is your question about? The footnote on  
2 Exhibit 19?

3 Q. Well, I want to have a better understanding of what  
4 "lnight,outside" means and what this is referring to.  
5 As I understand it, this is an A-weighted long-term  
6 average sound level?

7 A. That's correct.

8 Q. So, this isn't a worst case scenario, like what Mr.  
9 O'Neal referred to in that January 14th Epsilon report,  
10 where there was, I think, a worst case scenario, where  
11 there was a 41 dBA rating. That would be very  
12 different than an average?

13 A. Well, yes. The WHO Guideline, WHO guideline, says that  
14 it is the "A-weighted long-term average sound level as  
15 defined [by] ISO '96, 96-2, determined over all the  
16 night periods of a year; in which the night is eight  
17 hours (usually 23.00 to 07.00 local time), a year is a  
18 relevant year as regards [to] the emission of sound and  
19 an average year as regards [to] the meteorological  
20 circumstances, the incident sound is considered, the  
21 assessment point is the same as Ldn." So, it is an  
22 annual average over an eight hour period.

23 Q. Okay. And, the highest short-term worst case sound  
24 level that was modeled by Epsilon, by Mr. O'Neal, was

1 41 dBA, is that correct?

2 A. I recall that that's correct.

3 Q. Okay. So, then, presumably, and we're certainly not  
4 suggesting this, but even this project would meet those  
5 guidelines?

6 A. I would accept -- I would expect that the highest level  
7 of 41 dBA would -- doesn't represent an average. The  
8 average would be lower.

9 Q. You talked about the "modified CNR method", I believe  
10 this was in response to a question from Ms. Lewis. Do  
11 you remember that?

12 A. Yes.

13 Q. Have you applied that methodology to wind projects, any  
14 that you've worked on?

15 A. I have not in the past.

16 Q. I think, in response to a question from Ms. Lewis also,  
17 you said that "a person could be more annoyed by the  
18 wind farm than by traffic noise, assuming they were  
19 both 45 dBA"?

20 A. Yes.

21 Q. It could be the opposite, couldn't it?

22 A. I wouldn't expect so.

23 Q. Why not?

24 A. Just experience. I think that people become habituated

1 to traffic noise and aircraft noise, noise in the  
2 environment that they're accustomed to. And, that's  
3 supported by work I've done at Harvard Medical School  
4 with -- on sleep studies.

5 Q. There was an exhibit that was given to you by  
6 Ms. Lewis, it was an Exhibit 31. I mean, is it fair to  
7 say that you don't have any knowledge with regard to  
8 that exhibit -- this was the complaint, it appears to  
9 be, that was filed with the Maine Department of  
10 Environmental Protection. You don't have any knowledge  
11 of where the wind turbines -- how far away from the  
12 wind turbines the measurements were made, do you?

13 A. No, I don't.

14 MR. PATCH: I think that's all our  
15 questions. Thank you.

16 CHAIRMAN GETZ: Thank you. Questions  
17 from the Subcommittee? Mr. Steltzer.

18 MR. STELTZER: Yes.

19 BY MR. STELTZER:

20 Q. Following up on some of the questioning that I had  
21 yesterday, it's clear that, you know, it's one of the  
22 key concerns that the Committee is needing to weigh is  
23 the sound, and the sound effects that's happening  
24 that's evidenced by both, two of the intervening

1 parties having some consultation on that. And, so,  
2 what I want to try and understand, though, is the  
3 percent of the risk and the percent of exposure,  
4 specifically the Town of Rumney would have towards the  
5 Project.

6 So, with that in mind, my first question  
7 I have for you is, when you were testifying earlier  
8 regarding Table 1, in your supplemental filing, it's PC  
9 -- Exhibit PC 2 -- or, excuse me, it's Table 2, you had  
10 made some comments about "no impact", "minor impact",  
11 "significant impact", and you used the term "more  
12 frequently". And, I was wondering if you could clarify  
13 what you mean by "more frequently"?

14 A. I'd be pleased to. The note -- the specific indication  
15 of "more frequently", could you just point that out to  
16 me please?

17 Q. I'm sorry, it wasn't necessarily written into it, but  
18 you had made some testimony earlier today in reference  
19 to Table 2 that "more frequently" was -- is how you  
20 characterized it. And, I'm wondering if, by "more  
21 frequently", you were referring to some sort of  
22 temporal time frame?

23 A. No. I was referring to really how background sound  
24 goes up and down at different times of the day, and

1 depending upon weather conditions and so forth. And,  
2 so, assuming that the wind turbine makes the same  
3 amount of noise all the time, and depending upon  
4 background sound, it would be audible more or less  
5 frequently, depending upon how the background sound  
6 varies.

7 Q. Okay. Now, in PC 1 -- or, excuse me, PC 2, Table 1,  
8 it's on Page 11, are your calculations that you did,  
9 both of the raw Epsilon data, as well as the data that  
10 you collected, are those also measured downwind?

11 A. No. Those, that data was measured -- was an analysis  
12 of sound level data that was measured prior to  
13 construction of the wind turbines, without regard to  
14 wind direction. That's customary. And, I hope I  
15 answered your question there. There's no recognition  
16 of wind direction in those measurements.

17 Q. Thank you. Maybe I wasn't clear enough on my question,  
18 so I think maybe it was my fault and not yours. I'm  
19 curious, as far as the amount of sound that would be  
20 created by the turbines, if they were developed, and  
21 that increased amount of sound and that maximum amount  
22 of sound, is that taking into effect that the receptor  
23 is downwind from the Project?

24 A. Yes. That's the modeling technique that is recognized

1 by ISO 19 -- 9613-2. And, that is my understanding was  
2 the guideline or the standard under which the  
3 calculations were made by Epsilon.

4 Q. Is it accurate to say then that, as you move more up  
5 wind, that there is a diminishing effect to the amount  
6 of sound that one would hear?

7 A. As the wind swings around, it's expected that sound  
8 levels would become lower, to the point where wind is  
9 coming from the receptor towards the source, that sound  
10 levels would be the lowest at that point produced by  
11 the wind turbines.

12 Q. Then, earlier today there was an exhibit provided,  
13 Exhibit Application Number 42, which shows a wind rose  
14 for the Groton Project.

15 A. I have not seen that.

16 Q. And, it's being characterized that this is the wind  
17 rose for the Project, subject to check, I have little  
18 concerns as far it mentioning that it's "a  
19 representative wind energy rose". But, subject to  
20 check that this is the wind rose of the Groton Project,  
21 it is showing that the majority of the wind is coming  
22 from the northwest. Is that your interpretation of it  
23 as well?

24 A. Yes, if the orientation is north page up, which I

1           assume it is.

2       Q.    I believe so as well, just from my understanding and my  
3           knowledge of wind in New Hampshire, specifically in the  
4           area that we're talking about.  So, what I'm trying to  
5           connect here, and I'd just like to see, without doing a  
6           complete full analysis here, I just want to get a sense  
7           from your expert opinion on wind direction and the  
8           effect that it has on sound, whether this simple  
9           calculation I'm doing is correct.  Recognizing that the  
10          Project, the Town of Rumney is by and large to the  
11          north, maybe even to the northeast of the Project,  
12          approximately maybe 10 percent of the wind is coming  
13          from the southwest or the south direction?

14       A.   Yes.  I would agree with that, yes.

15       Q.   And, so, if the wind, and recognizing that the turbines  
16          aren't making any noise if there's no wind, and the  
17          capacity factor is around 33 percent, about 10 percent  
18          of that time then the wind would be coming from a  
19          direction where it would be at its worst case scenario?

20       A.   That's right.

21       Q.   And, taking -- recognizing that that would then be a  
22          third of that time, so, roughly be about 3 percent of  
23          the time would be -- would be experienced by the Town  
24          of Rumney from the worst case scenario of the amount of

1 sound that would be emitted onto the community?

2 A. It might be a little bit larger than that, in the sense  
3 that the ISO 9613-2 is intended to be applicable to  
4 winds within a 45 degree sector from the direction.  
5 So, essentially, the calculation is supposed to apply  
6 to wind directions that swing a full 90 degrees,  
7 centered at 45 degrees from a specific direction,  
8 source to receiver direction. So, it may be a little  
9 bit more than 10 percent here, but I can't tell you  
10 offhand to what percentage of the time 9613 calculation  
11 would strictly apply to any particular location. Are  
12 you understanding?

13 Q. I think so. So, you know, and I estimated here that  
14 10 percent of the time the wind is coming from the  
15 south or the southeast -- or, excuse me, southwest, and  
16 it could be a little bit more. But, recognizing that  
17 the turbines only have a 33 percent factor, I'm  
18 basically taking a third of whatever percent that  
19 actually is of the wind that's coming. And, so,  
20 generally, more than likely it would be certainly well  
21 under 10 percent of the time, the overall time  
22 throughout the entire year, recognizing not necessarily  
23 summer or winter, because the wind rose isn't seasonal.  
24 But 10 percent of the annual time would have a

1 potential for the maximum impact on the community?

2 A. Maybe a better way of reflecting that is if the wind is  
3 from the southwest, goes from a source to a receptor,  
4 then 9613 calculation applies to all the winds, the  
5 frequency of winds going from south to west, coming  
6 from south to west. So, it takes in a little bit more  
7 than 10 percent, but I can't tell you offhand what that  
8 might be.

9 MR. STELTZER: That's fine. Thank you.

10 CHAIRMAN GETZ: Mr. Harrington.

11 MR. HARRINGTON: Yes.

12 BY MR. HARRINGTON:

13 Q. Just to quickly follow up on that, because I think  
14 maybe there was a wrong assumption made there about the  
15 capacity factor of 33 percent, assuming that that was  
16 uniform. Because the wind could be blowing at  
17 90 percent capacity sometimes, and zero other times,  
18 and that's an average. It really isn't something you  
19 could use over a constant period of time I don't think.  
20 So, do you agree with that?

21 A. It would be hard for me to, here, to combine the  
22 capacity with the wind direction to give an answer.  
23 But, obviously, that a lower than 100 percent capacity  
24 represents, on an annual average, a reduction in

1 average sound level at a receptor location.

2 Q. Okay. Thank you. The other question I want to just  
3 clarify was, there was some discussion on river noise,  
4 the noise from the river and how it was different,  
5 depending on, you know, a flat Merrimack versus a  
6 rippling stream in the woods. But what we're talking  
7 about here is the noise from the exact same receptacle  
8 with the same river. So, would it be fair to say that,  
9 if the flow in that river was higher, that the noise  
10 from that river at the same place would be higher than  
11 it would be if the flow was lower?

12 A. Insofar that the surface of the water is more turbulent  
13 and a larger surface area, yes, sound levels would go  
14 up. And, that's why I would understand the reason for  
15 our sound levels being slightly higher in October than  
16 they were measured in August.

17 Q. Okay. Going to your supplemental testimony, on Page  
18 12, you have basically your two, I guess, major  
19 criteria. One is on the increase, the delta in sound,  
20 and the other one is on "not to exceed 40 dBA at  
21 residential [usage]". Can you clarify a little bit  
22 more on the "residential usage"? And, let me give you  
23 just a background, so you know where I'm going. On the  
24 Lempster Project, we had a couple of criteria. One was

1 I think 300 feet from a house, and then the other one  
2 was at the house itself. So, when you're talking the  
3 "40 dBA" here, are you talking outside the front door  
4 or 300 feet away or inside the house itself?

5 A. I had understood it to be outside the front door of the  
6 house, outside the facades, I think.

7 Q. So, your recommendation is to use 40 dBA outside the  
8 house?

9 A. Outside, yes.

10 Q. And, getting back to the campground then for a second,  
11 it's safe to assume that, if you apply that same  
12 criteria, that the noise inside of a bedroom, at least  
13 a bedroom with the windows closed, would be lower than  
14 it would be inside of a tent, if it was 40 dBA on the  
15 outside of both?

16 A. That's correct.

17 Q. Okay. I wanted to also ask, you made some  
18 recommendations in here, and then there was some  
19 changes made based on some of the sound levels, and  
20 specifically at the campground where -- in the chart on  
21 Page 11 of your supplemental testimony, and those  
22 numbers went down slightly. The first column, on  
23 Column 2, I guess it was, went to "31 to 33", and then  
24 the "total" column, under Column 4, went to "33 to 34".

1           Would you still stick with the same recommendations for  
2           additional monitoring during the wintertime that I  
3           believe were made based on that?

4    A.    Well, the campground is closed during the wintertime.  
5           So, I don't see any need for further monitoring during  
6           the winter.

7    Q.    Let me just -- maybe I got the wrong page here.  Hold  
8           on.  Bear with me just one second.  I thought there was  
9           some additional recommendations made for the  
10          campground.  Maybe there weren't any additional  
11          recommendations.  I guess, maybe put it this way, given  
12          your -- maybe this just needs a little clarification.  
13          On your original testimony, on Page 4, that's what I'm  
14          trying to get clarification on, it says "We therefore  
15          may still recommend [that] after further analysis that  
16          actual wintertime sound level measurements be made  
17          prior to final approval of the wind power project."  
18          Given the changes to your numbers, do you feel that  
19          that is still necessary to be done?

20   A.    Not at the campground, because the campground is not  
21          occupied during the winter.  It might apply to other  
22          locations.

23   Q.    Other locations in the vicinity of the river?  Because  
24          you're referring to -- is the key thing here the fact

1 the river is frozen?

2 A. The key is that a frozen river might not be as noisy as  
3 one that's not frozen. And, Baker River tends to be a  
4 slow-moving river that doesn't produce much noise. But  
5 the two other locations, Groton Hollow Road and Halls  
6 Brook Road, were noisy because of faster water flow,  
7 more turbulent water flow.

8 Q. Okay. And, on Page 4, where you talk about "installing  
9 [the] two monitors there", those were the ones that  
10 were actually installed in October, and the results  
11 that we got in your supplemental testimony?

12 A. Yes, that's correct.

13 MR. HARRINGTON: Okay. That's all I  
14 have. Thank you.

15 CHAIRMAN GETZ: Mr. Scott.

16 BY DIR. SCOTT:

17 Q. Just to clarify, you just said, in the discussion with  
18 Mr. Harrington, regarding again on Page 12 of your  
19 supplemental regarding the "40 dBA at residential  
20 uses", again, is that -- are we still talking on a  
21 yearly average or is that instantaneous that you're  
22 recommending?

23 A. Could you direct me to the statement?

24 Q. Page 12 of your October 22nd supplemental testimony,

1 under the last question being asked, your answer, you  
2 give two criteria. In Number 2, "In addition, computed  
3 Groton Wind Farm sound should not exceed 40 dBA at  
4 residential uses."

5 A. I had those to be intentionally more or less  
6 instantaneous over a short term, not over an annual  
7 average. The WHO Guideline was that it should be an  
8 annual average, but I have not used it in that way.

9 Q. Well, I'll come to the point more directly, I suppose  
10 then. So, again, going back to the Site Evaluation  
11 Committee conditions in the Lempster Wind Farm, again,  
12 I believe they're instantaneous. They were not on a  
13 yearly average. We required action levels at 45 dBA at  
14 the exterior of residences.

15 A. Yes.

16 Q. Do you feel that's an appropriate limit?

17 A. Which are you asking is an appropriate limit? The 40  
18 dBA or the 45?

19 Q. The 45 that was imposed on the Lempster Project.

20 A. If 45 was intended to be a limit that had to be adhered  
21 to all the time, I would say that's a little on the  
22 high side.

23 DIR. SCOTT: Thank you.

24 CHAIRMAN GETZ: Other questions?

1 Dr. Kent.

2 MS. LEWIS: Could I be heard?

3 CHAIRMAN GETZ: No, not at this point.

4 We're going to have questions from the Committee.

5 MS. LEWIS: Oh, okay. I'm sorry. I  
6 thought you were finished.

7 CHAIRMAN GETZ: No. Dr. Kent.

8 MS. LEWIS: Okay.

9 BY DR. KENT:

10 Q. The estimate of the sound levels from the turbines, did  
11 I understand that's a maximum sound level?

12 A. Yes. It's maximum with respect to it's the most noise  
13 that gets generated, so it's a higher wind speed. And,  
14 it is also that the calculations at receptors are  
15 assuming that the wind turbine is up -- is facing down,  
16 is upwind of the receptor. So, that wind is  
17 diffracting sound down towards the receptor, sort of  
18 skipping over the ground and reducing its ground  
19 absorption.

20 Q. In your supplemental testimony, you made a statement  
21 about you would -- sound would be audible at the  
22 campground from 12:00 to 3:00 on a regular basis?

23 A. Frequently, not on a regular basis.

24 Q. Excuse me. And, intermittently audible at other times?

1 A. Possibly. Possibly, but possibly intermittent.

2 Q. So, does that reflect all of those assumptions about  
3 water levels and the wind is -- the turbines are  
4 spinning at max sound output and everything else we  
5 talked about?

6 A. Yes, it does.

7 Q. Okay. So, when I -- I didn't ask my question very  
8 well, actually. So, when you make that statement,  
9 you're presuming the worst case of everything?

10 A. Yes, that's correct.

11 Q. So, in actuality, it will probably not be quite that  
12 bad?

13 A. Probably not.

14 Q. Okay. Thank you. There was a discussion yesterday  
15 about activities at the campground during your sound  
16 measurements?

17 A. Yes.

18 Q. Did we ever get that straightened out? Do you know  
19 what part of your data calculation is coincident with  
20 the activities at the campground to avoid flooding, I  
21 think it was?

22 A. We weren't there at the time that the -- we had placed  
23 a monitor and checked the monitor seven days in, and  
24 then collected the monitor seven days after that. We

1 weren't there seeing what was going on, but we  
2 understand there was a minimal amount of activity.  
3 And, I don't believe there was any flooding on Campsite  
4 31 where we placed the monitor.

5 Q. Did you see, when you were reviewing your data, did you  
6 see anything that was inexplicable?

7 A. Well, during the day, sound levels are a lot higher.  
8 So, I assume that they were not moving tables at 2:00  
9 or 3:00 in the morning, which is when we got our lowest  
10 sound levels. The other thing, too, is that, when the  
11 storms occurred, sound levels were a lot higher where  
12 we monitored, and we expected that to be the case  
13 because of wind and rain.

14 Q. So, the wind and rain may have masked the tractor  
15 moving things around?

16 A. Very probably, yes.

17 Q. Okay. You spoke about "habituation" is the term you  
18 used for cars. Do you know of any cases where people  
19 either habituate to wind farm sounds or actually enjoy  
20 them?

21 A. I've heard that in the literature, yes.

22 DR. KENT: Thank you.

23 CHAIRMAN GETZ: Other questions?

24 Mr. Steltzer.

1 MR. STELTZER: If I may?

2 BY MR. STELTZER:

3 Q. Mr. Harrington made a good point about my initial  
4 assumption on the 33 percent capacity factor. So, I'll  
5 just ask this question just from a broader perspective.  
6 Based off of the wind rose, in the direction that the  
7 wind is coming from, is there a greater likelihood that  
8 the community of Tenney Mountain, which is located to  
9 the east of the wind farm, would have a greater  
10 likelihood to have an effect, compared to the Town of  
11 Rumney, which is located to the north of the wind farm?

12 A. Okay. The wind rose shows a predominance of wind  
13 direction from the direction of Quadrant 15. Now, the  
14 calculation of sound levels covers Quadrants 5 to 9 as  
15 being where most of the noise --

16 (Court reporter interruption.)

17 CONTINUED BY THE WITNESS:

18 A. Quadrants -- see if I can state this correctly. The  
19 wind direction is -- predominates from Quadrant 15,  
20 Sector 15. Now, the 96-13 calculation would be  
21 applicable to Sectors 5 through 9. So, Tenney Mountain  
22 lies at 5 and Rumney lies up near Sector 1. So, I  
23 would expect that, in Rumney, sound levels will be a  
24 little bit lower most of the time, more often than they

1 would be southeast of the facility.

2 MR. STELTZER: Thank you.

3 CHAIRMAN GETZ: Other questions?

4 Mr. Iacopino?

5 MR. IACOPINO: No questions.

6 CHAIRMAN GETZ: Ms. Lewis, what are you  
7 seeking to follow up on?

8 MS. LEWIS: Well, I have a number of  
9 different ones to follow up on, Mr. Patch's questions.

10 CHAIRMAN GETZ: Well, --

11 MR. PATCH: Mr. Chairman, I'd object to  
12 that. I just don't think it's consistent with the  
13 procedures that were laid out for all the parties at the  
14 beginning of the proceeding that she be allowed to do  
15 that.

16 CHAIRMAN GETZ: And, I think that's  
17 correct. In terms of order of cross, you had your  
18 opportunity, and the other parties had the opportunity,  
19 and the cross is set up with respect to letting the  
20 Applicant go first when interests are adverse to them. If  
21 there are some specific question that you can lay a  
22 groundwork for, I may permit it. But it's just not an  
23 open opportunity to ask any questions that --

24 MS. LEWIS: No. This is directly

1 related to questions that he asked that I was hoping to  
2 follow up on, that's all. First one has to do with the  
3 airport, that he mentioned "1.26 miles" from my  
4 campground. And, I just wanted to clarify a little bit  
5 more with Mr. Tocci about that.

6 CHAIRMAN GETZ: Well, are you seeking to  
7 testify and provide more information? Because we ran into  
8 that issue before. I mean, if it's a question that can  
9 lead -- lend some light to helping us make a decision in  
10 this case, then I may be inclined to permit it. But let's  
11 ask your question on the airport and see what kind of  
12 questions you're hoping to ask.

13 MS. LEWIS: Okay. Do you hear any  
14 airplanes when -- the time that you spent during this,  
15 while you were setting up the equipment or the entire time  
16 you were there, did you hear any airplanes go over?

17 MR. PATCH: Mr. Chairman, I just have to  
18 object again. If she's going to be able to go over  
19 everything that I raised on my cross-examination, then  
20 there would be no point in having the order that we had  
21 with friendly cross, and then, you know, "not-so-friendly  
22 cross", I guess you'd call it, or whatever. So, it just  
23 doesn't seem as though it's fair to allow her to do that.

24 CHAIRMAN GETZ: Yes. I think that the

1 Applicant is correct. I'm not going to allow these  
2 questions. Where we are now is the opportunity for  
3 redirect from Public Counsel. I'll permit a -- well, let  
4 me ask this question. Do you have redirect, Mr. Roth?

5 MR. ROTH: I'd like a minute to consult  
6 with Mr. Tocci before, but I probably will.

7 CHAIRMAN GETZ: Okay. Why don't we take  
8 -- what I suggest is take some recess and provide an  
9 opportunity for you, in your role as Public Counsel, to  
10 talk to Ms. Lewis. And, if there's something that she  
11 wants to pursue that you think is fairly within the realm  
12 of redirect, then I'll permit it. But I think it's  
13 inappropriate to allow her another round, after the  
14 Applicant has gone forward.

15 Is that acceptable to you, Mr. Roth?

16 MR. ROTH: That's acceptable to me.

17 CHAIRMAN GETZ: Okay. Let's take -- Ms.  
18 Geiger?

19 MS. GEIGER: May I inquire? Is it the  
20 Committee's intent to go back to Mr. Gravel's testimony  
21 after this? He's still here. And, so, I'm just wondering  
22 if he's going to come back tomorrow morning or --

23 CHAIRMAN GETZ: I do not see us getting  
24 to Mr. Gravel today.

1 MS. GEIGER: Okay.

2 CHAIRMAN GETZ: I think our hope was to  
3 just try to address Mr. Tocci today. And, then, I think  
4 what we were hoping to do was to address the Exhibit 44  
5 issue first thing tomorrow, then hopefully complete Mr.  
6 Gravel. And, then, I guess, depending on the Exhibit 44  
7 issue, see how we deal with the -- what would have been  
8 the redirect of the panel or other questions for the  
9 panel, depending on resolution of the Exhibit 44 issue.

10 So, let's take five minute, and then  
11 there will be an opportunity for redirect.

12 (Whereupon a recess was taken at 5:15  
13 p.m. and the hearing resumed at 5:25  
14 p.m.)

15 CHAIRMAN GETZ: Okay. Back on the  
16 record. And, let me point out that we have a quorum. But  
17 it's 5:25, and Mr. Steltzer, Mr. Perry, Mr. Harrington,  
18 and Dr. Boisvert had to leave. We have to have a quorum.  
19 As we indicated at the beginning of the hearing, we would  
20 proceed, so long as we had a quorum. It is the  
21 responsibility of the members who are not here at the  
22 moment to read the record at this point, which will  
23 comprise of the redirect examination and testimony of Mr.  
24 Tocci.

1                   So, Mr. Roth.

2                   MR. ROTH: Thank you. I'll try to be  
3                   brief. I have a few questions.

4                   REDIRECT EXAMINATION

5 BY MR. ROTH:

6 Q. During your cross-examination, there was a question  
7                   asked about the criteria at Lempster. And, the  
8                   suggestion was made that this would be well within the  
9                   criteria at Lempster. But doesn't your testimony have  
10                  more than just one criteria to follow?

11 A. That's correct. It has two parts. One, based on the  
12                  baseline as a reference, and another as an absolute  
13                  value, yes.

14 Q. Now, with respect to the questions about the Baker  
15                  River, and without meaning to cast any aspersions about  
16                  the cross-examination, but I'm afraid that the  
17                  questions and the testimony was somewhat misleading.  
18                  Is it your understanding that Epsilon, in 2009, did any  
19                  measurements at the Baker River Campground?

20 A. I understand they did not.

21 Q. So, the only person who did measurements at the Baker  
22                  Campground was you?

23 A. That's correct.

24 Q. Okay. And, when you did those measurements in 2010,

1           what was the effect of the sound of the river that you  
2           noticed on the results that you obtained?

3    A.    I don't believe the river made any noise at the time  
4           over that period.

5    Q.    Okay.  Now, with respect to Tenney Mountain, did -- the  
6           question was asked about noise made by snowmaking  
7           machines, grooming machines, and the like.  From your  
8           understanding of Epsilon's report, what consideration  
9           did Epsilon give to those factors when it modeled or  
10          when it accounted for the background sound at Tenney  
11          Mountain?

12   A.    I don't recall that they attempted to factor in any  
13          activities, other than what was going on at the time  
14          that they made measurements.

15   Q.    Okay.  So, they didn't include anything in there about  
16          snowmaking or grooming?

17   A.    Not that I can recall.

18   Q.    Okay.  And, are you a skier?

19   A.    Yes, I am.

20   Q.    Okay.  Good.  So, that makes you an expert, right?  Not  
21          really.  Are snowmaking and grooming done all night,  
22          every day, all winter long?

23   A.    I would say not every night, all night long, all winter  
24          long, no.

1 Q. So, do they typically start sometime after  
2 Thanksgiving, and then finish, you know, the end of  
3 February, in terms of ever doing it?

4 A. It's my experience is they start in December, and  
5 continue maybe towards the middle of March, beginning  
6 of March.

7 Q. Okay. And, now, there were questions by,  
8 unfortunately, absent Commissioner Steltzer, about  
9 trying to match the wind rose to the anticipated risk  
10 of noise at various points. Can you tell from this  
11 wind rose where the center of the wind rose is  
12 oriented?

13 A. No, not exactly. It only says "Wind rose for Groton."  
14 I'm not sure where in Groton it's --

15 Q. Okay. And, can you tell from this wind rose where  
16 Tenney Village is or Plymouth or any of those locations  
17 that were discussed?

18 A. No, I cannot.

19 Q. Okay. And, what's the point of this exercise, in terms  
20 of trying to understand, why do we want to measure the  
21 noise impact of the Project? And, in particular, why  
22 does the model assume the worst case scenario, that is  
23 all turbines pointed at a particular receptor, at full  
24 speed, at a given time?

1 A. It's stated that, in the standard, that it's to be a  
2 conservative estimate, a conservatively high estimate  
3 of sound levels.

4 Q. Okay. Now, the last question is, there were some  
5 questions about the "Community Noise Rating". How does  
6 that relate to an impact from a project like this on a  
7 community?

8 A. If you were to implement the CNR method on the wind  
9 turbine, it would be taking the characteristic curve  
10 and applying adjustments to it to account for low  
11 background sound; the prior experience of the community  
12 with sound of that -- from that type of facility. It  
13 would also account for any characteristics like impact  
14 sound or modulated sound of some type that might be  
15 characteristic of that source. And, that allows you to  
16 calculate and make -- create a relationship between  
17 community response and sound levels produced by the  
18 facility.

19 Q. And, have you read any papers or anything about how  
20 that response has been understood or taken in any  
21 particular instances?

22 A. I have seen one, I believe it would be classified as a  
23 "pre-published paper", implementing the CNR rating  
24 method on wind farms.

1 Q. And, what was the result of that paper? What did that  
2 paper describe?

3 A. The result of the paper was that they created a  
4 relationship between wind farm sound at a receptor  
5 location and anticipated community response. They also  
6 overlaid with their method data collected by Pedersen  
7 and Wayne and published in that 2004 JASA paper, JASA,  
8 Journal of Acoustical Society of America, and found  
9 reasonably good agreement between the determinations in  
10 that Pedersen and Wayne paper and what would be  
11 otherwise determined using the CNR method.

12 Q. Okay. And, what was kind of their interpretation?  
13 What did they find when they did that comparison?

14 A. They found that 32 dBA corresponds to sporadic  
15 complaints. And, that is assuming that wind turbine  
16 sound has a characteristic either thumping sound or  
17 impact sound or some other tonal or time variant  
18 character that makes it particularly distinguishable,  
19 which is not the case all the time for wind turbines.

20 Q. So, the 32 dBA being the combination of the background  
21 and the turbine sound?

22 A. Just the turbine sound alone.

23 Q. Just the turbine sound alone. And, what about at  
24 higher levels?

1 A. At higher levels, as determined using this method, the  
2 complaint history would be more aggravated.

3 MR. ROTH: Okay. Thank you. That's all  
4 the questions I have on redirect.

5 CHAIRMAN GETZ: Okay. Thank you.  
6 Anything further from the Subcommittee? Dr. Kent.

7 DR. KENT: Could you make that paper  
8 available to us you just spoke about?

9 WITNESS TOCCI: Yes, I can.

10 DR. KENT: Thank you.

11 CHAIRMAN GETZ: Let's hold Public  
12 Counsel Exhibit Number, what are we up to?

13 MR. ROTH: Fifteen.

14 CHAIRMAN GETZ: -- 15 for that. Is that  
15 the Pedersen and Waye?

16 WITNESS TOCCI: No. The paper is by  
17 Ambrose and Rand. And, they cite the Pedersen and Waye  
18 paper in their analysis.

19 CHAIRMAN GETZ: Okay. Thank you.

20 (PC Exhibit 15 reserved.)

21 MR. IACOPINO: I just have one question.

22 BY MR. IACOPINO:

23 Q. You talked about the first criterion. Is that what's  
24 contained on your supplemental testimony at Page 12?

1 A. That is correct.

2 Q. Okay. But the first criterion you have three sound  
3 levels there above your determined baseline. How is  
4 the Committee supposed to use that criterion?

5 A. Sure. The idea is that Criterion Number 1 references a  
6 baseline sound level. So, when facility sound level --  
7 a facility sound causes the background sound to  
8 increase by five dB or less, there would be no impact;  
9 if a facility caused the sound levels to increase by up  
10 to 10 dB, there's, 5 to 10, there's minor impact; and  
11 over ten, significant impact. Now, totally aside from  
12 that increase produced by the facility, if sound  
13 produced by the facility exceeds 40 dBA, there would be  
14 impact. So, it's a way of looking at impact as an  
15 increase over background, as well as an absolute level.

16 Q. I understand that. But I guess my question is when  
17 does the Committee take action under Criteria 1? I  
18 mean, are you -- I understand Criteria 2 "shall not  
19 exceed 40 dBA". That could be measured.

20 A. Yes.

21 Q. But how do you take action if you use Criteria 1?

22 A. I would say that noise controls are required when there  
23 is significant impact. And, if there's minor impact, I  
24 think the Committee ought to look at any special

1           circumstances that might also require noise control, if  
2           that seems appropriate because of a special condition.

3       Q.    So, it would be definitely there should be some kind of  
4           noise controls, if it's greater than 10 dBA above  
5           baseline level, and some sort of site-specific  
6           remediation if it's in the minor impact level?

7       A.    Yes.

8                           MR. IACOPINO:  Thank you.

9                           CHAIRMAN GETZ:  Dr. Kent.

10                          DR. KENT:  Yes.

11       BY DR. KENT:

12       Q.    One thing you just testified to, you said "the river  
13           played no part in the sound levels during your  
14           testing"?

15       A.    At Baker River Campground.

16       Q.    At Baker River Campground.  So, if that river was  
17           moving, you would expect some increase in background  
18           levels?

19       A.    If it generated turbulence.  If the level just rose  
20           without producing turbulence, I don't expect it would  
21           produce much noise.

22       Q.    So, we have an unknown.  We don't know how that river  
23           flows during most of the year?

24       A.    That's right.  I think, in looking at the data, I was a

1 bit confused, thinking that the question pertained to  
2 Groton River [sic] and Halls River [sic] Road, where  
3 those rivers were in the vicinity that were producing  
4 sound were turbulent and a steeper slope, and there was  
5 a lot of water turbulence generating sound. That, in  
6 the summer, yes, there's probably less turbulence, less  
7 water flow; in the winter or other times of the year,  
8 particularly when I measured, it may be the explanation  
9 for why I measured higher sound levels in October than  
10 Epsilon did in October.

11 Q. Were you at the campground during a rain event in  
12 October?

13 A. No, I was not.

14 DR. KENT: Thank you.

15 CHAIRMAN GETZ: Anything further from  
16 the Subcommittee?

17 (No verbal response)

18 CHAIRMAN GETZ: All right. Hearing  
19 nothing, then we will excuse Mr. Tocci. Thank you.

20 Let's take stock for a second of where  
21 we are for tomorrow. I guess I was thinking of starting  
22 at 9:00, and originally had proposed the issue of hearing  
23 argument about what to do about Exhibit 44. I think,  
24 Mr. Roth, you mentioned earlier, when we came back from

1 one of the recesses, that there was some discussion going  
2 on among the parties about the exhibit. Would it -- is  
3 there the possibility that there be some agreement?  
4 Should we start later than 9:00 to let the parties have an  
5 opportunity to speak? I'm just asking what's the best  
6 procedure for tomorrow morning?

7 MR. ROTH: Well, Mr. Chairman, we did  
8 have some discussion about sort of, not just in particular  
9 Exhibit 44, but a number of open questions, concerning the  
10 production of the evidence in this case on a couple of  
11 different issues, including the DHR question and whether  
12 to -- how to approach that. I would prefer a later time  
13 to have argument over that, for no other reason, I need to  
14 consult, you know, back home on how to approach that  
15 question, because there are a number of options and  
16 approaches that could be taken to it. And, so, before I  
17 can take a particular position, I need to, you know, phone  
18 home, so to speak.

19 CHAIRMAN GETZ: So, would it be better  
20 then to not have that argument tomorrow morning, perhaps  
21 go back to Mr. Gravel at the beginning of the day  
22 tomorrow, and then move on, while you seek guidance and/or  
23 the parties have a conversation?

24 MR. ROTH: Yes. I think that would work

1 better for me.

2 MR. PATCH: We would agree with that.

3 CHAIRMAN GETZ: So, then, well, then  
4 does it make sense to resume with Mr. Gravel at 9:00, to  
5 complete his examination by the Subcommittee, and then  
6 redirect. And, then, we still need to, depending how the  
7 argument and/or talks go, that the panel I guess is still  
8 in suspense, would we want to then go to Mr. Lloyd-Evans?

9 MR. ROTH: Yes, I would like to. I  
10 mean, Mr. Lloyd-Evans was supposed to be on today, and he  
11 came actually yesterday to observe Mr. Gravel, which I  
12 think we did not observe Mr. Gravel yesterday. So, he's  
13 been here for a second, and it will be his third day  
14 tomorrow, and I very much would like to get him on and  
15 home to Massachusetts.

16 CHAIRMAN GETZ: Does anybody know, where  
17 are we with respect to the Plymouth witness? Is he on  
18 call?

19 MR. IACOPINO: He'll be here tomorrow.

20 CHAIRMAN GETZ: And, then, how about the  
21 -- where are we with Mr. McCann and the arrangements?

22 MS. LEWIS: He can be available tomorrow  
23 afternoon or Friday morning, was the last I heard.

24 CHAIRMAN GETZ: All right. Well, I

1 would suggest then that we start tomorrow morning at 9:00,  
2 hear from Mr. Gravel, then go to Mr. Lloyd-Evans. And,  
3 then, as we keep doing, take stock of where we are and  
4 figure out our next steps from there.

5 MR. IACOPINO: I just have a question  
6 for Counsel for the Public. Does that give you the  
7 opportunity to do the consultation you need to do, if you  
8 have to be here?

9 MR. ROTH: Not necessarily. It's not  
10 entirely up to me, but depending on who I have to find to  
11 talk to.

12 MR. IACOPINO: I understand. But is it  
13 something that Mr. Mulholland can cover, while you're  
14 making -- trying to --

15 MR. ROTH: Yes. He can perhaps cover  
16 Mr. Gravel in the morning, while I track down the Attorney  
17 General.

18 CHAIRMAN GETZ: Anything else this  
19 evening?

20 MS. GEIGER: Yes. I do have a question  
21 about the Leo/Walker/Rendall panel. Because it's my  
22 understanding, I wasn't quite certain as to whether or not  
23 we -- whether or not the Bench was finished asking them  
24 questions? My understanding was that the parties weren't

1 given an opportunity to cross-examine them about  
2 Exhibit 44. And, so, does the possibility exist that they  
3 may be able to come back to testify?

4 CHAIRMAN GETZ: I guess it depends on  
5 what the resolution is with respect to Exhibit 44. If  
6 it's not in, then there would be opportunity for redirect.  
7 If it's in, we have to address how, an opportunity to  
8 prepare cross-examination from all the parties, --

9 MS. GEIGER: Right.

10 CHAIRMAN GETZ: -- and then questions  
11 from the Committee, and then redirect.

12 MS. GEIGER: Okay. So, either way, they  
13 need to come back?

14 CHAIRMAN GETZ: Well, if you didn't have  
15 any -- if we don't let Exhibit 44 in, and you don't have  
16 any redirect, they wouldn't have to come back.

17 MS. GEIGER: Okay.

18 MR. ROTH: And, obviously, if Exhibit 44  
19 is at least -- is withdrawn for now, with the idea that it  
20 can be brought back later, when some other type of -- some  
21 way to deal with it is worked out, then sort of things can  
22 go back on track and work a little more smoothly. And, I  
23 would love that, but it's not up to me.

24 CHAIRMAN GETZ: Okay. Well, let's see

1 if there's some meeting of the minds among the parties,  
2 and then see what -- if there's a joint proposal or  
3 separate proposals that we need to rule on.

4 MR. IACOPINO: I would also ask that you  
5 please try to include the other -- other parties as well,  
6 the Buttolph/Lewis Group, as well as the Mazur Group, to  
7 the extent they're available to do so. Just so we don't  
8 have trailing objections.

9 CHAIRMAN GETZ: All right. Anything  
10 further?

11 (No verbal response)

12 CHAIRMAN GETZ: Hearing nothing, then  
13 we'll recess for the day and resume at 9:00 a.m. tomorrow  
14 morning. Thank you, everyone.

15 MR. ROTH: Thank you.

16 (Whereupon the hearing was adjourned at  
17 5:44 p.m., and the hearing to reconvene  
18 on Thursday, November 4, 2010,  
19 commencing at 9:00 a.m.)  
20  
21  
22  
23  
24

SEC 2010-01 DAY 3 AFTERNOON SESSION - November 3, 2010  
GROTON WIND, LLC

	<b>83:10;111:23</b>	<b>119:8</b>	<b>86:8;105:6;113:23;</b>	<b>22:3,14;24:15,20,23;</b>
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