November 4, 2010-2:05 p.m. Public Utilities Commission 21 South Fruit Street Suite 10
Concord, New Hampshire

DAY 4
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)

Robert Scott, Director Brook Dupee, Bureau Chief Richard Boisvert
Stephen Perry, Chief
Charles Hood, Administrator Donald Kent, Administrator Eric Steltzer Michael Harrington, Engineer Public Utilities Commission

Counsel for the Committee: Michael Iacopino, Esq.

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

ALSO PRESENT:
Counsel for the Applicant: Susan S. Geiger, Esq. (Groton Wind, LLC) Douglas L. Patch, Esq. (Orr \& Reno)

Counsel for the Public: Peter Roth, Esq. (Sr. Asst. Atty. General) Michelle Thibodeau

Reptg. the Buttolph Group: Cheryl Lewis, Intervenor
Reptg. the Mazur Group:
Dr. Lawrence Mazur, Intervenor Sarah Mazur, Intervenor Christine De Clercq-Mazur, Int. Richard Wetterer, Intervenor



PROCEEDING
CHAIRMAN GETZ: Good afternoon, everyone. We're back on the record in Site Evaluation Committee Docket 2010-01, concerning the Application of Groton Wind, LLC for a wind turbine facility in Groton, New Hampshire. And, the first item of business this afternoon is an opportunity for public comment.

So, if there's anyone from the public
who would like to speak this afternoon, please come forward? And, if you can just state your name and address for the record, and speak slowly, so Mr . Patnaude can get the remarks into the transcript.

MR. ONNELA: I've got that down, "Speak slowly". Kevin and Debbie Onnela. I started attending these hearings in 2006, when our farm was put in. I have listened to some very intelligent people speak about subjects that were very -- that were way over my head. I have also listened to some very misinformed people tell about stories about 400-pound chunks of ice, flying 4,000 feet from turbines and the threatening the lives of neighbors. Children with ADS would not be able to learn because of the spinning blades. Next week, the wind farm that surrounds my house will be two years old. And, I am proud to say that none of these things that were -- were
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true.
In our town, we have discovered that wind farms are good neighbors. They do not use our schools. In fact, they give our children a place to go for field trips, to learn about alternative ways to produce electricity. We hosted over a thousand grade school students last year; to say nothing about the students from Vermont Law, Colby Sawyer, and Keene State Colleges. The police and the fire services have not been needed for Lempster Wind. Trash from this farm is trucked and disposed of by Iberdrola, with no cost to the residents of Lempster.

Our Little League is supported through donations from this company. Scholarships have been given. And, the best asset they have brought to our village of about a thousand residents is the taxes they pay. People stop and thank us for lowering their taxes. I just smile and accept their praise, even though it was not me that lowered their taxes; it was Iberdrola Renewables.

I have heard complaints that they are foreigners. So, I did a little investigation on people that I do business with. I have money in Citizens Bank, in Claremont, New Hampshire. And, they are owned by the
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Royal Scottish Bank. The second foreign-owned company that I found that I do business with is Pike Industries. They did most of the paving for the American Recovery Act in New Hampshire, and I buy bluestone from them. They are owned by Oldcastle, Inc., who is a subsidiary of CRH, a publicly owned corporation in Dublin, Ireland. Last, but not least, a company that $I$ do a lot of business with is Budweiser. They are owned by InBev, a Belgian company. I hope this does not stop you from carrying the red, white and blue.

If you drove to this meeting in your Mercedes, BMW, Volvo, or Subaru, you did more to promote foreign business than Iberdrola does. As their turbines, which are produced mostly in this country, the blades for our towers were built in Ebensburg, Pennsylvania, the nacelles were built in Fairless, Pennsylvania. The towers, I'm not sure where they were built, because they were delivered through the port in Portland, Maine. The last issue I'd like to address is the subsidies that have become an issue. I ran a sawmill for 30 years. I guess you would say that I got subsidies for all those years. If I bought a piece of equipment, I could write off the total cost of that piece in five years. Many people do not realize this, because the only
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thing you get to write off is the interest on your home loan and your medical expenses. This is one of the reasons small businesses did so well in the USA. These are the incentives that make people like me invest the money that I have made and create new jobs.

I hope the people of Groton and the people of New Hampshire welcome this wind farm with open arms, as it will be a win/win situation for all of us. Thank you. Kevin and Debbie Onnela.

CHAIRMAN GETZ: Thank you. Other speakers? Good afternoon.

MS. HAMEL: Good afternoon. My name is Pamela Hamel. I live at 17 Old Rumney Road, in Groton. I would like to thank you for this opportunity. And, I will be brief. I have been living in the Plymouth area for 14 years. And, I've seen a number of changes. I saw Tenney Mountain Highway go from a few businesses, with one traffic light, to a lot of businesses, three traffic lights, rumor of a fourth. Things are changing. I've seen small businesses that have sprung up along Route 25 in Rumney. I've seen the hillsides become dotted with single-family homes and condominiums.

I don't think that anyone can deny that there has been growth and development in that area.
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Growth and development mean a number of things, and one of them is the need for energy. And, the energy needs to come from somewhere. Is it right for us to expect to use our cellphones, turn on our lights, drive our cars, our boats, our snowmobiles, cook our meals, know that our furnace is running and keeping us warm, watch a movie, surf the Internet, listen to music, print out an admission ticket for a play or a basketball game, light up our Christmas tree, have our washing machine wash our clothes and our dryer take care of things? The list goes on. Is it right for us to expect to use all of those things and somehow not be impacted by the production of the energy that it takes to use those things?

Obviously, there is local impact to this project, both positive and negative. It will change the Baker River Valley. But I believe that that change is positive. I believe it will be beneficial to the small businesses in that area. I believe that there will be educational benefits. This energy is green, it's renewable. It will benefit us either directly or indirectly. And, we have the privilege of seeing it produced in our backyard, not sending it off to somebody else's backyard.

I ask that you grant the Applicant a
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Certificate of Site and Facility for this Project. Thank you.

CHAIRMAN GETZ: Thank you. Sir.
MR. PITMAN: "Please Slow Down", okay. My name is Greg Pitman. And, I am the Executive Director of the New Hampshire Campground Owners Association, representing over 175 public and private campgrounds in New Hampshire. I'm here to represent the Baker River Campground owned by Cheryl and Rick Lewis, in Rumney, New Hampshire, and to make a brief statement.

Small business owners are the backbone of New Hampshire's economy. Baker River Campground, owned by Cheryl and Rick Lewis, in Rumney, is one of the small mom-and-pop businesses in New Hampshire. They are very concerned about the future of their campground that serves a lot of tent campers who come for the peace and quiet of the New Hampshire countryside.

The Lewises are not against wind power as a viable source of electric power, as we find ways to reduce our dependence on oil. But they are concerned that the noise from the proposed wind farm close to their campground will drive business away. How is this proposed project working with neighboring properties to minimize the impact of the wind farm on these businesses and
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homeowners? Have the concerns of the abutting property owners been taken into consideration? How will the abutters be reimbursed, should there be a detrimental effect upon their businesses?

Those are the questions we put before you. Thank you.

CHAIRMAN GETZ: Thank you, sir. Others? MS. STURGEON: Good afternoon. Cathy and Norm Sturgeon, owners of Sturgeon's General Store, in Lempster, New Hampshire. Personally, the resurrection of 12 wind turbines in Lempster did a lot for me, and I will let my husband speak for what it's done for him. Personally, it raised my awareness of wind power and alternate, you know, sources of energy. You know, being in Lempster, $I$ just went about my daily business, and there was things that $I$ didn't pay much attention to. And, when it came to our town, the crew specifically taught me a lot. When they came into my store for lunch, they told me a lot about how -- what goes into building and exactly, you know, how much wind -- sorry, how much power it was going to generate, and what it would do for approximately 10,000 homes.

But it also, as a business, we were just starting our business when the project went into place.
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And, Ed Cherian, from Iberdrola, let them know that we were starting up. And, that crew came down to our store on a daily basis. And, it gave our company, our store, the boost that it needed to get going in such a small town. And, to this day, it still generates business for us. We have people who come in on a weekly basis. They inquire about the wind turbines. They spend money in our store. So, it's an economy boost for our town as well. It gives us the ability to stay open. And, Lempster residents don't have to travel 14 miles for a gallon of milk. So, it does a lot more than create the energy, and it helps the economy. And, I know that there are concerns out there about noise and the landscape. I, as a nature lover, you know, love going out in the woods and everything. But it is a blessing for me every day, when $I$ drive down the hill four minutes to my store, to look up and see the wind turbines.

And, as far as noise, we have friends who live right below one of them. And, we have actually sat at their table, had a glass of wine and had dinner, and not once heard the wind turbine running.

So, I would encourage people, because we have had busloads, and we have another busload of folks coming to view the wind turbines on the 13 th of November.
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And, I would encourage people who have concerns to do the same thing. To arrange a tour to, you know, the wind turbines, and check out what it's like to stand there. Because I can stand right outside my store and look up at those, and I don't hear a thing. So, --

MR. STURGEON: You did a very good job. I would just say that, if you're running a dishwasher in your house, you're not going to hear anything, other than that dishwasher, if you have a turbine right above you. It's that quiet.

MS. STURGEON: Actually, your dishwasher makes more noise than a wind turbine does.

MR. STURGEON: That's what I'm saying, yeah. And, to anybody that has a campground, who's concerned about, you know, the detraction of wind turbines. I would say, you're probably going to gain campers, groups of people coming in from the curiosity factor. And, it's just -- it's just not that big of a thing. It has so many more benefits than it does detractions.

MS. STURGEON: One of the other concerns that I heard from folks was that the people who were living close to the wind turbines is saying "I'll never be able to sell my house now", and they were very upset.
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Well, we actually have -- I know of two people at this point who continually come to Lempster on a monthly basis looking for real estate, because they want to live near wind turbines.

So, again, it's more about educating people about wind energy and the wind turbines, to gain their respect as well. Thank you.

MR. STURGEON: Thank you.
CHAIRMAN GETZ: Thank you. Anyone else?
(No verbal response)
CHAIRMAN GETZ: Okay. It doesn't appear that there are other members of the public who wish to speak this afternoon. So, then we will resume the hearings. And, I believe, Mr. Roth, we're turning to Mr. Lloyd-Evans.

MR. ROTH: Finally. Thank you.<br>(Whereupon Trevor Lloyd-Evans was duly sworn and cautioned by the Court Reporter.)<br>TREVOR LLOYD-EVANS, SWORN<br>DIRECT EXAMINATION

BY MR. ROTH:
Q. Mr. Lloyd-Evans, good afternoon.
A. Good afternoon.
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Q. Thank you for your patience in bearing with us these few days.

> CHAIRMAN GETZ: Mr. Roth, I think -MR. ROTH: I'm sorry?
> CHAIRMAN GETZ: -- Mr. Patnaude needs to hear --

MR. ROTH: He knows what I'm saying before I even say it.

BY MR. ROTH:
Q. I'm showing you a document that's labeled "Public Counsel Exhibit 3", and identified as "Testimony of Trevor Lloyd-Evans" submitted in this case. Is that your testimony that you've prepared and submitted in this case?
A. It is.
Q. Okay. Did you prepare that testimony as a result of an agreement that you reached with me and supported by the Applicant to provide testimony in this case?
A. Yes.
Q. Thank you. Is there anything that you would care to change in your testimony? Any corrections or revisions that you think are necessary to maintain its accuracy?
A. I can think of no changes. The only thing that has come up since I gave you this testimony is that some
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more data have come from the proponent. And, especially, the Spring and Summer 2010 Acoustic Bat Survey Report. And, so, some of my objections to that same data would be taken care of by that. But, other than that, I stand by the --
Q. Okay. If I can refresh your recollection perhaps a little bit, during the last couple of days, parties have suggested that in your testimony you stated that you hadn't had an opportunity to review the Applicant's reports and information that had been provided either with the Application or subsequent. Have you at this point been able to review those materials and include them in your opinion?
A. At this point, I have, yes.
Q. Okay. And, based on what you now are, having had the opportunity to review those materials, and I suppose including material received with $I$ guess it was the 2010 Bat Survey?
A. (Witness nodding in the affirmative).
Q. Is your opinion and testimony still the same as is presented there for the Subcommittee?
A. It is.

MR. ROTH: Okay. There being nothing
else, I'll make the witness available for
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cross-examination.
CHAIRMAN GETZ: Okay. Thank you.
Mr. Sinclair, do you have questions of this witness?
MR. SINCLAIR: None. Thank you.
CHAIRMAN GETZ: And, Dr. Mazur?
DR. MAZUR: Yes. Hello, Mr.
Lloyd-Evans.
(Court reporter interruption.)
CHAIRMAN GETZ: Dr. Mazur.
DR. MAZUR: Oh, yes. Hello, Mr.
Lloyd-Evans.
WITNESS LLOYD-EVANS: Good afternoon, sir.

## CROSS-EXAMINATION

BY DR. MAZUR:
Q. Could you please share with those present in the room core differences that you perceive between your own and Mr. Gravel's testimony?
A. I believe that when one is trying to collect data that will give us information on the relative abundance of species and species present, mostly birds and bats, that the main difference between my approach and Mr. Gravel's is that I would really like to see more than one year of information. This is because of the
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natural variations and fluctuations from year to year, may have to do with breeding seasons, weather, a number of factors that are outside our control. And, that probably is the biggest difference between the two approaches.
Q. Would you suggest then that perhaps more bird and bat pre-construction studies should be done at this time, prior to this Committee's consideration of the Applicant's Application?
A. I think that would be very appropriate, yes.
Q. Would you clarify whether you're asking for one more 12-month period of study or 12 months plus?
A. If I may take an example. Looking at diurnal raptors, which have been a feature of many concerns amongst a number of people in these hearings, we've had two seasons from the proponent in one year, in spring and in fall; although, in fact, this was 11 days in spring and 10 days in fall. I would not view that as either an appropriate time span during each of those seasons. And, I would like to see at least one more season, to have a reasonable idea of which raptors are passing through, especially considering that a number of the species that have already been observed are threatened or endangered under New Hampshire law.
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Q. And, in addition to recommending additional pre-construction studies, do you have any other recommendations that might be in addition to Mr . Gravel's testimony?
A. I think we have all agreed that pre-construction sampling is not going to give us any information precisely about any mortality that may happen after the turbines have been erected and are in operation. It would seem sensible to have a thorough and reviewable and independent study of any mortality that might happen. And, so, I think the principal differences between Mr. Gravel's proposals and what I would recommend to the Committee have to do with the number of years. That I would think at least three years would be appropriate after construction. And, the degree of review of the data, preferably on a yearly basis, by suitable authorities, such as the U.S. Fish \& Wildlife Service or New Hampshire Fish \& Game, so that that could be integrated. And, then, following Mr. Gravel's system of not just collecting data for data sake, but being able to adapt the data collection to make it more useful, I think that would be better achieved by those methods.
Q. I think I have one last clarifying question. When you
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recommend an "independent study", do you mean a study carried out by parties that might be free of conflict of interest in this matter?
A. That would be nice. Or, a study presumably more likely to happen funded by the proponent, but reviewed by suitable authorities, such as U.S. Fish \& Wildlife or New Hampshire Fish \& Game, would give me a lot more confidence in interpretation of the results.

DR. MAZUR: I want to thank you. And, those are all the questions from this group.

CHAIRMAN GETZ: Okay. Thank you. Ms.
Lewis.
MS. LEWIS: Good afternoon, Mr.
Lloyd-Evans.
WITNESS LLOYD-EVANS: Good afternoon.
BY MS. LEWIS:
Q. My first question comes from your prefiled testimony,

Page 4. You have mentioned that you have strong Concerns regarding the methods the Applicant used in determining the significance of the mortality counts. And, after hearing his testimony over the last three days, could you comment on whether you still have these same grave concerns?
A. This is the post mortality surveys, Ms. Lewis?
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Q. The significance of the mortality counts.
A. Of the post, yes. Post-construction mortality, yes.

MR. ROTH: If the witness could call his
attention to Public Counsel Exhibit 4. And, it's at Page 4, the paragraph at the top, and review that before answering the question.

MR. IACOPINO: Four or three?
MR. ROTH: Is it 3 ? I'm sorry. It's
his testimony, whichever exhibit that is.
MR. IACOPINO: Three.
MR. ROTH: Three. Three then.
BY THE WITNESS:
A. So, in reference to post-construction mortality, what would I prefer to see?

BY MS. LEWIS:
Q. As far as the methods themselves, yes.
A. As far as the methods themselves. The methods proposed I think in the first year, by Mr. Gravel and his group, involve carefully assessing with corpses what the rate of success of finding these birds, these animals is, and then evaluating that and adjusting the data. And, they propose to do that for one year. It's an extremely good method. I'd be very happy to see them do that. But it would seem to me to make sense to do
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this for a number of years. So, again, to revert to the previous point, to avoid year-to-year fluctuations and changes, changes in mortality at wind turbines have been observed in other countries. I'm referring in my testimony to the impact of wind turbines on birds in Zeebrugge, Belgium; 161 terns were killed from a number of turbines that were situated very close to a breeding colony. And, the number of terns killed differ dramatically from one year to the next, because of a different flight direction away from the breeding colony to food sources. And, that differed from year to year. That's just an example of the sort of year-to-year variation that may occur. So, this is why I think a number of years may be appropriate.

The proponent also suggests that, after this, they would continue, as a matter of course, through the life of the Project, I believe, to have personnel searching for any more mortality, noting down the species, photographing, using a GPS. This seems very appropriate and should be very useful.
Q. Thank you. Do you feel that the Applicant, through their consultant's testimony, explained the impact on the protected raptors during breeding seasons,
post-fledgling dispersal, and spring and fall
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migration? And, how that would be mitigated, if there is an issue? I know you had mentioned that as a major concern in your prefiled testimony as well.
A. Again, we are getting to the question of how much work has actually been done, and over what period. During the fall migration, there was one season examination of diurnal raptors, and that was, I believe, ten days. And, the ten days were -- excuse me one minute. I believe the ten days in Fall 2009 were from August 24th to October the 26 th . And, the number of -- the species involved included a number of species of interest in the state. This would be bald eagle, northern harrier, peregrin falcon, and I think golden eagle. And, the migrations of at least two of those species, the two eagles, actually lie outside the dates of the single year of the ten days of fall migration studies. So, I would say that's not enough. I would like to see at least another season's work there.

And, the fact that there are two peregrin falcon nests, both within 5 miles, 1 believe 5 and 2 miles from the proposed site, would seem to be a priori, a case of collecting at lease one more season's data.
Q. And, how do you feel, though, regarding the responsive
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mitigation if either a peregrin falcon or a bald eagle was found killed from one of the turbines? Do you have an opinion on what should be mitigation for that type of situation?
A. I think that would very much be a matter for the legal authorities in the State of New Hampshire. And, this again would be important why the information should be made available, planning and results, to the New Hampshire Fish \& Game or U.S. Fish \& Wildlife Service, whichever is the appropriate authority, so that this can continue and be reviewed by appropriate authorities. I don't have any personal opinions on what should be legal and what should not in New Hampshire.

MS. LEWIS: Thank you. That's all the questions I have.

CHAIRMAN GETZ: Thank you. Ms. Geiger. MS. GEIGER: Thank you. Good afternoon, Mr. Lloyd-Evans.

WITNESS LLOYD-EVANS: Good afternoon,
Ms. Geiger.
BY MS. GEIGER:
Q. I want to make sure I understand what you're advocating in this case. I thought I just heard you say, in your
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oral testimony, that "the Applicant should conduct at least three years of post-construction mortality surveys." Did I hear that correctly?
A. Yes.
Q. But isn't it true, on the last page of your prefiled testimony, you said that "the Applicant should, at a minimum, conduct a two year post-construction mortality survey"?
A. Yes.
Q. Okay. So, why have you apparently changed your mind about that?
A. Having seen the data, and had a chance to -- a lot of these data appeared a very short period before we had to prefile our testimony. And, having now had plenty of time to look at it, it seems to me that we have a serious concern, in terms of raptors. And, I obviously do not know whether any raptor will be killed by the wind farm, but there are species of interest in the state, both breeding and during spring and fall migration.

And, then, secondly, $I$ was able to review the decision granting Certificate of Site and Facility with conditions for the State of New Hampshire for the Application of Granite Reliable Power, LLC.
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And, I think many of us were all involved in that discussion at that time. And, looking at the orders there I found, if I may quote from it, "Applicant shall implement a post-construction bird and bat mortality study, designed by its consultants and reviewed and approved by New Hampshire Fish \& Game. The study should be conducted for three consecutive years. A full report and analysis should be produced after each complete year. In addition, the Applicant shall be required to conduct post-correction breeding bird surveys that replicate the pre-construction surveys for the project site. New Hampshire Game [sic] shall review and approve the protocols", and so on.

And, it seems that we have at least as many, if not more, of the species of interest to the state, in terms of migratory and breeding diurnal raptors in this study. And, so, it seems as if it would be a very fair way of assessing the mortality.
Q. Now, what is your understanding of what the Applicant proposes to do, in terms of its post-construction mortality work?
A. I've heard Mr. Gravel's testimony. Without seeing it directly in front of me, I understand that there will be a first year in which the methods will be assessed
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and the rate of discovery of experimental bodies of birds and mammals be assessed, so that we can achieve a reasonable correction. And that this will be continued for one year. I did not see that this would be continued for three years, either year 1, 3, and 5, as in Granite Reliable Power. It seems to me that, after that one year, there would be discussions with Fish \& Game. And, after that, it would be more a random method of whatever the site personnel came upon in the course of their other duties. Although, I understand that you do have somebody who is designated as an official in some way or part of their job is to look for mortality.
Q. Okay. Now, have you reviewed the Applicant's -actually, have you reviewed the Application, more specifically, Page 78, where we describe exactly what Groton Wind intends to do for a post-construction survey?
A. I have done, but maybe don't recall the detail.
Q. Okay.
A. Refresh my memory.
Q. Well, would you be surprised or would you agree with me that the Applicant has, in fact, committed to having a qualified third party consultant, not just assess, but
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actually conduct a year's worth of formal post-construction monitoring, similar to what the Applicant did at the Lempster Wind Project? Does that sound familiar?
A. That sounds excellent, yes.
Q. Okay. Does that sound like a good idea?
A. It certainly does.
Q. Okay. And, isn't it also true that the Applicant has committed to a second year of monitoring in the same way, if mortality levels from the first year of post-construction monitoring at the Groton Project are higher than the then current threshold of mortality ranges at wind projects in the Northeast?
A. I don't think I would agree with that. I think there is so little information about mortality in the Northeast, after all, we have very few wind turbines in operation. And, so, I think, absent the sort of information that may indeed be appropriate in California, where they have had these wind turbines for much long, or other parts of the country, I think I would like, as in the Granite Reliable Power, to see three careful years of the sort of study that you had described for year one, so that we can collect this information, and then we will know a lot more about the
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possible mortality associated.
Q. But isn't it true, under the Applicant's plan, that, if after year one, the Applicant determines that the mortality rates are higher than what are being experienced at other wind farms in the Northeast, that they will, in fact, study the cause of that and conduct a second year of formal post avian construction?
A. I understand. And, I think I would rather see my choice, and I guess Granite Reliable Power's situation, three years conducted very carefully anyway by professionals. And, I think a very important part of this is the review, not a decision perhaps by the Applicant or employees of the Applicant, but a review by New Hampshire Fish \& Game, so that this is taken out of any possible conflict that might be perceived.
Q. Well, would it -- do you know whether, under the Applicant's plan, that it -- what it will do with its first year mortality survey results?
A. I believe there were going to be discussions with the appropriate authorities. And, that is excellent.
Q. Okay. So, is it your position that, even if the first year of post-construction surveys show that mortality rates are within or lower than the range of mortality found at other projects in the Northeast, hasn't the
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Applicant agreed to continue to monitor the Project with on-site operations personnel, such as what's been described in its formal avian bat protection plan?
A. Yes.
Q. Do you believe that's reasonable?
A. I hate to hark back to it, but I really would like to see three years of the original amount of effort, with review at the end of each year with suitable authorities. And, then, after that, I think what you describe might be more appropriate. But that would depend really on the result of the three years. I don't believe any of us know at the moment what the mortality is likely to be. So, it would be a way to find out.
Q. So, do you think -- is it your opinion that it's more reasonable to conduct the studies that have been ordered in the Granite Reliable Project, knowing that, after the last year of study, after that third year, which occurs in actually year five, after the Project is operational, that it's more reasonable just to do that and do no further studies, as opposed to doing what this Applicant has recommended, doing one year of formal study, and then doing another year, if necessary, and then carrying out all of the protocols
in its Avian \& Bat Protection Plan?
A. I was impressed by the protocols in the Avian \& Bat Protection Plan, and I believe Iberdrola. And, it's certainly a step forward to see this continuing. The only question $I$ guess that we are disagreeing on is how many years of formal study there should be by biologists and the regulatory authorities before that takes over. I'm suggesting three.
Q. Are you aware that United States Fish \& Wildlife Service has helped to formulate and review and approve the Avian \& Bat Protection Plan that Iberdrola has in place?
A. Yes, I am.
Q. Okay. Do you know whether there are any federal regulations that require a particular amount of post-construction mortality surveys for wind farms?
A. Not that I am aware of.
Q. Okay. So, this is your recommendation?
A. Yes.
Q. Okay. Now, do you know whether United States Fish \& Wildlife Service has required for this Applicant a second year of post-construction surveys?
A. I don't know.
Q. If U.S. Fish \& Wildlife has not required a second year
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of post-construction surveys, would that change your position in this case?
A. No. I was merely asked to give my opinion to the Committee, and that would be my opinion to the Committee. Whatever U.S. Fish \& Wildlife decides to do, it's obviously there.
Q. I'm just going to ask you, getting back to -- I believe that you said some -- I just heard you say some favorable things about the Applicant's Avian \& Bat Protection Plan. What is your understanding of what that plan will consist of, once it's carried out post-construction?
A. This is after the one year, two years, three years, whatever the continuing process that --
Q. Yes. Yes.
A. I understand from Mr. Gravel, and from background reading, that employees would be looking under the turbines. And, in the event that they found any bird or bat mortality, that they would photograph and take a GPS reading. And, that this information would go into a database and be made available to all of the appropriate people who are interested.
Q. And, would an impact assessment occur as well?
A. I assume so, yes.
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Q. And, wouldn't this trigger possibly additional actions, like discussing impacts and mitigation with state wildife agencies and U.S. Fish \& Wildlife?
A. Yes. We may find excessive mortality or we might find none at all.
Q. Okay.
A. So, we're looking at this point, and we really don't know.
Q. Okay. So, there would be an assessment and there would be further discussions with the state and federal agencies, correct?
A. I would hope so or I gather so.
Q. Okay. Now, isn't it likely that the monitoring that will occur under the Avian \& Bat Protection Plan will document significant mortality events if they were to occur beyond the second year of operation?
A. I would assume so. But, perhaps not as effectively as the carefully designed plan for the first year. What's good for the first year, it seems to me, it would be good for a three year study, which would be more appropriate in terms of year-to-year variation.
Q. Now, on Page 4 of your prefiled testimony, at the top, you said that you were "greatly concerned by the methods by which the Applicant will determine the
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importance or significance of mortality counts." And, then you go on to say that "it's not expected that any one site will impact national or even regional populations of individual species." Correct?
A. Yes.
Q. And, then, I think you suggest that the "Applicant should provide a clear definition of what a "biologically significant" impact [is]"?
A. I think this is the problem. I think everyone was seeing "biologically significant" in different terms. And, I was hoping that that could be reviewed and clarified, so that we all understood what "biologically significant" was. I think an example was that, if all of the nesting peregrins were unfortunately to be killed by the wind turbines, this would be two nests of peregrins within 5 miles. And, that would be a very significant factor, I think, for the State of New Hampshire. Even though it may not, in the great scheme of things, reduce the number of peregrins in the world by very much. So, I think "biologically significant" is a difficult -- a difficult definition, and we have to be more accurate about that.
Q. Are you suggesting that the Applicant develop a benchmark or some other measure that establishes what
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an acceptable level for a "biologically insignificant impact" of this project would be?
A. I would think that would come out of the discussions with New Hampshire Fish \& Game or U.S. Fish \& Wildlife Service. To me, that would be a very useful result.
Q. But would you agree or disagree that documented mortality rates at other operational wind projects in the Northeast would provide an appropriate benchmark against which to judge the results that occur at the Groton Project?
A. I think it's a useful benchmark, yes.
Q. Okay. Thank you. Other than wind turbines, are you aware of other sources of avian mortality?
A. Yes.
Q. Could you give us some examples?
A. Loss reduction and alteration of habitat --

MR. ROTH: Mr. Chairman, I'm going to object to this question, because the other methods of avian mortality are not at issue here. So, you know, more discussion about cats and automobiles is not before the Committee this afternoon, or ever, hopefully. And, it's just not relevant.

MS. GEIGER: Well, Mr. Chairman, I think it is relevant. It seems to me that witnesses have been
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given and questioners throughout this proceeding have been given a wide latitude to ask about subjects that are within the reasonable range of the subject matter that witnesses are testifying about. And, we're talking about "avian mortality". And, I know that we're talking about this project. But I think that it's -- Mr. Gravel raised the issue in some of his answers. And, I just think it's fair, we have another witness on the stand on the subject matter, and I'm just asking him some more questions.

CHAIRMAN GETZ: I'm going to permit the question. I think it's relevant. It puts the issues of mortality in some context. And, I think it may be helpful, having heard from another witness generally about this issue, to hear Mr. Lloyd-Evans' thoughts on this issue as well.

MS. GEIGER: Okay.
BY MS. GEIGER:
Q. And, so, I asked you, Mr. Lloyd-Evans, what is your understanding of sources -- of other sources of avian mortality?
A. Many. The passenger pigeon was probably hunted to extinction, this is billions of birds over a very short period. Habitat alteration and breeding, important migration stop-over in wintering areas. The sort of
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direct mortality that I have heard other people talk about; predation by cats, natural predation by raptors and by carnivorous animals, many, many different sources of mortality.
Q. Well, I'm going to show you a document that has been marked for identification as the "Applicant's Exhibit Number 28". And, this is a paper that has been authored by Wallace Erickson and others, "A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an emphasis on Collisions." Are you familiar with this paper?
A. I am not in detail, but would be glad to see it.
Q. I would just like you to focus your attention on the chart at the top of that page please.

CHAIRMAN GETZ: I'm sorry, what page?
WITNESS LLOYD-EVANS: Page 1039.
MS. GEIGER: Correct.
WITNESS LLOYD-EVANS: Table 2, "Summary
of predicted annual avian mortality."
BY MS. GEIGER:
Q. And, Mr. Lloyd-Evans, would you agree with me that in that paper and that table that you've just cited, it shows that buildings are estimated to cause 58.2 percent of avian mortality each year, while wind
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turbines are estimated to cause less than $1 / 100$ ths of a percent?
A. Yes. Those are the data, yes.
Q. Okay. Thank you. Now, at the top of Page 4 of your prefiled testimony, you state that you are concerned about the Applicant having determined a threshold for the first year of mortality by comparing to a range of other projects in the Northeast. And, you state this threshold needs to be "articulated and well justified", correct?
A. Yes.
Q. Now, are you aware of the Lempster Wind Post-Construction Fatality Survey Report?
A. That was not available to me at the time that $I$ wrote this. That has subsequently been available. That was one of the late pieces of information that came in, along with the 2010 bat survey data.
Q. Have you looked at it, though?
A. Yes.
Q. Would you agree that post-construction fatality results at a wind project that is approximately 40 miles away from Groton, and which uses the same type of turbines that will be used at Groton, is an appropriate measure to use in determining whether post-construction survey
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results at Groton are within an acceptable level?
A. I would be hesitant to say a simple "yes". The only reason being that bird migration and nesting varies from location to location to location. I guess every site is different, and that's why we do the impact studies. And, this is why we don't just collect data for collecting data.
Q. Do you know how many post-construction survey reports have been issued in the Northeast?
A. This is the only one that I'm familiar with.
Q. Would it surprise you to learn that there are over 30 post-construction studies with publicly available results?
A. No, I wasn't aware there were that many.
Q. Now, in the middle of Page 4 of your prefiled testimony, you state that you were concerned that the Applicant doesn't have an adequate mitigation plan, in the event a peregrin falcon or other protected raptor species is taken by a turbine. And, that you believe that "substantially effective mitigation [should] be a minimal precaution, given that a protective species has been observed within the study area," is that correct?
A. Yes.
Q. Could you please describe what a "substantially
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effective mitigation plan" would be?
A. No, I'm not the person to design those sorts of plans. This would be very much the area of the local experts.
Q. Okay. So, you would defer to Fish \& Game, for example?
A. I think New Hampshire Fish \& Game, in cooperation with the data, would probably be able to come up with something useful, yes.
Q. Okay. Now, isn't it true that the Applicant predicts a very low likelihood of impact to peregrins?
A. Yes.
Q. Okay. And, are you aware that, during the first year of post-construction monitoring at the Lempster Wind Project, that no raptor fatalities were documented?
A. Yes, I read that.
Q. And, would you agree that it might be difficult to offer a mitigation plan if no impact is expected?
A. Yes.
Q. At the bottom of Page 4 of your prefiled testimony, you assert that "The Applicant should explain how impact on protected raptor species during the breeding season, the post-fledgling dispersal and spring and fall migration will be mitigated." Is that correct?
A. Yes.
Q. And, again, based on the Stantec studies in the
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Lempster report, isn't it reasonable to assume that there's no need to provide a mitigation plan for raptors, given the small likelihood that they will be adversely affected here?
A. I think I would go back to an earlier point. We have -- we were talking about dispersal of breeding birds and getting into fall migration. We have the peregrin study, in which peregrins were observed within the site on a small number of occasions. And, we had those ten days of the fall data on diurnal raptor migration. There are many days of migration periods, both before and after the ten days that we discussed, for significant species, including both eagles. And, so, I think it's really an open question, if we say there have been very few events at New England turbines so far, very little mortality observed so far. Of course, we know that in other parts of the world, there has been tremendous mortality at turbines. So, I think the sensible thing to do would be to collect a reasonable amount of information, evaluate it with the U.S. Fish \& Wildlife or New Hampshire Fish \& Game, and proceed from the basis of as much information as possible. And, that would seem to protect the public interest and these species as much
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as can be expected.
Q. Mr. Lloyd-Evans, you talked about fatalities in other areas. And, I think earlier in your testimony you talked about fatalities in Europe. You talked about terns, is that correct?
A. Yes.
Q. Are there any terns near this site?
A. No, there are not. Except in the sense that there are terns in Vermont, in Lake Champlain, which I believe is a protected species, and that they presumably must migrate down to the ocean at some point. But there have been no data showing terns, to my knowledge, migration through this area. Again, our sample of fall migration data has not been very great.
Q. Now, do you know, with respect to the Applicant's pre-construction surveys, are you aware that the United States Fish \& Wildlife Service and New Hampshire Fish \& Game had approved the methodology and time frame for the studies that were performed?
A. Yes, I read that. And, I believe New Hampshire Audubon also had some input into some of the studies.
Q. Okay. And, in light of that, do you still have concerns about how those pre-construction surveys were conducted?
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A. Yes. I would really like to see more data. I believe that the small amount of data that we have merely sort of emphasizes that we need more data to look at, year to year variation, and to see what sort of a problem we are potentially having, before we erect these turbines, and, of course, their remedial damage. So, it makes sense to me to have a reasonable number of years of data. And, having read the information, it seems as if three years is an appropriate number.
Q. Turning to Page 2 of your prefiled testimony, you state there that "the study" -- "the study results", the Applicant's "study results do not seem to be a factor in the Applicant's conclusion of minimal impact on raptor species." Is that your testimony?
A. I think, if I could expand on that a little bit. We are collecting information before any wind turbines are built. And, as I think Mr. Gravel has said, it's almost impossible to extrapolate from that how many raptors would be killed once the towers are there. But the information we do gain is the period during spring/fall migration, breeding season, when potential species of interest are present, what species are present, and then some idea of the relative abundance of those species, because any sampling method is only
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going to take a random sample or a statistical sample. And, so, the larger the sample, the better information.
Q. But, if I understand your testimony, your prefiled testimony, you seem to be saying that the Applicant's consultant didn't take into account its study results. Am I understanding your testimony correctly?
A. I think -- I did not mean it to sound quite like that. I think, if I can restate it, I think we need more information before the study results will inform us as to the possibilities of some of these species being impacted once the towers are erected. For example, I was looking -- the Applicant's references include the Birds of North America as one of the standard references looked at. This is a very standard reference, a national summary for each of these individual species. And, just looking at the bald and golden eagles, we find that these animals can migrate in the north any time from about the second week of September, right through into mid November. We just don't have data anywhere beyond the earlier or later than the ten days of the single season. And, so, I think I was seeking to find more data on these significant species, in terms of New Hampshire.
Q. But, overall, in terms of the amount and the time
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frames within which the Applicant conducted its raptor migration studies, do you have any difficulty with that?
A. I'd be delighted to know that 2010 studies had been collected this year, but I believe they have not, is that correct?
Q. Well, I'd like to focus your attention on $I$ believe what's been marked as "Applicant's Exhibit 28" excuse me. It's "Applicant's 30".
A. Yes.
Q. Have you seen that chart?
A. Yes, I have. I believe I have it right here.
Q. Okay.
A. Yes.
Q. And, do you know what this chart represents?
A. Applicant's 28 [30?]. This is a graph compiled I think by Mr . Gravel, of seven years of fall raptor counts, and this is from "Pack Monadnock Raptor Migration Observatory", which I gather is about 60 miles away from the site?
Q. Correct.
A. And, looks at those in multiple years, and looks across the range of fall migration, in terms of number of species observed -- or, not "number of species
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observed", but -- yes, species and data.
Q. And, would -- is it fair to say that, based on that chart, that, in terms of the abundance of raptors migrating during the period from September 8th through approximately September 28th, from year to year over those seven years is about the same?
A. There are substantial differences of the peaks within that period. But, within that period, that certainly does comprise the majority of fall raptor migration, yes.
Q. So, would there be any benefit of doing yet another season of study for raptors, when we have -- at least we know, at least for Pack Monadnock, over seven years, from 2003 to 2010, that we can expect to see -- we expect to know when the peaks of migration will be?
A. Looking at the data you present in 28 [30?] here, I see some migration from the 26 th of August through until I guess it would be the 6 th of November. Then, again, $I$ come back to the -- which species are we talking about? I think species that are protected by New Hampshire and the feds would be expected to be actually more frequent out in those tails than they might be during the peak period. The peak period, as I believe your report showed, was mostly species like red-tailed hawks and
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broad-winged hawks. And, those do account for the largest numbers. But some of those species we are most interested in may be migrating as late as mid November. So, yes, I would like to see more data.
Q. Do you know -- but, if there were, for example, bald eagles migrating during the periods that are shown on this chart --
A. There were.
Q. There were. Okay. I guess I don't understand what you mean by "if we look at the tail end of the periods that we would expect to see" -- are you saying that there would be more bald eagles migrating at that time?
A. Of course, $I$ don't know. But, since bald eagle migration traditionally continues much later in the year, and golden eagles are notoriously late migrants, then, if $I$ were setting up a survey to examine those species, I would go much earlier and later into the year, if possible.
Q. How much later than November would you go?
A. I would go from last week of August through till about the second week of November. These data seem to proximate pretty well with the summaries I've read on the national scale for those species.
Q. Okay. This study ends November -- approximately
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November 5th. Is that it?
A. Yes.
Q. You would go an extra week?
A. Well, some of the information in the individual species reports suggest that there may be golden eagles and peregrin falcons later than November 5th. But --

MR. ROTH: Mr. Chairman, I'm a little bit confused. What study is she talking about? Mr. Gravel's compilation of a chart based on the HMANA results, over -- which we don't really know anything about the study methodology of those seven years by the HMANA volunteers, other than they have counts that have been graphed in some methodology by Mr. Gravel that we don't really know?

MS. GEIGER: That's all this is. It's just being offered. We're not representing it more than what it is. It was Mr. Gravel's depiction. He made a chart and graphed data from a publicly available site, showing the peaks in migration, hawk migration -- or, excuse me, raptor migration at Pack Monadnock over a three year -- seven years, from 2003 to 2010. That's what we're talking about.

BY THE WITNESS:
A. Might help if I refer back to an exhibit labeled
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"Buttolph 15", which speaks to this. This was the Gil Randell, the Chairman of the Board of Directors of the Hawk Migration Association. And, he does address golden eagles in this case. He says "Some sampling for golden eagles in November is unacceptably vague. Spring sampling dates (late March to the end of May) could miss the bulk of golden eagle migration." So, I think he says "golden eagles are early migrants." And, I think we all know golden eagles are early migrants and late migrants. The migration period is spread out over a very long period.
Q. Do you know how many species were -- how many raptor species were surveyed or were documented by Stantec at the project site?
A. Yes, I read the reports. I don't have it in my mind, in my head right now, but --
Q. Does the number 13 , subject to check, sound reasonable?
A. Sounds reasonable, yes.
Q. Okay.

CHAIRMAN GETZ: Let me just address one administrative issue quickly. Are we talking about Exhibit 29, not "28"?

MR. ROTH: I thought it was Exhibit 30. MS. GEIGER: I think Exhibit 30.
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CHAIRMAN GETZ: I think there have been references to "Exhibit 28", which was the Erickson paper, and this -- okay. So, the chart then is "Applicant 30", okay.

MS. GEIGER: Correct.
CHAIRMAN GETZ: All right.
WITNESS LLOYD-EVANS: Thank you, Mr.
Chairman.
CHAIRMAN GETZ: Are we done with discussion of that exhibit?

MS. GEIGER: For now, yes. I just want to follow up with Mr. Lloyd-Evans on the question concerning the number of raptor species that the Applicant detected.

BY MS. GEIGER:
Q. And, you said, subject to check, you thought it was 13, is that correct?
A. You said "13", and I said "that sounds, subject to check, about right," yes.
Q. Okay. And, how many raptor species total are found in New Hampshire, do you know?
A. I don't know precisely.
Q. Okay. If I were to suggest to you there's 15 , would that sound approximately right or in the ballpark, or
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is it way more than that?
A. Assuming that when we say "raptor", we are referring to hawks, eagles, falcons, species like this?
Q. Correct.
A. Not including owls or any of the other raptors. Well, I sit on a committee in Massachusetts, which is supposed to evaluate rare birds in my spare time. And, when you look back over two hundred years in Massachusetts, you often find one example of something or other that has occurred. But, absent those extremely rare events, it sounds as if most of the species that might be expected in New Hampshire commonly do migrate through the site, yes.
Q. Okay. Now, Mr. Lloyd-Evans, have you ever personally conducted acoustic surveys or bat mortality surveys?
A. No, I have not.
Q. Have you ever personally visited the Groton Wind Project site?
A. I have passed through the area, but I have not -- I have driven over the roads. But I have not walked up into the site, knowing that it was the site, no.
Q. Okay. So, you have not conducted, personally conducted any survey?
A. No. No.
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Q. Okay. Are you aware of any site in the Northeast that has resulted in a catastrophic event, in terms of avian mortality?
A. There have been some fairly major oil spill kills that I was associated with off Nantucket, during an oil spill back in the 1970's sometime. And, there have been a number of fairly high mortality events historically around lighted towers, lighted windows, and towers associated with, I think, television and radio transmissions. But there have been hundreds of birds have died on occasion.
Q. How about at any wind sites in the Northeast?
A. Not to my knowledge.
Q. Okay.
A. Not from the published references. MS. GEIGER: Okay. Thank you. I have nothing further.

CHAIRMAN GETZ: Redirect, Mr. Roth? MR. ROTH: If I may have a moment with the witness?

CHAIRMAN GETZ: Sure.
(Atty. Roth conferring with Witness Lloyd-Evans.)

CHAIRMAN GETZ: Mr. Roth, I got ahead of
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myself.
MR. ROTH: Committee first?
CHAIRMAN GETZ: Yes.
MR. ROTH: Okay.
CHAIRMAN GETZ: I apologize to the
Committee. Are there questions for Mr. Lloyd-Evans from members of the Subcommittee? Mr. Harrington.

MR. HARRINGTON: Yes. Good afternoon,
Mr. Evans.
BY MR. HARRINGTON:
Q. I'm just trying to follow the logic here on this idea of how much post-operation studies or post-construction studies to do. It appeared what we were told by Mr. Gravel this morning or early the afternoon that his plan was to do a -- make a plan for a one-year study, and then review the results of that study. And, then, if there were significant, which remains to be seen exactly what that means, but let's assume someone can determine that, significant fatalities of the various species, then a new plan would be developed in conjunction with federal and state officials that would be tailored to address the results of the first year. And, I'm hearing you say this afternoon that that's not the preferred method. That it's better to come up with
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a two-year study, where you make the study in advance, and then just follow through for two years, and then presumably make the same decision after two years that Mr. Gravel's proposing to make after one?
A. These are, first, mortality studies, and I think post-construction mortality studies. I think the first thing we need are data. I mean, after all, as the proponent has suggested, there are very few data on mortalities at wind turbines in the Northeast. And, that's because there have been very few large turbine arrays operating for any length of time in the Northeast. So, it behooves us to be very cautious.

This is why we suggest that three years after construction would give us a good baseline of very carefully collected data, in the same manner that Mr. Gravel suggested for the first year for three years. And, with any improvements after yearly consultation and data sharing with New Hampshire Fish \& Game, U.S. Fish \& Wildlife. And, at that point, then perhaps the Applicant's method of continuing to look for mortality would be entirely appropriate. But I guess what we need are data first. And, once we have those data, and once they have been evaluated by the appropriate authorities, then it would be time to move
onto the next stage.
Q. Okay. Just one additional question. Now, if I'm hearing this right, you said it's important to get data that's from the Northeast, as compared to, I guess, a much bigger geographical area, you mentioned California quite a bit.
A. Yes. Yes.
Q. But, in response to a question by Ms. Geiger, you said that you really couldn't look at the results of what was happening in Lempster, which is basically just a few miles away, with the exact same wind turbines. And, that it would really have no basis on what you would expect to happen at this project. So, why would getting it from more -- other projects further away in the Northeast be of any value at all?
A. I think every location is different, which is why we do impact studies before we go into major construction projects like this. Migration routes may vary from mountaintop to mountaintop, even within a fairly narrow limit. And, although in the context of the Northeast, it seems that Lempster is reasonably nearby, it certainly seems to make sense to collect data before we build the towers, and to have a mechanism to evaluate those data in the light of reality, after we have the
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turbines. If there then is mortality, we'll be able to assess it. If there isn't it, it's a wonderful thing and we'll all be very happy. But we need the information.

MR. HARRINGTON: Thank you. No further questions.

WITNESS LLOYD-EVANS: Thank you, sir.
CHAIRMAN GETZ: Other questions? Mr.
Perry.
MR. PERRY: Good afternoon.
WITNESS LLOYD-EVANS: Good afternoon.
BY MR. PERRY:
Q. Could you offer an opinion on other assessment models that would only require one year's worth of data collection to be able to draw any conclusions?
A. I think you can do a very careful study in one year. And, the proposed study for the first year seems to be, and which was contributed to by Fish \& Wildlife or Fish \& Game, seems to be a good way to go about one year of data. The problem is that biological data tends to vary so much from year to year. And, so, it seemed appropriate, in the case of Granite Reliable, that there should be three years of post-construction mortality surveys to try to address this question of
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the variability from year to year, depending on the preponderance of winds that aid these migrants as they head south in the fall or north in the spring, depending on the number of young produced in any one year, which may increase the population size, or decrease it, if there's poor productivity. In most biological data, you get a much better information base if you have a number of years. In the case of Granite Reliable, it was deemed to be three years. And, that seems appropriate in this case.

MR. PERRY: Thank you.
CHAIRMAN GETZ: Thank you.
MR. IACOPINO: If I could go before
Dr. Kent?
CHAIRMAN GETZ: Mr. Iacopino.
MR. IACOPINO: Thank you. I just have a
couple of questions for you, Mr. Lloyd-Evans, along the lines that I asked of Mr. Gravel.

BY MR. IACOPINO:
Q. You've reviewed the Avian/Bat -- Avian and Bat Protection Plan from Iberdrola, that's correct?
A. Yes.
Q. And, if I understand your previous testimony, you find it to be a good plan?
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A. Yes.
Q. Have you also reviewed the Wind Turbine Guidelines Advisory Committee's recommendation for tiered site analysis prior to construction?
A. Yes, I have. I believe that would be State's Exhibit PC 14?
Q. Correct.
A. Yes, sir.
Q. And, do you agree with Mr. Gravel that the two documents are consistent with each other, with a few minor discrepancies?
A. I think we are, I mean, as I understand this document, and I haven't committed it to memory, it's a very thick document, but I think we got to the point of Tier 3 would kick in when we have shown that there are species of concern present. And, it seems that we now have information that there certainly are species of concern, at least in diurnal raptors present. And, so, this tiering system seems to be quite appropriate. It's based on a very wide range of people. Yes.
Q. And, so, do you believe that your three year request is consistent with the Tier 3 recommendations from the U.S. Fish \& Wildlife?
A. What it does not do here, and I think sensibly, is it
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does not suggest numbers. When reading this, there would be -- this is for pretty much all of North America, or at least the United States, and I'm sure it's applicable to Canada also. And, so, there are going to be tremendous differences across this whole continent. And, we've all heard a number of times about the large number of deaths, particularly golden eagles, in Altamont, California, probably more than we care to. But there are great differences across the country, north and south. And, we have heard that migration in the fall tends to migrate down towards the south. And, therefore, at the southern end of the country, there is a higher density of these migrants passing through, and in the north there are fewer.

And, so, I believe that Tier 3 leaves the number of years or the exact dates of any studies to be assessed under the local regime. And, that would probably be best achieved by taking the Applicant's data and working with New Hampshire Fish \& Game and coming up with whatever is appropriate for the local New Hampshire series of events.
Q. Okay. I understand what you just said now. But could you now explain to us please what the difference between that and what Mr . Gavel has proposed? Isn't
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that exactly what he proposed? To do the first year of post mortality studies, and then to have Fish \& Game review them, to determine what would be done thereafter?
A. Yes.
Q. Maybe I'm missing something, I don't know.
A. No, I think you would end up with one year of studies. You would presumably cover a fairly high proportion of the mortality in that first year, presumably, because I believe they are suggesting at least spring, fall, and summer, maybe not winter. But, then, you would have one year of data. And, again, I come back to this point that, if we had more than one year of data, we would have a much better sample, a much better idea of the actual mortality. Which, at the moment in the Northeast, just is not known from wind turbines.
Q. The other question that I had for you dealt with your response to Ms. Lewis's question. You had indicated -she basically asked you, I think it was Ms. Lewis, what -- "what had changed?" Or, maybe it was Public Counsel that asked you, "what had changed?" And, one of the things that you referenced was the "Granite Reliable order" --
A. Yes.
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Q. -- being one of the reasons why you changed from two years to three years. You were a witness in the Granite Reliable case, isn't that correct?
A. Yes.
Q. You were aware at the time that that order was issued that there was a three -- three years of post-construction study issued?
A. (Witness nodding in the affirmative).
Q. That was something you already new, right?
A. I think the order is actually dated "July 15th, 2009". It was considerably after the time that I gave my testimony. But, yes, certainly.
Q. Well, when it was issued, were you aware of what the Committee had ordered?
A. Yes. Yes.
Q. So, can you -- when you say that that contributed to the change in your recommendation from two to three years of post-construction studies, can you explain to us how that did that? Isn't that something you already knew?
A. I had a chance to see what the -- I had a chance to see more than one year of bat surveys, just recently, this 2010, the study did not finish, and so the data were not available. And, I had then had a chance also to
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see the first report on the post mortality study from Lempster, which was not available at the time I originally wrote. And, so, putting those together, I think we now have, at least from the one year, basically, 2009, for all of the birds, and then 2009-2010 for bats. We still have only information from one year to base any possible -- any possible estimate of which species may be involved in potential mortality after this. And, so, I think, having seen on that one year that there were a number of species, including, if I remember rightly, bald eagle, golden eagle, northern harrier, and peregrin falcon, all of which are specifically protected in New Hampshire, as well as a couple of other species, I believe red-shoulder hawk, osprey, and common loon were detected at various times. And, as Ms. Geiger suggested, quite a proportion of all of the raptors in New Hampshire pass through this area, then it seemed more appropriate to regard this as potentially a site where there could be problems with wind turbines, since all of these raptorial species move along ridgelines and take advantage of the updrafts, as Mr. Gravel has testified. And, so, since we seemed like we may have a potentially serious problem, in terms of the Northeast,
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then a three year study, such as Granite Reliable Power, seems like an awfully good model to follow.
Q. Okay. In your preparation for the filing of your testimony, did you review what's Appendix 28 to Volume 4 of the Application, which is the Applicant's Bird and Bat Risk Assessment?
A. Yes.
Q. The "weight-of-evidence" approach.

MR. IACOPINO: And, that's in
Applicant's Exhibit 4 for the record.
BY THE WITNESS:
A. Don't have it right in front of me, but, yes, I did review it.

BY MR. IACOPINO:
Q. Okay. And, when you reviewed that, you found that they basically assessed the risk to, I believe, both birds and bats as being low?
A. Yes.
Q. Do you agree with that assessment?
A. We have two years of bat data now. There actually was a higher number of bat calls registered in the second year. But, as Mr. Gravel pointed out, if any high proportion of these were possibly from one individual flying around the locator and --
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Q. A foraging bat.
A. A foraging bat, perhaps the same individual. Who knows? But that seems like a very likely explanation. So, we have two years of data there. And, they were illustrative. Because, as Mr. Gravel said, if you take those two out, then there perhaps isn't a lot of difference. We still just have this one season of bird data.
Q. Okay. But the risk assessment wasn't based just on the data that they collected at the site. It was also based upon characterization of the habitat, --
A. Yes.
Q. -- literature reviews, --
A. Yes.
Q. -- and things like that. Do you believe that that "weight of evidence" type of assessment is a proper way to do risk assessment?
A. I think it's a very good way to start a risk assessment. But it is much better when accompanied by data which are readily collectible before the turbines are erected, so that we can then take this essentially literature and habitat survey and apply real bird data carefully collected to it.
Q. Do you agree that, based upon all of the data, not just
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the data collected at the site, but the literature reviews and the other, the habitat characterization, the other things that went into the bird and bat risk assessment at Appendix 28. That the conclusions that the risk to both birds and bats were low, were the correct conclusions given that assessment?
A. I think I personally would prefer to see more data. You know, I would prefer to have the Committee see more data before they accepted that conclusion.
Q. So, if I understand what you're saying is, there was not enough on-site data collected for you to answer that question?
A. Yes, sir.

MR. IACOPINO: Okay. I have no further questions.

CHAIRMAN GETZ: Thank you. Dr. Kent.
BY DR. KENT :
Q. Have you reviewed correspondence from Fish \& Wildlife Service to Stantec or the Applicant, indicating that they're in agreement with their methods?
A. I haven't reviewed the actual information, Dr. Kent. But I have seen that statement in the Stantec data, yes.
Q. You've seen -- I'm sorry, you've seen a statement in
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Stantec's testimony?
A. They say that their methods were reviewed by Fish \& Wildlife.
Q. But you haven't seen anything from Fish \& Wildlife Service to verify that statement?
A. No, sir.
Q. Okay. I'd like to refer you to Table 2.1 in the Stantec 2009 Bird \& [Bat] Risk Assessment. And, which, for me, is Appendix 28 . I don't know --

MR. IACOPINO: It's Volume IV of the Application, which was also marked as "Applicant's Exhibit 4".

MR. ROTH: Sorry, what table?
DR. KENT: Table 2-1. And, that's
Page 6, the 2009 Bird \& Bat Risk Assessment.
(Atty. Roth providing document to the witness.)

WITNESS LLOYD-EVANS: Page 6, yes.
BY DR. KENT:
Q. Yes. On Table 2.1, the "Fall 2009 Raptor Migration Survey". Do you have that row in the table? It's second row from the bottom of Table 2.1.
A. $O h$, yes. I do.
Q. Could you read those dates to me please?
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A. The "Fall 2009 Raptor Migration Survey" was conducted, the dates were "8/24/09 to 10/26/09", "10 days", "2 locations surveyed simultaneously".
Q. And, in your opinion, are those dates the appropriate dates for -- or adequate dates for determining potential for risk?
A. In light of the species that we know were present, and especially the very early and late migrants, I think we really need to see information from earlier and later in the fall, and preferably in the spring, given the option, but especially in the fall. Because of the importance, as we've mentioned before, of species like bald eagle, golden eagle, and peregrin falcon, all of which are protected in New Hampshire, and which might be expected to migrate later than $10 / 26$, which is rather an early date to stop raptor migration, fall raptor migration surveys, in my opinion.
Q. Thank you. The post-construction monitoring plan that we've -- that's been discussed this morning and this afternoon, after the first year, $I$ want to be clear, I'm talking about after that first year, when we've monitored.
A. Yes.
Q. And, I believe you testified, your understanding is
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that employees of the Applicant will, whenever they're on the site, they will look for carcasses. And, if they find them, take pictures and GPS that in and presumably write down the time and date and so forth?
A. That's my understanding. In fact, I believe that might actually be a work requirement for some employee, is at least part of their job. Yes. That was after two years, if I remember, Dr. Kent. I think that they would do the first year, and they would reassess. And, then, after the second year of assessed studies, whatever that might be, depending on their discussions with Fish \& Wildlife, then they would go to this search method, yes.
Q. Was it your understanding that there would be experiment to establish timely correction factors?
A. Yes.
Q. So, there will be?
A. For the first year.
Q. For the first year?
A. Yes.
Q. And, then, the monitoring part, after that first year, will the monitoring part include timely experiments to establish timely correction factors?
A. My understanding was that it would not. That these
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would merely be corpses that were observed and picked up, as opposed to any corrections that would be made in the experimental approach earlier. But you might want to check with the Applicant on that.
Q. Let me ask, if we have a little confusion here, $I$ can ask a general question then. In the absence of correction factors, can we estimate mortality or do we simply have an index?
A. I think we have what we randomly find. During the formal studies, and personnel who are undertaking them are trained, and then there is a correction factor applied, as I'm sure you know, by putting out dummy corpses, and then having the trained individual try to find them. There are correction factors, I believe, for flat, open ground, versus stoney ground, versus vegetation. And, you might expect it, for example, to be less easy to detect a small myotis bat corpse in vegetation, further away from the wind turbine, than perhaps a large bald eagle that fell to the open ground right below. There is also a temporal component. And, I believe a number of days are monitored. And, so, once these dummy corpses are put out, then a record is kept of how long they survive in another of -- another of the tests, which gives an estimate of removal by
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predators.
Q. And, do we need that estimate of removal to estimate mortality?
A. Yes. You then can put all this information into a statistical model that I wouldn't pretend to understand, perhaps Mr. Gravel can help me. Since he's not a statistician either, maybe we'll leave it to them. But, basically, it's understood that this is one of the best ways in the industry, as it now stands, to correct for those sorts of variables, and to get a more reliable estimate of the number of actual mortality events.
Q. I'd like to refer you to, which I think you have in front of you, the Granite Reliable certificate. I believe you had it there?
A. I do have it right here.
Q. You were having a discussion about that with Attorney Geiger earlier?
A. Yes.
Q. And, Page 5.
A. Yes.
Q. Hopefully, our pages are numbered the same. Maybe not. This is, at the top of my Page 5, is the condition that refers to the post-construction breeding bird surveys,
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the one, three, and five years that you were discussing with Attorney Geiger.

CHAIRMAN GETZ: And, Mr. Lloyd-Evans, I think it's towards the back of the document, the ordering clauses and conditions. It wouldn't be the --

WITNESS LLOYD-EVANS: Okay.
CHAIRMAN GETZ: There's a separate numbering after the order.

WITNESS LLOYD-EVANS: The version I have runs from 1 through -- I see. So, this is after the initial 60 pages?

CHAIRMAN GETZ: Off the record. (Brief off-the-record discussion ensued.)

WITNESS LLOYD-EVANS: "Further Ordered that, the Applicant shall conduct --

CHAIRMAN GETZ: Back on the record.
WITNESS LLOYD-EVANS: -- post-
construction breeding bird surveys." Yes.
DR. KENT: So you know where we are?
WITNESS LLOYD-EVANS: Yes.
BY DR. KENT:
Q. And, I'll ask that you agree about that first condition, because you've been discussing it with
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Attorney Geiger. Would you read that next condition down for me please.
A. "The protocol for said studies" or "Further Ordered", the second paragraph?
Q. "Further Ordered".
A. Second paragraph reads: "Further Ordered that, if after notice and an opportunity to be heard, the Site Evaluation Subcommittee determines that the Project is having an unreasonable adverse impact on any species, it may take appropriate action within its jurisdiction."
Q. Thank you. In your discussion with Ms. Geiger, that she characterized the Granite Reliable study as having requirements in years one, three, and five, and then being complete. Given that condition you just read, would you agree with that characterization?
A. No, I would not. It seems that there should be continual evaluation. If there has been any unreasonable adverse impact, and that that would be decided not just by the proponents in either case, but also in consultation with New Hampshire Fish \& Game. And, I believe I have read that, should there be disagreement between those two authorities, then they would come back to the Site Evaluation Committee for a
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determination. And, that seems like an extremely sensible order.
Q. Thank you. It is your -- is it your opinion that, given evidence of potentially greater avian mortality from other factors, we should excuse wind projects from quantifying its impacts and attempting to minimize those impacts?
A. I think we have an absolute necessity to minimize the impacts. All of these impacts are additive. Anything that happens to any bird or bat at a wind tower or a wind turbine is in addition to all of the other mortality that it is exposed to at this time. I think it's extremely important for all species involved, but particularly for state protected species, that we very carefully consider any addition to the mortality that we do impose by putting up these very large numbers of wind turbines as advantages to society, and I think they have to be weighed against disadvantages to our natural wildlife.
Q. Is it your opinion that mortality at other facilities is the appropriate standard for determining significant impact?
A. I feel fairly strongly, I think, from my testimony, I hope it's been obvious, that we should determine
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mortality at this site. And, the mitigation, whatever it may be, should be conducted at this site on relevant data.

DR. KENT: Thank you.
WITNESS LLOYD-EVANS: Thank you, sir. CHAIRMAN GETZ: Other questions?

Mr. Steltzer.
BY MR. STELTZER:
Q. Is it appropriate for me to -- where I'm going with this question is about the characteristics of the landscape, and that it was discussed by Mr. Iacopino that that was one of the criteria that's in the methodology that's used to assess the risk. Is it appropriate for me to think that, there's been some Comparisons between the Granite Reliable Project and this Project. Is it appropriate for me to think that the Granite Reliable Project is larger, it's twice this size, it's in a more pristine environment, having -- in an area of the landscape that has been untouched, versus a plot of land that is being actively timbered, that the -- that we need to have the appropriate level of analysis of the bird mortality for the two sites, and that we can't necessarily overlay the same amount of assessment for the Granite site compared to the
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Project that's at hand?
A. Yes. I quite agree that we do have to look at each site individually. And, again, this is why we do the studies. At the Granite Reliable, there was considerable interest in high altitude, over 2,700 feet, I believe, in that particular case. And, that had its own unique set of flora and fauna, including some rare birds and some rare plants. Wetlands were involved. And, there was a separate mitigation in that case, after a reasonable amount of data had been heard, which set aside some of that land, and I believe moved some turbines to a less, in your words, pristine habitat.

In this particular case, we are further
south. And, on general principles, if you are saying that we're concerned now about diurnal raptors, about hawks and eagles and falcons flying south, then the greater concentration of these species occurs as you get further south. So, it isn't just the height or just the pristineness necessarily of the habitat. There may be guiding lines on some of the north/south ridges as you come down into the area of Groton. And, we really don't know, until we have good studies before and good, long-term studies over a number of years
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before construction, and we very carefully monitor what happens afterwards.

I would suggest that it's perhaps just as important, and we really don't know. So, why not err on the side of caution, and follow a precedent which has been very reasonably, in my view, set in Granite Reliable.
Q. One further question. I'm trying to get an understanding of the uniqueness of this parcel of land, compared to the other areas around it, and I use that in a very broad term. Recognizing, and it's my understanding that this isn't -- that the flyway essentially for the migration is fairly large, and that it spans from the ocean, all the way into --
A. Yes.
Q. -- Upstate New York. And, so, I'm trying to put that to scale to make an assessment of what would be an unreasonable adverse impact. Could you help me get through that process?
A. I think two of the unique characters of this area are the ridges and mountains, which provides a natural corridor for these birds that take advantage of updraft on their migrations north and south. This, after all, is how a broad-winged hawk that might be nesting in
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Canada will make its way all the way down through Vermont, and then will continue down the Appalachians, cross over at Texas, go down through Central America, and end up in South America, without a very large amount of powered flight. And, this is just a happy concatenation of the evolution of the migration path of this species, and the ground structure that it flies over in North America, and the prevailing winds.

So, we have that sort of general aspect of the site, which is one of the unique factors. And, also from the data collected so far by the proponent, we find that there is a very rare bird, a peregrin falcon, two of them breeding within five miles of the site.

As concerns this broadfront migration, there's actually some debate about that, and that, I guess, is why we do the radar studies. If I could quickly give you just a quote from, what do we have here, we have "Phase I Avian Risk Assessment Groton Wind Project, Grafton County, New Hampshire, Report Prepared for Groton Wind", by Paul Kerlinger and John Guarnaccia. And, on Page 3, they say, "Regarding migration, there are no ecological magnets or barriers that would attract or concentrate migrating birds in
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large numbers at the Project site or nearby. For nocturnal-migrant songbirds, raptors, and waterbirds, migration will be broad front in nature and generally at altitudes above the sweep of the wind turbine rotors."

Now, we compare that with, in another study here, "Bird Migration Through a Mountain Pass Studied with High Resolution Radar, Ceilometers, and Census", by Timothy Williams, published in The Auk, Volume 118, Number 2, Pages 389 to 403. I believe this was just the abstract, the beginning: "Under synoptic conditions favorable for migration, broadfront movements of migrants towards the south passed over the mountains, often above a temperature conversion. [But] birds at lower elevations appeared to be influenced by local topography. Birds moving [southwards and] southwest were concentrated along the face of the mountain range." So, there seem, just within New Hampshire, to be different opinions. And, I think, until we look at each individual site, we can't quite be sure what's going on. So, that's just an illustration of the sort of problems that we face. But I think, if I were to choose a couple of important characteristics, the vegetation and
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> the extreme altitude is perhaps not so significant in this area, as it was up in Coos County. But I think the lead line features and the diurnal raptors that have already been observed, and we hope will be observed with more studies before construction, and the known nesting sites of state protected species make that an important point.

MS. GEIGER: Excuse me, Mr. Chairman. I apologize for interrupting. But $I$ wasn't -- I didn't quite catch which exhibit number Mr. Lloyd-Evans was just reading from.

WITNESS LLOYD-EVANS: I apologize. That was not an exhibit number. I don't believe this has been put in. I was merely doing some background reading while I was waiting. And, so, this was from a published journal, and I don't believe this is an exhibit number.

MS. GEIGER: What year?
WITNESS LLOYD-EVANS: This was Auk 118. So, that would be 2001.

MR. ROTH: Mr. Chairman, if the Subcommittee would like, we can ask Mr. Lloyd-Evans to provide a clean copy of that article for the record.

CHAIRMAN GETZ: Let's do that, and add it as another Public Counsel exhibit.
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WITNESS LLOYD-EVANS: I was merely quoting it, because it had been mentioned by Mr. Steltzer. MR. ROTH: PC 17. (PC Exhibit 17 reserved) CHAIRMAN GETZ: Anything further,

Mr. Steltzer?
MR. STELTZER: Just one other quick question.

BY MR. STELTZER:
Q. And, I don't know, having -- since you don't have experience of going onto the site here, I don't know if you're able to answer the question, but I'll ask it anyways. Mr. Gravel had made some comments about peregrin falcon and the activities of peregrin falcon around the project site, and he mentioned that they "pass through the site, but they do not use the site." Would you agree with that statement or are you not able to answer that?
A. Well, I can't answer of my own knowledge, because I have not visited the site. But, reviewing the data, if they pass through the site, then $I$ suppose there is a potential impact with a turbine. So, the significance of "passing through" is that you may come close to something you don't want to come close to. But, no, I
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have not visited the site, so I would leave that to Mr. Gravel.

MR. STELTZER: Thank you.
CHAIRMAN GETZ: Dr. Kent.
BY DR. KENT :
Q. You heard testimony from Mr. Gravel that the pre-construction surveys don't allow us to predict the level of impact post-construction?
A. (Witness nodding in the affirmative).
Q. In the absence of some predictive model, does it then become critical to conduct some quantifiable post-construction surveys, so we can then define impact?
A. I would say it's absolutely critical. We have no idea until we do the studies.

DR. KENT: Thank you.
WITNESS LLOYD-EVANS: Yes.
CHAIRMAN GETZ: Anything further?
(No verbal response)
CHAIRMAN GETZ: Redirect.
(Atty. Roth conferring with Witness
Lloyd-Evans.)
CHAIRMAN GETZ: Mr. Roth.
MR. ROTH: Thank you, Mr. Chairman. I
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have a couple of questions.
REDIRECT EXAMINATION
BY MR. ROTH:
Q. During your cross-examination, Attorney Geiger asked you if there were any regulations, federal regulations concerning avian risk and mortality, and I believe your answer was "no". But I guess I'd call your attention back to the Wind Turbine Guidelines Advisory Committee document, which was PUC Exhibit 14?
A. I have it.
Q. Okay. Now, that's not a regulation, but it's a -- what is it? Can you tell the Committee what it is?
A. The Committee was assembled, knowledgeable individuals from nonprofit organizations, people from Fish \& Wildlife, state and federal, and from academics. And, they were charged with giving the Secretary of the Interior their best attempt at guidelines to deal with wind turbine problems.
Q. Okay.
A. So, it was essentially a pooling together of the best minds who were informed about that subject.
Q. Okay. And, in that document, I ask you to turn to Page 48.
A. Yes.
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Q. And, again, looking at, on Page 48, there's a table there. Now, if you look at the second column, the third row, where it says "number of years of monitoring 1", if "no ESA species likely to be at risk." Correct?
A. Yes.
Q. And, then, the bottom row says " 2 or more years of monitoring if it [doesn't] meet all of the above conditions", correct?
A. Yes.
Q. And, is it your view that, under these guidelines, that that bottom line "2 or more" years applies?
A. Yes. Two or more years would be extremely important as we have stressed.
Q. And, is that because, at a minimum, the previous tier, where it says "no ESA species likely to be at risk" cannot be met?
A. Yes. We've established this.
Q. So, based on the evidence that you've heard, do you think that there are species, ESA species that are present at or pass over the site that are likely to be at risk?
A. I do.
Q. Okay. You were also asked if the mortality rates at other projects would be a useful benchmark, and you
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said "yes". And, then, I believe Mr. Harrington suggested that he thought you said something quite the opposite. But I just want to make clear is, while you agreed with Attorney Geiger that that information might be useful, is that the end of the analysis? Should we just accept the Applicant's assertion that, you know, as long as everybody else is doing it, it must be okay?
A. No, I did not mean to give that impression. I'm sorry if $I$ did. Useful, yes, in a broad sense. But, again, if we do not have adequate information, then I don't think we can make that determination. So, again, I have stressed two or three years before, two or three years after, and we begin getting into real data that we can analyze.
Q. Okay. And, Attorney Geiger also asked you about mitigation plan, and she asked you to agree with her that, if there is no mitigation plan necessary if no mortality is expected. And, do you understand that to mean that an Applicant shouldn't have a plan at all, just wait and see what happens? Or, do you think it makes sense to have a plan for what to do with mitigation, if there is something that goes wrong?
A. I think I misspoke then. There should obviously be a plan for mitigation. But, then, the mitigation itself
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> could, if there were no mortality over a number of years, then it would be unreasonable. You can't mitigate for something that's not happening.

> MR. ROTH: Okay. Thank you. That's all my redirect.

CHAIRMAN GETZ: All right. Then, -MS. GEIGER: Mr. Chairman, I just have one thing to offer. It's not a question, it's just a response to questioning from the Bench from Dr. Kent. And, it's basically to make sure that the record is clear, and to direct Dr. Kent to information that $I$ think he was looking from Mr . Lloyd-Evans concerning correspondence that the Applicant has had with various agencies over the studies that have been conducted. And, I would just direct Dr . Kent and others, if they're interested, to Appendices 18 and 19. And, they're found in Volume -- I believe it's Volume III of the -- or, excuse me, I believe it's Volume III of the Application that has been marked as the "Applicant's Exhibit 3". So, I don't have a question. I just have a comment to help round out the record.

CHAIRMAN GETZ: All right. Thank you.
All right. Then, there's nothing further for
Mr. Lloyd-Evans. You're excused. Thank you, sir.
WITNESS LLOYD-EVANS: Thank you very
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much, Mr. Chairman.
CHAIRMAN GETZ: At this point, I'd like to take a recess until 4:15. And, then, we'll have the direct examination and cross-examination of Mr . Wetterer and the Mazurs. Take a recess.
(Whereupon a recess was taken at 3:55 p.m. and the hearing resumed at 4:16 p.m.)

CHAIRMAN GETZ: Okay. We're back on the record. And, turning to the prefiled testimony of Mr . Wetterer and the Mazurs. And, for purposes of qualifying the witnesses, Mr. Iacopino will conduct the questioning of the direct examination.

MR. IACOPINO: Could I have them sworn in.
(Whereupon Richard Wetterer, Lawrence A. Mazur, Christine G. De Clercq-Mazur, and Sarah M. Mazur were duly sworn and cautioned by the Court Reporter.)

MR. IACOPINO: Thank you.
RICHARD WETTERER, SWORN
LAWRENCE A. MAZUR, SWORN
CHRISTINE G. De CLERCQ-MAZUR, SWORN
SARAH M. MAZUR, SWORN
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BY MR. IACOPINO:
Q. Why don't each of you identify yourselves for the record please. Let's start with Dr. Mazur and go down the row.
A. (L. Mazur) Okay. My name is Lawrence A. Mazur. And, I reside at 774 Quincy Road, in Rumney, New Hampshire.
Q. Mr. Wetterer.
A. (Wetterer) I'm Richard Wetterer. And, I reside at 1819 Rumney Route 25, in Rumney.
Q. Thank you. Mrs. Mazur.
A. (De Clercq-Mazur) My name is Christine G. De Clercq-Mazur. I'm Dr. Mazur's wife. Reside at 744 Quincy Road, in Rumney.
A. (S. Mazur) My name is Sarah Mazur. And, I reside on 744 Quincy Road.
A. (L. Mazur) I think they're nervous. It's actually "774 Quincy Road".
Q. What? You don't know where you live?
(Laughter.)
BY THE WITNESS:
A. (L. Mazur) There is no "744".

BY MR. IACOPINO:
Q. Okay. Dr. Mazur, let me start with you. I have in my
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hand, and there's been copies passed out to the Committee, a document that has been marked as "Mazur Exhibit 13", dated August 11th, 2010, at 3:37 p.m., in the form of a -- I guess it was in the form of an e-mail originally. Is that your direct prefiled testimony in this case?
A. (L. Mazur) Yes, it is.
Q. Okay. And, do you have any changes or corrections to make to that testimony?
A. (L. Mazur) No, I do not.
Q. And, if you were asked -- if you were asked to provide the same information today that you provided back on August 11th, would that information be the same?
A. (L. Mazur) Yes, it would.
Q. Okay. Mr. Wetterer, I'm going to show you what's been marked as "Mazur Exhibit Number 15". And, is that you're prefiled direct testimony?
A. (Wetterer) Yes, it is.
Q. And, do you have any changes or corrections to make to that prefiled testimony here today?
A. (Wetterer) No, I don't.
Q. And, if you were to be asked the same questions today as you were asked on August 31st, 2010 in Exhibit 15, would your answers be any different?
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A. (Wetterer) No, they would not.
Q. Okay. Now, I'll do each of you, okay, one at a time. Mrs. Mazur, show you what's been marked as "Mazur Exhibit 14". Is that your prefiled testimony, and that's dated October 12, 2010?
A. (De Clercq-Mazur) Yes, it is.
Q. Okay. And, do you have any changes or corrections to make to that testimony?
A. (De Clercq-Mazur) Not at this point.
Q. Okay. And, if you were to give direct -- if you were to give direct testimony here today, would it be the same as contained in this document?
A. (De Clercq-Mazur) Yes.
Q. And, Sarah Mazur, the same thing. Is Exhibit 14, Mazur Exhibit 14, is that your prefiled testimony as well?
A. (S. Mazur) Yes, it is.
Q. And, do you adopt it for the purpose of our record here today?
A. (S. Mazur) Yes, we do.
Q. And, if you were asked to give the same information here today, would it be the same?
A. (Witness S. Mazur nodding in the affirmative).
Q. Do you have any changes or corrections to make?
A. (S. Mazur) No.
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MR. IACOPINO: Tender them for cross-examination.

CHAIRMAN GETZ: Okay. Thank you. Ms. Lewis.

MS. LEWIS: If I could start with Mr.
Wetterer please?
WITNESS WETTERER: Yes.
CROSS-EXAMINATION
BY MS. LEWIS:
Q. Could you tell us approximately how far you live from the project site?
A. (Wetterer) I live less than a mile. It's maybe seven-eighths of a mile.
Q. Do you also work at the same location?
A. (Wetterer) Yes, I do.
Q. Okay. Could you tell us what you do for work?
A. (Wetterer) I'm a potter, full-time potter.
Q. Okay. And, do you have a business there as well?
A. (Wetterer) Yes, I do. So, I spend basically 24/7 there.
Q. Do you have any concerns regarding the blasting that will take place at the project site and any possible impacts that it could have specifically on your business?
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A. (Wetterer) Well, I'm concerned about my property, certainly. When any -- any time there's blasting done, it could cause cracks in foundations and chimneys. Where I live, the land is basically soil sand. It's not on ledge. And, I know, in earthquake situations, that that type of soil is more prone to damage of structures than when the buildings are built on solid terrain.

MS. GEIGER: Mr. Chairman, -CHAIRMAN GETZ: Well, let me jump in here. Ms. Lewis, your opportunity is cross-examination on the testimony filed by the witnesses.

MS. LEWIS: Okay. I'm sorry. I
apologize.
BY MS. LEWIS:
Q. Could you tell me what your overall concerns are then? MS. GEIGER: Mr. Chairman, same objection. I don't think Mr. Wetterer has actually filed -- I know not all the intervenors have filed their prefiled testimony in the form of questions and answers. But I'm not sure I have a document that contains anything other, from Mr. Wetterer, that does anything except list
$\qquad$
CHAIRMAN GETZ: Well, I guess I would
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put it this way. On Mr. Wetterer's testimony, he has asked us, and he's submitted a number of papers that appear to be related to public health and noise exposure, health effects of wind turbines, etcetera. So, I take it that that's the concern that he's expressing, and that's why he's submitted these papers. So, I think it's fair for Ms. Lewis to inquire about his concerns as it relates to these issues and/or why or what was the purpose of him submitting these documents. But I think the inquiry, Ms. Lewis, needs to --

MS. LEWIS: Okay.
CHAIRMAN GETZ: -- focus on what's been filed by Mr. Wetterer.

MS. LEWIS: Okay. I understand.
BY MS. LEWIS:
Q. You stated in your prefiled testimony that you're unable to get witnesses that could help you out financially? In other words, you couldn't afford your own witnesses. Could you tell us a little about that?
A. (Wetterer) Well, I'm a self-employed person. I have a very small business. It provides me a living. I've been a full-time potter for the past 35 years. But I don't have financial resources to bring expert witnesses from long distances and pay their travel
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expenses or lodgings and meals.
Q. In light of that, I understand that you submitted some documents. Could you explain some of these documents?
A. (Wetterer) Yes. Most of the documents relate to health effects that have been alleged with -- caused by wind turbines. The first is "An Analysis of Epidemiology and Related Evidence on the Health Effects of Wind Turbines on Local Residents." That was produced by Carl V. Phillips, PhD. And, his testimony was for the Public Service Commission in a Wisconsin docket in relationship to the siting of a wind farm there. The second is a study of "Monitoring Vibroacoustic Disease", by Branco and Pimenta and Alves-Pereira.

The third one is entitled "Wind Turbine Noise and Health", February 2007, by Dr. Amanda Harry. The fourth is "Noise Radiation from Wind Turbines Installed Near Homes: Effects on Health", by Barbara J. Frey.

The fifth one is "Do Wind Turbines Produce Significant Low Frequency Sound Levels?", by G.B. -- G.P. van den Berg, University of Groningen, in the Netherlands.

The sixth is "Findings and Rationale-
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Montville Wind Turbine Generation Ordinance".
Q. Okay. You didn't -- given your review of those various articles, do you feel that you are at risk for health issues, given where you live?
A. (Wetterer) Yes, I do. In the first exhibit, Mazur exhibit, the Carl Phillips document, under Executive Summary it says "There is ample scientific evidence to conclude that wind turbines cause serious health problems for some people living nearby. Some of the most compelling evidence in support of this has been somewhat overlooked in previous analyses, including that the existing evidence fits what is known as the case-crossover study design, one of the most useful studies in epidemiology, and [related] [reference] (observed behavior) data of people leaving their homes, etcetera, which provides objective measures of what would otherwise be subjective phenomena. In general, this is an exposure-disease combination where causation can be inferred from a smaller number of less formal observations than is possible for cases such as chemical exposure and cancer risk."

DIR. SCOTT: Mr. Chair, can we get the page?

WITNESS WETTERER: That's on Page 2.
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DIR. SCOTT: Thank you.
BY THE WITNESS:
A. (Wetterer) And, then, his conclusion, on Page 28: "In summary, there is substantial evidence to support the hypothesis that wind turbines have important health effects on local residents. If forced to draw a conclusion based on existing evidence alone, it would seem defensible to conclude that there is a problem. It would certainly make little sense to conclude that there is definitely no problem, and those who make this claim offer arguments that are fundamentally unscientific. But there is simple reason no" -- I'm sorry. "But there is simply no reason to draw a conclusion based on existing evidence alone; it is quite possible to quickly gather much more useful information than we have."

Those are the quotes from the article.
BY MS. LEWIS:
Q. Based on your health concerns, do you have any feelings as to how far turbines should be put in relation to residences?
A. (Wetterer) Well, the general feeling seems to be that no one knows for sure, because adequate studies have not really been done. But Vermont, for example, is
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proposing two miles in mountainous terrain, one and a quarter mile on more or less level terrain, as a useful preliminary setback. And, there are other people, I have another document, which was part of my pretrial submission: "Noise Radiation from Wind Turbines Installed Near Homes: Effects on Health", by Barbara Frey. And, toward the middle of her paper, my copy doesn't have the page number, okay, it says "Wind farm noise in common with noise generally affects different people in different ways. But the evidence suggests that there is rarely a problem for people living more than one to one and a half miles from a turbine. It would be prudent that no wind turbine should be sited closer than one mile away from the nearest dwelling. This is the distance the Academy of Medicine in Paris is recommending, certainly for the larger turbines, and until further studies are carried out. There may even be occasions where a mile is insufficient, depending on the scale and the nature of the proposed development."
Q. Thank you. And, I'd just like to turn to the Mazurs now, and any of you could answer this. I know that you had mentioned that, from your home, you're in direct view of the project area?
A. (De Clercq-Mazur) Yes.
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Q. And, $I$ just wondered if you could tell us a little about what you feel that will do to the quality of your life or your ability to enjoy your home and the view?
A. (L. Mazur) Well, we --
A. (De Clercq-Mazur) We are going to be in full view of the turbines that will be erected on Mount Fletcher from our living room. And, we -- our property is fields, so there is not too many trees there. So, we're going to have a grand view of the Project. And, actually, from our bedroom, we can see the mountain, the delineation of the mountains from laying down in bed. So, once the turbines will be up, I guess we definitely will be noticing them.

And, the quality of our life: We, at this point, have been hearing the logging that's been going on there that's very unusual. We moved to Rumney seven years ago. And, suddenly, in April and May of this year, we are being woken up around 5:00 in the morning by noise of logging machine that's doing its job on Mount Fletcher. We certainly don't see what's going on there, it's not in our view, but we definitely hear the motor running. So, I assume, if we can here a logging machine, we will be exposed to the sound of those wind turbines, if they do make noise. I mean,
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which, from all our research, we have evidence that, in fact, they should make noise and they will make noise. Also, according to where the wind, you know, from where the wind flows in. Because, on some days, we hear the logging machine a lot better than on others, depending on whether the wind blows in from the south or from the north or the west.
Q. Is it your opinion that this logging that's taking place is based on where the turbines will be put, and this is in preparation of the Project?
A. (De Clercq-Mazur) We assume so. We haven't -- we hadn't noticed this logging going on before. So, we assume it's in preparation. Oh. We have noticed that, in May, there was a stretch of deforesting going on actually on the side of the mountain that goes up to Mount Fletcher. It's in our view from our backyard. And, to our knowledge, there hasn't been any logging going on on those mountain slopes for a very long time.
Q. Okay. And, for Dr. Mazur, I just wondered if you could give us some information as to your feelings of concern regarding health issues?
A. (L. Mazur) Okay. When I first heard about this Project, my wife and daughter went online to read up as much as possible about wind turbines and related
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matters. And, what they came across and what they asked me to put my nose into was the excessive online available literature regarding the phenomena referred to as "Wind Turbine Syndrome".

There have been a number of clinicians who have done field interviews over the past few years. Nina Pierpont, an MD/PhD practicing medicine in Upstate New York; Michael Nissenbaum, an MD/Radiologist, practicing in northern Maine, at Northern Maine Medical Center. And, they have interviewed and written about patients' complaints, which they formulate to attribute to the offensive effects of the wind turbines.

A syndrome, a hypothetical syndrome has been formulated, first by Dr. Pierpont, which she calls "Wind Turbine Syndrome". In which she includes the symptoms such as sleep problems, headaches, dizziness, unsteadiness, nausea, exhaustion, anxiety, anger, irritability, depreciation, concentration/learning problems, ringing in the ears, which she attributes to living proximal to industrial turbine sites.

There are some folks who consider this hypothetical syndrome plausible, and there are some folks who tend to minimize it. And, it's not clear in my mind whether this is a reasonable health issue of
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concern or not. However, it seems that, since wind turbines, you know, are a thing that is spreading throughout the world, before a licensing authority, such as this Committee, approve the installation of turbines, they should give thought to whether there is health hazard impact to innocent, nonvoluntary human beings.

There is also brought to my attention by Mr. Wetterer here a related syndrome, vibroacoustic disease, which is made much of in Western Europe. It's a 100 percent disability illness in Portugal, and it's been discussed at various conferences in Europe over the past few years. Initially, it was noted to affect airline industry professionals, working in proximity to plane turbines, such as a passenger crew or engineer or mechanic crew. But articles have also been reported finding the same type of pathology in civilian families living in houses perhaps a few thousand feet, you know, from turbine installations. And, pathology
demonstrated in children. They report one girl, age 10, as well as older individuals.

Now, these two syndromes are thought to have in common the secondary ill side effects of sound vibrations affecting the body of human beings. In the
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case of Wind Turbine Syndrome, the hypothesis is that the sound waves, audible or inaudible, infrasound or ultrasound, make their way into a few, perhaps random or pre -- or not everybody is prone to illness. I mean, I'm happy to hear that the good folks from Lempster testifying are free of any illness. But the hypothesis that, in some folks, perhaps randomly, the sound waves make their way into the inner ear and cause an inner ear disturbance, which, in my mind, is similar to what is referred to as "Meniere's syndrome", when the inner ear becomes inflamed, and the individual suffers intermittent episodes of dizziness and vertigo and headaches, and has to be treated, because it can be a quite offensive, obnoxious illness.

In the case of vibroacoustic disease, the Portuguese, and they have done studies with sophisticated radiologic x-ray imaging apparatus, with cardiological apparatus, they divide vibroacoustic disease into three stages. The first stage manifesting psycho-neurological symptoms. The second stage beginning to involve other inner organ symptoms. And, the third stage particularly zeroing in on ill effects on the heart and lung. Now, they write papers where they have used very sophisticated technology,
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evaluating the folks that have been diagnosed with this illness. And, they demonstrate that there is signs of cardiac myopathy, heart illness, and there is signs of the pulmonary fibrosis, pulmonary illness of the lungs. And, what they have hypothesized is that the sound waves, just as intense -- this is their analogy, just as the sound waves, if intense enough, can induce damage to inanimate objects, such as houses or ceilings or roofs, they believe that the sound waves can induce damage to the connective tissue in the human being. The connective tissue in the heart, requiring restabilization. And, they claim in their papers that they have evidence on these individuals that there's -that they sustain heart damage, requiring, if the patient survives, you know, restabilization of connective issue in the heart, as well as in the lungs, resulting in increased fibrosis of connective tissue, further compromising the breathing. And, if going on to getting worse and worse, incapacitating the individual. And, they finally, in Portugal at least, declared that, if such illness can be demonstrated in an individual, then it's considered a disability that can be reimbursed or supported by medical or social funds.
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So, I read about these things, and I say "Well, I don't know. I mean, Jesus, you know," -excuse me, I apologize, "I mean, you know, we all are concerned about increased global warming and the increased need to get to, you know, renewable energy sources, and that's all fine and dandy. But do these installations need to really be near human beings, since questions have been raised about possible health hazard?" And, I -- that was part of my questioning I believe to Mr. Devlin a few days ago, whether it made a difference, when a potential site was considered, whether human beings were living there or not? And, I think our -- we discussed this, you know, a number of times over the month. I mean, we're just trying to propose that, in the best of all possible worlds, these installations, until proven otherwise, should not be proximal to where human beings live, because they run the risk of health hazards and negligence to those humans.

And, we read, such as, you know, in the State of Vermont, you know, which we've shared with you, that the Legislature there is considering setbacks, to try to have some, you know, a standard or some attempt at putting proximity between humans and
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individuals.
Now, in my mind, as I thought about this subject back in May and June and through the summer, and I discussed it with colleagues, colleagues at Plymouth State University, we wondered it out, you know, how one could truly objectively test the hypothesis of illness that has come to attention due to survey studies, which some critics and opponents, and I'm sure we'll hear about it in a few minutes, find substandard. Well, medicine progresses, you know, through the millennia by observation. That's how -science begins with observation. And, then, you observe what you think is occurring in nature, and then, with a scientific method, you try to design a study with control variables and to test the hypothesis, to test cause-and-effect. Cause-and-effect laboratory objective studies regarding Wind Turbine Syndrome or vibroacoustic disease have not really been done with laboratory models. Nobody wants to subject voluntary humans, studies have been done with prisoners in the past, to possible illness. But studies could be done to design an experiment with, you know, acceptable laboratory models, such as rodents, if not primates, to subject them to the equivalent of various sound waves,
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audible or inaudible, infrasound or ultrasound, to see whether they can induce replication of illness to attempt to verify whether or not this is a acceptable, plausible illness or not.

And, all I've been saying is that, until which time such studies can be done, and I've written, you know, to the National Institutes of Health inquiring about such studies. I've written to Secretary of Energy Chu, you know, inquiring about such studies. Why run the risk of subjecting innocent, involuntary human beings to the risk of harm?

Now, we appreciate that our good neighbors in Groton have the right to participate in renewable energy and prosper. But we do not agree that they have a right to prosper at the potential risk of their neighbors in abutting towns, such as Rumney or Plymouth.
Q. Okay. If I understand you correctly then, in effect, you feel, because there hasn't been studies conducted, that, if this Project is approved, you and your family, in effect, and Mr. Wetterer as well, would all become ginny-pigs, as far as the future -- any future studies or as far as the overall health risk that you --
A. (L. Mazur) We feel that the inhabitants of the Baker
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River Valley, living along the slopes of Fletcher Mountain, living along Route 25, living in the Valley itself, living down Route 25, around the corner to Tenney Mountain, we have good friends who live right across from the entrance of Tenney Mountain, they will all be potential involuntary experimental ginny-pigs. And, that five or ten or fifteen years from now, not all of them, most of them not, but a number of them are at risk to present with serious illness. And, who is going to be responsible for such perceived negligence? So, why even propose building these installations near human beings? Build them at a -and nobody, and, you know, I was going to say "build them at a safe distance", but the true is, you know, nobody knows what a safe distance is. That was part of my questions yesterday to Mr. Tocci. Asking him, you know, "when sound wavelengths propagate along a flat plain or from a mountain ridge, I mean, when -- at what distance will they dissipate and no longer, you know, be manifesting their energy?" And, to my chagrin, he was not able to give me an answer or give us an answer. He said "there were too many variables involved." So, nobody really knows what a safe distance is. When legislatures, such as Vermont or
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elsewhere, propose a mile setback or two mile setback, I mean, someone is suggesting that out of the back of their head, the bottom of the hat, or whatever, and they're proposing that, but nobody really knows. So, why run the risk of putting them so proximal to human beings, the folks along Groton Hollow Road? Why subject -- subject such folks to that? That's my concern. And, that's the concern that we, here at this table, want to share with you folks sitting on the Committee. I think it's your responsibility to do right by the State of New Hampshire and the citizens of New Hampshire. And, not all new technology is completely, you know, 100 percent safe from possible sequelae of adverse impact. And, we don't know the answers, and I don't know that you folks know the answers, but we worry about it. And, we worry about it particularly because the fickle finger of fate brings this applicant to our neighborhood.

CHAIRMAN GETZ: Further questions? MS. LEWIS: I'm all set. Thank you. CHAIRMAN GETZ: Thank you.

Ms. Thibodeau.
MS. THIBODEAU: Yes. Thank you, Mr.
Chairman. Hello, panel. My name is Michelle Thibodeau,
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and I'm representing Counsel for the Public in this questioning.

BY MS. THIBODEAU:
Q. And, my first question is actually for Mr. Wetterer.
A. (Wetterer) Yes.
Q. Hello. How are you? Mr. Wetterer, you mentioned earlier that you submitted several articles and papers as part of your prefiled direct testimony. And, you had also mentioned earlier that you're a potter by trade, correct?
A. (Wetterer) Yes.
Q. And, you don't have any medical experience, do you?
A. (Wetterer) No, I don't.
Q. Okay. And, so, your understanding of these documents is -- would you say your general understanding?
A. (Wetterer) Yes. I'd say I'm a concerned citizen. I don't have a medical degree, of course. I have a BFA degree with high honors from the University of California. I have a Master of Fine Arts degree from the Maryland Institute. I was an exchange student at the University of Edinburgh. Received a Ford Foundation grant. But, no, I do not have medical training.
Q. Okay. And, from your general understanding of the
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documents, it sounds like you agree with what they say, correct?
A. (Wetterer) I think that there is -- there's so much information out there by people much smarter than I am, doctors, physicians, and then there's the testimony that has been collected of individuals who are actually living near wind farms, that have made the complaints of health affects, dizziness, nausea, and many other complaints, that have been so severe that they have been driven from their house. Now, if only some of those are correct, then there is a concern. There's so much information out there, it can't all be fabrication. There must be some truth to it.
Q. Okay. Thank you. I have actually a couple questions specifically for Ms. De Clercq-Mazur and Ms. Mazur. In your prefiled direct testimony, which, if you forgive me, $I$ just need to find the exhibit number, 14, in the second paragraph of your prefiled, you mentioned that there was specific data that you gathered. Were those just the articles and reports that have been mentioned or was there other data that you had collected?
A. (De Clercq-Mazur) We surfed the Web, starting in March, when we suddenly, after, you know, also an act of providence, we got to learn that this was -- this
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project was about to go forward, and pretty much a "done deal", as we were told by the townspeople. We went online and we surfed the Web, and we found a lot of information. And, all that information was not promising at all. It only just kept us in a -- more and more on our toes and more and more alarmed. And, even the secrecy with which this project was sort of sneaked upon us was already alarming from the beginning. We thought that anything that had to be so kept hush-hush couldn't be anything good coming our way.
Q. And, also in your prefiled direct testimony, you stated -- it's kind of cut up in my version. It's the third paragraph, most of the last sentence, you mention that the -- you have a "worry that [it] will render", "it" being the proposed project, "will render the...area unliveable." Can you just give a definition of "unliveable" and what you meant by that?
A. (De Clercq-Mazur) Well, I think, if you're kept out of your sleep at night and -- because of the sound waves that are coming your way from 12 turbines that are, you know, moving constantly 365 days a year, 7 days a week/24 hours a day, and you always have to be afraid from which way the wind is going to blow, because the
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sound might be terribly accentuated, depending on where the wind blows in. This is like when you live downwind from a chemical factory. I mean, you always have to be afraid that, you know, the days you won't be able to breathe when the wind comes from the wrong direction. So, we, you know, we just really are very concerned that that's going to be the case. That we just are going to be subjected to sound waves on a daily basis that, on some days, might be really totally unliveable.
Q. Okay. And, also this question is directed to you and to Ms. Mazur as well. I was wondering if your definition of "unliveable" is determined from what you've read online?
A. (De Clercq-Mazur) What we read online? Yes. Yes.
Q. Okay.
A. (De Clercq-Mazur) We have been reading a lot of statements from people who are now forced to live with turbines, and they can't sleep at night. We hear that some folks have to resort to rent communal homes to go to sleep in on nights that the sound is so pronounced that they can't possibly close an eye. And, I mean, who can live under conditions like that? And, not everybody has the means to close shop and pack their bags and go somewhere else. I mean, that was our first
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impulse. When we learned about this project coming our way, our first impulse was "Hey, we better put our house on the market, pack our bags, and look for somewhere else to go." But, then, we had to reconsider, because, I mean, that's not the way for, you know, a decent citizen actually to act. I mean, when people are going to scare you out of your house, why would you go running? Maybe you should, you know, stand, keep a stance and fight, if at all possible, with whatever means you have.
Q. Okay. And, in regards to --
A. (De Clercq-Mazur) Or any acceptable means.
Q. I'm sorry. In regards to those articles that you read online, do you -- neither of you have any medical background either, do you?
A. (De Clercq-Mazur) Medical background?
Q. Yes. Do you have any -- have you taken any -- do you have any training, medical training, or anything of that sort?
A. (De Clercq-Mazur) No, we have not. No.
Q. And, you don't either?
A. (S. Mazur) No. No.
Q. Okay. Fine. The one question I have to follow up on with what you mentioned earlier about thinking about
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moving out of the area, at any time did you attempt to sell your house?
A. (De Clercq-Mazur) We have not so far, because we just moved in seven years ago. For us, it was our retirement home. We came from living 16 years on Highland Street, in Plymouth, which is a very, very densely traffic street, the densest traffic in the area probably. And, we thought we had enough. After Wal-Mart moved, the noise in front of our door became so terrible that we were considering that it was just, I mean, for us time to move to quieter surroundings, because, I mean, you know we're getting a little bit on in years. So, we found this beautiful place in Rumney, Heaven on Earth, a fantastic view on these pristine mountains on all sides. We still can't believe our eyeballs when we get up in the morning and look around, and we see nothing on those mountains, those virgin mountains. And, it's going to be a sad thing to think that, you know, this area is going to be basically polluted by 24 enormous structures, who are going to be sticking up and constantly moving. I mean, they're going to make a fairground out of the area.
Q. Now, you had mentioned that noise was -- you fear that noise was going to be an issue. If there were no noise
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issues, would you feel that the view would make it unliveable to stay in your home?
A. (De Clercq-Mazur) If there was no noise issues, the view, I think we would reason that we would live with it, seeing that this is a green project, "renewable", and definitely the world needs other resources to produce electricity that we need so badly in our day and age. And, you know, the view of a turbine, but still, $I$ mean, the noise is not the only thing apparently that's obnoxious about it. It's the view, if it was just structures that were standing there, but they have enormous blades that are constantly turning around. And, actually, yesterday we were at the school -- the day before we were at the school to vote. And, from the little playground at the school, at 4:00 in the afternoon, the Sun was sitting right there over Fletcher. And, I guess we will be faced with light flicker from November, probably until February, shadow flicker, in, you know, late afternoon, when the Sun goes down over those mountains, behind those mountains.
Q. And, how close is your home in proximity to the school?
A. (De Clercq-Mazur) Personally, some people say that $I$ will have a means to know how close it is. We reckon maybe a mile and a half, as Ms. Lewis thinks --
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actually has a number, did you say your home is 1.3 miles from the site?
Q. Actually, can $I$ clarify just quickly? I was asking from the school, where you had made those observations?
A. (De Clercq-Mazur) The school is a lot closer than we are. The school is --
Q. So, your home, in the proximity from your -- the school to your home, what's the distance from the school to the home?
A. (De Clercq-Mazur) As the crow flies, I really don't know. The school is practically on Route 25. And, we are on Route -- on the Quincy Road. The school is across the river from us. It's much closer. You know, there's the east and west -- east and west side along the -- actually, it's the north and south side along the river. And, we are on the north side of the river, and the school is on the south side. So, you have the Baker River in between, and fields, you know, between our house and the school. So, the school is basically pretty much at the bottom of the, you know, of the Fletcher range.
Q. Okay. Thank you very much. My next set of questions is for Dr. Mazur. And, the first thing I wanted to ask you, Dr. Mazur, --
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## (Court reporter interruption)

BY MS. THIBODEAU:
Q. The first set of questions $I$ wanted to ask you were in regards to Mazur Exhibit Number 9. Do you have that with you?
A. (L. Mazur) Yes.
Q. And, it says here that that's a "Petition". That it looks to have been signed by members of -- or, I'm sorry, citizens of the Town of Rumney and a couple people who are visitors of Rumney, correct?
A. (L. Mazur) Christine and Sarah really worked on the Petition. I really was not involved with the Petition.
Q. Okay.
A. (L. Mazur) You might want to redirect that question to them.
Q. Okay. So, I guess the same question to you, Ms. De Clercq-Mazur and Sarah Mazur. This exhibit, Petition requesting, in part, that the Site Evaluation Committee suspend the current proceedings until more comprehensive scientific or medical assessments can be made, correct?
A. (De Clercq-Mazur) I'm sorry, I haven't quite understood. What's your question?
Q. I'm looking at Mazur Exhibit Number 9.
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A. (De Clercq-Mazur) Oh, the exhibit. Yes.
Q. So, in part, the Petition says that you're requesting the suspension of the Project --
A. (De Clercq-Mazur) Yes.
Q. -- until more comprehensive scientific or medical assessments can be made, correct?
A. (De Clercq-Mazur) Yes. Correct.
Q. And, it appears that approximately 44 people signed this?
A. (De Clercq-Mazur) Yes. The reason why all these 44 people -- oh, 44 people signed. Well, this petition was with the -- at the home, the shop of Mr. Wetterer. And, Sarah, my daughter and I took it upon us to go for a little randonnée and try to collect some of these signatures. And, we really never got any much further than Route 25, the Baptist Church grounds. And, the time it took us to get into people's homes, sit down, explain them the Project and what was coming their way, took us -- it was entertaining, but it was also very time-consuming and energy-consuming. And, I must say that we gave up on it. We probably would have been, if we had pushed through, we would have been able to come up with at least 100 signatures, I guess, spread over the Town of Rumney and Plymouth. But we gave up on it
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because we had better things to do.
Q. Okay. Well, I guess the question I had was specifically about one of the individuals who signed the Petition, on the second page, Number 22, "Victoria Collin". Do you know if this is the same Victoria Collin who spoke at the public hearing on June 28th?
A. (De Clercq-Mazur) Oh. It is, yes.
Q. Okay. And, she lives in -- she lives on Fletcher Mountain, in Groton, correct?
A. (Wetterer) Yes, she does.
Q. Okay. And, did she -- do you know if she had a lease agreement with the Applicant?
A. (De Clercq-Mazur) I don't know. I never talked to this woman. We were present at the meeting on the 28th of June, I guess. And, that's the first time that I ever saw this woman. And, she did -- I remember that she did talk about having lease agreements with the Applicant, and that $I$ cannot even say, whether it was with the Applicant or some other company, wind turbine company, I cannot.
Q. Okay.
A. (Wetterer) I know a little bit about that. I believe she was negotiating a contract with the predecessor of Groton Wind, but that she did not sign a contract with
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them or with the Applicant about this Project.
Q. Okay. Thank you, Mr. Wetterer. My next question is for Dr. Mazur. In your previously filed -- in your prefiled direct testimony, you state your credentials. And, I was wondering if your credentials are the same now as they were when you filed that prefiled direct testimony?
A. (L. Mazur) Are you talking about Exhibit 13?
Q. I am.
A. (L. Mazur) I'm still an MD. I'm still a Certified Diplomate in Adult Psychiatry of The American Board. I did not mention whether I'm licensed in New Hampshire. I'm presently not licensed in the State of New Hampshire. Still licensed in the State of Maine.
Q. Okay. But you're able to testify in these proceedings to your medical knowledge, correct?
A. (L. Mazur) Why not?
Q. Okay. And, you had mentioned earlier Dr. Pierpont's study. And, $I$ was wondering if -- she didn't conduct any physical examinations of family members in the study, did she?
A. (L. Mazur) My understanding is that she did interviews and solicited their complaint symptoms.
Q. Okay. And, that was telephonically, correct?
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A. (L. Mazur) I believe so, yes.
Q. Okay. And, those studies that were conducted by Dr. Alves-Pereira and Castelo that are mentioned in your Exhibit 2 is a two-family study, correct?
A. (L. Mazur) Well, they published a couple of papers. And, --
Q. But, specifically in Exhibit 2, it's a two-family study, correct?
A. (L. Mazur) Excuse me. Let me just take a look at that. Yes. Oh, yes. "Family R", yes, it is a two-family, and "Family F." It's a two-family study.
Q. Okay. And, you had mentioned earlier that there was a difference -- you had used a different term, but there is a difference between field studies and formal medical studies, correct?
A. (L. Mazur) Oh, there's difference between observation in the field and one -- one goes out and looks around and observes what they think is there to observe, and going back into a laboratory and trying to design and carry out an experimental project in which there are cause-and-effect variables that are both studied and also simultaneous variables that are attempted to be control forces that don't sort of fudge the data. And, to date, all of the studies on Wind Turbine Syndrome
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have been basically anecdotal field solicitation of symptom complaints. But the studies out of Portugal, one of the co-authors is, in fact, a pathologist. And, they are quite detailed, using a lot of respectable scientific -- medical/scientific technology to study their subjects.
Q. On --
A. (L. Mazur) But the laboratory cause-and-effect studies, to truly attempt to nail down a cause-and-effect relationship between wind turbines and possible health hazards for humans has not been carried out.
Q. Okay.
A. (L. Mazur) That's why I wrote letters to the NIH, to ask, you know, whether they would consider doing that at some time.
Q. And, in your letters to them, what was their response?
A. (L. Mazur) Well, let me see. There was the letter from Dr. Birnbaum -- a wrote a -- hand on, let me see where that is. Is that Exhibit -- oh, that's Exhibit 12, Mazur Exhibit 12. I wrote a letter to Dr. Collins, who is the Director NIH, National Institutes of Health, and he directed Dr. Birnbaum to answer me. And, I think, when Mr. O'Neal testified, I think I referenced that exhibit. If you like, I'll read the letter into the
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## record?

Q. No, that's okay. We already have it as an exhibit, so that's fine.
A. (L. Mazur) Okay. Well, the --
Q. The one question $I$ do have --
A. (L. Mazur) But the response, as I interpret it, is "I share your view that the environmental health effects of emerging technologies should be carefully investigated as our nation considers alternative energy sources. While NIH is not currently supporting research on this specific topic, it may well be that it would be appropriately considered under future funding opportunities." And, then goes on to say, "A recent interagency working group led by NIH calls for research on the health effects of both mitigation and adaptation activities in response to climate change." And, Mr. O'Neal I think differed in interpretation of that sentence. I interpreted is that she agrees that appropriate studies should be done on mitigating technologies, such as wind turbine.
Q. But they weren't able to offer you any funding at this time, correct?
A. (L. Mazur) Well, I didn't solicit funding.
Q. Did you solicit funding from anyone in order to conduct
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your own studies?
A. (L. Mazur) No.
Q. Okay.
A. (L. Mazur) But, in around the -- about the 25 th of June, I had agreed that, in October, November, and December of this year, I would be going up to cover the psychiatry services of Northern Maine Medical Center in Fort Kent, Maine, where Dr. Michael Nissenbaum works. And, I was looking forward to speaking with him in detail about his clinical survey research, and perhaps going further on that subject perhaps with him. I was looking forward to meeting him and talking with him about it. That has not come to be.
Q. So, you said earlier there is no formally accepted medical studies, meaning criteria that the medical community would accept, correct?
A. (L. Mazur) "Medical community" is diverse. And, any group or individuals, there can be a lot of --
Q. Any formal medical studies conducted on this issue?
A. (L. Mazur) There have been no formal laboratory designed, variable controlled experimental studies to test the hypothesis of Drs. Pierpont, Nissenbaum, others, regarding their speculative hypothesis about individuals -- certain, some individuals becoming ill
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from the effects of wind turbine-generated sound waves finding their way into the inner ear and causing disturbances in the inner ear. No, there haven't --
Q. How long would such a study take to conduct and complete? A year? Ten years? How long do you think?
A. (L. Mazur) Well, if the funds were available and the word went out that funds were available, then you would have to wait a while to see whether any respectable researchers in any medical schools or, you know, or respectable non-medical laboratories, you know, NIH funds a lot of research, doesn't necessarily do it at Bethesda, they will fund it, whether anyone is interested in doing that kind of research. And, then to carry it out, I would -- and to get it carried out and fine-tune the raw data and draft a paper and get it accepted for publication, I would say it wouldn't see the light of publication for at least two years.
Q. Okay.
A. (L. Mazur) One, you know, it might be one year to actually get funded and do the study, and then a certain amount of more time at the very least to crunch the numbers and to fine-tune it and draft a paper, and then feed it out to journals to see if there is a journal that might accept it for publication, you know.
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Or, you know, the process of getting something published, sometimes your write-up is returned and you're advised to do something else or do something better. So, I would guess it wouldn't see the light of a journal for the reading public for at least two years.

MS. THIBODEAU: Okay. Thank you. I have no further questions.

CHAIRMAN GETZ: Ms. Geiger?
MS. GEIGER: No questions.
CHAIRMAN GETZ: Okay. Questions from the Subcommittee? Mr. Scott.

DIR. SCOTT: Hello, Mr. Mazur.
Dr. Mazur, sorry.
BY DIR. SCOTT:
Q. Are you aware of the -- I assume you're aware of the statutory requirements on the Committee, being that we're to evaluate and potentially certify sources of power facilities over 30 megawatts? I assume you're aware of that, is that correct?
A. (L. Mazur) I assume that this Committee is delegated the responsibility to overview project proposals as you describe and to ensure that they will be a benefit to the state and the population of New Hampshire, without
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any adverse impact on -- on the environment wherein human beings live as well.
Q. Okay. With that, and please don't take my question as -- I certainly understand your concerns. The quandary I find myself in in my question is, is given, and if you don't agree, please tell me, that burning of any combustion source, gas, coal, oil, biomass, there are certain health effects. I'm not -- but my question is, if we take the same stance I think what you're asking, which I've heard it called a "precautionary principle" in the past, of making sure there's absolutely no impact before we move, do you envision we'd be able to issue a certificate for any facility?
A. (L. Mazur) I have had discussions, if not polite arguments, with friends over whether it is acceptable or not to entertain casualties for the sake of desirable technology. And, even though good friends of mine have argued that such casualties to environment and humans should be acceptable within some sort of a vague, socially agreeable definition, $I$ would not argue that at this stage in our society and culture. We have a history where the ill health impact of technology or artifacts of our culture did not become obvious to mankind until 50 years or centuries after that
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technology was invented and disbursed amongst mankind. Would we have, for example, would we have gone with the combustion engine for automobiles in the 1920s, instead of electric batteries, if we had any concept of a global warming threat 75 years later?

Some colleagues will use the example of cigarettes and the nicotin products that have been such an economic, integrated part of our nation for the last few centuries. When I was -- when we were children, advertisements had models dressed as doctors in white coats advertising cigarettes. "They were good to resolve your anxiety" and whatnot. And, now, we live a couple of years after a number of States' Attorney Generals are fighting to get, you know, negligence repayments from cigarette companies for the ill health consequences of cigarettes.

So, what I'm saying is "Yeah, I agree."
I think we all agree that we want to use less petroleum. We are very much alarmed about global warming. I mean, $I$ go to lectures, as recently as last week at Plymouth State, on that subject affecting New Hampshire. And, we're saying this technology is desirable, but it seems, in the minds -- in the eyes of some viewers, not to be 100 percent without setbacks or
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undesirable side effects. And, why run the risk until the regulating agencies, whether state or federal, can give 100 percent guarantee to its citizenry that they will not come to negligent harm by exposing this technology to humans?

Place them some sort of -- flip a coin, at a reasonable distance where humans live. You know, there's a big project, I think the biggest project in the country is going on in the Mojave Desert, where, you know, far from humans. I mean, does it have to be overlooking a river valley of a few thousand human beings that maybe will represent a population pool of experimental ginny-pigs in 10 or 20 years? I can do a song and dance about how negligence we have been in the past in our society, ordering active duty soldiers to stand at attention in the early 1950s to witness, you know, a nuclear detonation a few miles away. You know, providing radioactive iodine to orphans under the care of the Commonwealth of Massachusetts with no informed consent, just to study the effect of radioactive iodine. I mean, we --
Q. I think you've answered my question.
A. (L. Mazur) I think -- okay. Otherwise, it's good that you stopped me, otherwise I would just go on.
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CHAIRMAN GETZ: Mr. Dupee.
MR. DUPEE: Thank you, Mr. Chairman. And, thank you, members of the panel, for the time you spent with us this week. Very much appreciated. Brought a lot of attention to the matter. I do have a couple of questions.

BY MR. DUPEE:
Q. As my slip or name tag says, I represent the Department of Health \& Human Services, and, in particular, I work in the Division of Public Health. And, I think about topics that come to our attention all the time that require decisions and thoughts about exposures to disease and illness and the potentials of those things. So, I'm going to use the example maybe of something that's familiar to us recently, which would be either SARS epidemic or more recently H1N1, which was also called "Swine Flu". So, the first thing we ask ourselves and something seems to be coming along, you say "Is this novel? Is this something new? Has it not been seen before? Have people not been exposed to this? So, I would ask you, are there other wind farms in New Hampshire? Dr. Mazur?
A. (L. Mazur) Well, I think we've just heard about four or five public testimonies a few hours ago from the folks
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that live in Lempster.
Q. And, we have also wind farms in other parts of New England, correct?
A. (L. Mazur) Such as Mars Hill, Maine, and elsewhere.
Q. And, in the United States generally, other parts of the United States?
A. (L. Mazur) The wind farm industry is expanding in North America.
Q. And, in Europe, too, correct?
A. (L. Mazur) What we gather is the wind farm market has saturated Western Europe. What we gather, in the United Kingdom, recently this spring there was a big public outcry installing wind farms on land. And, I believe the Parliament decided to --

CHAIRMAN GETZ: So, the answer is "yes"?
Is the answer "yes"? That --
WITNESS L. MAZUR: Thank you.
MR. DUPEE: Thank you.
BY MR. DUPEE:
Q. So, it's not only in -- and then the second question $I$ raise, it's not that these facilities were all built in the last week and a half or last month or last year, or even years prior to that. So, one of the things, would you say that this is a first-time novel exposure to
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wind turbines that's being proposed here for Groton?
A. (L. Mazur) Correct me if I'm wrong, but I believe wind farm installations began to be installed in Europe perhaps eight to ten years ago. When I was last in Belgium, in Netherlands, about five years ago, there were wind turbines similar to what's proposed between the Belgium/Dutch border. I certainly was seeing them. And, so, I'm saying that they probably began, I'm guessing, eight to ten years ago perhaps.
Q. Thank you. I have another question for you. The next thing I might think about from a health public response is how much concern, how much weight do we put to this event? For example, when the Swine Flu was first being introduced scientifically to my community or your community, we heard a very high mortality rate down in Mexico, which, of course, is very alarming for us. So, when you were talking about the signs and symptoms of what you describe as "Wind Turbine Syndrome", you described a series of them. Could you recall those that you mentioned for me for symptoms and signs?
A. (L. Mazur) I will go right to Dr. Nina Pierpont. So, in a paper, in a copy, it's Mazur 8, in a testimony she gave to the New York State Legislative Energy Committee on March 2006. She describes sleep problems,
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headaches, dizziness, unsteadiness, nausea, exhaustion, anxiety, anger, irritability, depreciation, concentration/learning problems, and tinnitus, ringing in ears.
Q. And, those are things, Doctor, that we would not -(Court reporter interruption)

BY MR. DUPEE:
Q. And, so, $I$ was going to ask you, Doctor, that are those signs and symptoms, no one wants to have any of them, let alone all of them, but would you say those are life-threatening?
A. (L. Mazur) To those individuals who experience them, with no relief, they certainly compromise their perceived quality of life. And, it's possible that, if the stress that's induced from no relief from such symptoms does not let up, it's possible that they might be life-threatening.
Q. Doctor, those same symptoms were essentially things that can be reversed, correct? If you have -- if you're exposed to an agent and you develop a headache or you develop dizziness or you develop some other response to that, if that's taken away, then it's reversible?
A. (L. Mazur) I think Dr. Pierpont, in one of her papers,
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suggested that often it is reversed by those suffering by being forced to relocate away from the proximity of the industrial installation. Which is an imposition upon their quality of life, if that's what you're imposing. Now, can the symptoms be ameliorated with symptomatic medication? It depends on the individual; sometimes, yes, sometimes to a functionable degree.
Q. Typically, symptoms that are not life-threatening or not even a scale of criticality, and not terribly disastrous, helped at times to even call them that, and also they can be -- most of them are readily reversed. So, that brings me to my next point, which is --
A. (L. Mazur) Well, I beg your pardon. Sometimes symptoms can be contained, sometimes they can be resolved, and sometimes they cannot be. The patients that Drs. Pierpont and Nissenbaum have been discussing, these are patients that, at the time of publication of their communications, their papers, continue to suffer, have not found relief. Now, in my prefiled testimony, I go on to suggest that this is an interesting subject for exploration. That it's possible, in a population of folks complaining of symptoms, allegedly secondary to Wind Turbine Syndrome, there may be some folks that are
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confabulating for motivation of secondary gain, they look maybe for remuneration. There may be folks that find the very idea of the visual or otherwise of turbines stressful that they may be embellishing these symptoms. But it's also possible that, within that population, there are folks that generally experienced offensive, obnoxious physiological symptoms, which may or may not be ameliorated or not. And, it's possible to try to tease that population apart by doing either laboratory-controlled studies or, as my colleague, John Coley [sic], Professor of Psychology, suggested, but declined to be -- lend himself as an expert witness here, do well-designed epidemiological studies. Now, I understand, I believe in Upstate New York, county -one of the counties there, a year or two ago was trying to gather epidemiological study to present eventually a formal paper about whether there's any reason to be concerned about these sort of complaints.
Q. I think you've answered my point. So, thank you very much.
A. (L. Mazur) Okay.
Q. I have two more things that I'd just like to build upon the last point you made. One is this response, another thing to consider is, you know, "how serious is this?
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Is it novel?" We heard folks today say "we live next to -- literally next to or adjacent to a wind turbine, but they don't experience the symptoms." So, it is a bit of a quandary. Your point is well taken, and not every individual will react in the same sort of way to stimuli. So, we recognize that that's the case.
A. (L. Mazur) I would --

CHAIRMAN GETZ: Well, let's let
Mr. Dupee finish his question.
BY MR. DUPEE:
Q. So, that brings us --

WITNESS L. MAZUR: I wasn't sure if that was a question or an opinion he was expressing.

MR. DUPEE: It was a prelude to a question.

WITNESS L. MAZUR: So, it was an opinion as a prelude. May I answer --

CHAIRMAN GETZ: Dr. Mazur, please stop, let Mr . Dupee proceed.

MR. DUPEE: Thank you, Mr. Chairman, and thank you, Dr. Mazur.

BY MR. DUPEE:
Q. So, where I would like to go with this is the next part is the well-designed epidemiological study. And, what
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we have said is that this is not a new phenomenon and wind turbines are not new around the world. That there has been certainly hearings such as this conducted in other parts of our state, and I likely participated in many of those hearings. So, it's not a new phenomenon. And, we certainly have heard about various health concerns raised, and some very -- I'm not in any way trying to suggest that these are illegitimate, or ill-conceived, or unimportant, and please don't misunderstand me on that. But we're at a point now where people in the medical profession, my profession are going to say, "Is there something happening here which is a cause and effect? Is there an actionable event here which can be studied?" And, the way that happens typically is ideas are floated, and people learn and study, and then they pick up and maybe form a hypothesis and test it.

So, in this case, I would like to ask you, are you aware of any federal agencies that have been approached to see if they want to fund this kind of study?
A. (L. Mazur) Well, that's why I wrote the letter to the National Institute of Health.
Q. And, their response to you, sir, was?
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A. (L. Mazur) I believe you have a copy of it. You certainly can -- it was a short response, it's easy to read, and I'll read it again.
Q. You don't need to read it. But did they basically say to you that they weren't going to perform such a study?
A. (L. Mazur) No, they did not say that.

CHAIRMAN GETZ: Are we talking about Exhibit 12, Mazur 12?

WITNESS L. MAZUR: Exhibit 12. Thank you.

CHAIRMAN GETZ: I think there's been enough discussion of that letter in the record. We can draw our own conclusions.

WITNESS L. MAZUR: Well, I view that letter as they found my inquiry as intriguing, and that they were sympathetic to the need to do research. That's how I interpreted their response.

CHAIRMAN GETZ: And, that's his opinion on this letter. It's in the record more than once. Let's move on.

MR. DUPEE: Okay. Thank you,
Mr. Chairman.
WITNESS L. MAZUR: I would take the
liberty, if I may --
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CHAIRMAN GETZ: No, let's -- we're moving on, because it's the same topic. We've heard this. This is repetitive testimony. It's the same issue. Let's move on, Mr. Dupee.

WITNESS L. MAZUR: But may I complete my sentence, short?

CHAIRMAN GETZ: No. Return to Mr. Dupee. This is -- the testimony is cumulative, repetitive. Let's move on.

BY MR. DUPEE:
Q. Then, let me wrap up my line of questioning then for the benefit of all in the room. So, Dr. Mazur, would it be your understanding that the concept of Wind Turbine Syndrome has been reasonably well vetted in the population, meaning there have been permits, such as this, issued around the country, that there's literature out there, that there are websites that people can go to, and certainly there's been no shortage of opportunity for the medical community to be aware of these things. And, is that your understanding, sir?
A. (L. Mazur) No, it's not my understanding at all. Because, informally, I've taken the liberty of broaching this subject with colleagues at a hospital
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setting. And, I think most individuals don't know anything about Wind Turbine Syndrome, unless they are faced with the proposal for a wind turbine site, and then they began to read. I was really quite, $I$ don't know, I was surprised, but I noted most of my colleagues, they didn't have the slightest idea of what Wind Turbine Syndrome was about. And, I spoke with ENT doctors, in particular.

MR. DUPEE: Thank you, Dr. Mazur.
You've answered my questions.
WITNESS L. MAZUR: Okay. May I just refer the Committee member again to Exhibit 1 , in your free time, to review that epidemiologist. Thank you very much.

CHAIRMAN GETZ: Other questions?
Mr. Steltzer.
MR. STELTZER: Yes. Just one question.

## BY MR. STELTZER:

Q. When Mr. Cherian was providing some testimony regarding the location of the distribution lines, he provided, and correct me if I'm wrong if this wasn't your understanding, that there were two reasons why there is this alternative route that's been discussed, which is accessing, making a cut through the forest and going
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over two parcels down to Route 25, rather than Groton Hollow Road. But, recognizing none of you live on Groton Hollow Road, but one of the concerns that he had raised was that residents objected to these 34 -- 34.5 kV lines going down Groton Hollow Road. Do you have any comments that you might be able to share with the Committee on what some of those concerns are from the residents?
A. (Wetterer) Well, I really don't know that much about it, but there are concerns about electromagnetic radiation from power lines. Whether it would be a factor with 34 K lines or not, or whether it's only higher voltage lines, I really couldn't say. I'm not an expert on that. But $I$ know high transmission lines, you can't build or you shouldn't build houses near them. My parents lived in, for many years, in an apartment in California, and there were transmission lines near them, but directly under them the land was used for growing ornamental plants for a nursery. But they could not build houses under them.

MR. STELTZER: Okay. Thank you.
CHAIRMAN GETZ: Any other questions from the Subcommittee? Mr. Iacopino.

MR. IACOPINO: I just have two
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questions. And, I don't know whether Dr. Mazur or Mr. Wetterer is the correct person to answer this. BY MR. IACOPINO:
Q. But you put into the record Vermont's bill -- House Bill 677. And, you've just sort of put it in the record. I assume, is that -- are you suggesting that that is something that's been approved by the Vermont Legislature?
A. (L. Mazur) No.
A. (Wetterer) No. We're not suggesting it's been approved, but it's proposed, based on people's concerns about wind farms.
A. (L. Mazur) And, as I mentioned it yesterday, I tried to clarify, and I apologize if I -- I tried to clarify that I was aware there was a proposal, but I was not aware that it had even been voted on or was now statutory.
Q. In your research to find Vermont bill, House 677, did you also see Vermont Senate Bill 63, an act limiting zoning powers that would interfere with the functional use of renewable wind facilities?
A. (Wetterer) No.
Q. So, there's a bill in the Vermont Legislature seeking to decrease local control over wind facilities. Were
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you aware of that?
A. (Wetterer) No.
Q. And, secondly, Mrs. Mazur and Sarah, have you ever taken the opportunity to go to an operating wind farm and see and hear the facility yourselves?
A. (S. Mazur) We were recently in western Massachusetts, and I think outside of Williamstown, the Berkshires, where there is a -- I believe it's a 10 -- 10-turbine site that is not operating at this time. It's been stalled due to a lawsuit from one of the abutting or neighboring business owners.
Q. So, you haven't been able to actually hear or see an actual operating wind tower?
A. (S. Mazur) No.
A. (L. Mazur) We have spoken to folks that have some -MR. IACOPINO: I didn't ask you, Doctor. I asked your wife, okay? Just a specific question. I have no further questions.

BY THE WITNESS:
A. (De Clercq-Mazur) If you asked me a question, I have seen wind turbines in operation in my home country, Belgium, where they were installed along the canal, in
a heavy duty -- where they only build chemical
factories and other industrial installations. I don't
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-- I'm told that they also have been building them in the fields, in farm fields and stuff like that. But the ones I saw was along the industrial.

BY MR. IACOPINO:
Q. And, when was that?
A. (De Clercq-Mazur) It was in 2006.
(Court reporter interruption.)
CHAIRMAN GETZ: One or more of you is going to have to speak up, but only one person -WITNESS DE CLERCQ-MAZUR: One at a time. CHAIRMAN GETZ: -- speak at a time. WITNESS L. MAZUR: You want her to repeat her answer?

MR. PATNAUDE: Actually, it was Sarah that $I$ didn't hear.

MS. S. MAZUR: Well, she -- you
mentioned that their spacing --
WITNESS DE CLERCQ-MAZUR: Well, the question was whether we saw or experienced wind turbines from close up, whether we have been there? I have not lived with wind turbines. I was not -- I didn't go on the trip to Lempster. And, I really have no experience with wind turbines. The only thing that we know about wind turbines is about the very, very extensive reading that
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you can do online, from people that live with them and complain about them, and have moved away or want to move or just suffer underneath. That's basically the answer. MR. IACOPINO: One more question.

BY MR. IACOPINO:
Q. Dr. Mazur, you had indicated that you believe the wind turbines have been in heavy use in Europe for the last eight or ten years. Are you aware that utility scale wind projects have been in the United States for about 30 years now?
A. (L. Mazur) Utility wind --
Q. Utility scale. Large scale wind farms.
A. (L. Mazur) Near human beings?
Q. Altamont, California was commissioned in 1980.
A. (L. Mazur) Your implication is then?
Q. I'm just asking if you're aware of that, that it's actually been used for that period of time?
A. (L. Mazur) Going back 30 years? No.

MR. IACOPINO: I have no further questions.

CHAIRMAN GETZ: Okay. Anything further from the Subcommittee?
(No verbal response)
CHAIRMAN GETZ: All right. Then,
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hearing nothing, thank you all very much. You're excused. WITNESS WETTERER: Thank you.

CHAIRMAN GETZ: One item, though, I would like to follow up on, and -- well, I'll give the witnesses an opportunity to go back to their seats. Ms. Geiger?

MS. GEIGER: Yes.
CHAIRMAN GETZ: I don't know if you can make an offer of proof on this. As I understood the testimony of the Mazurs, there was something to the effect that it sounded like there was clearing going on on Tenney Mountain or one of the ridges that they maybe were concerned that might have some relationship to activities being taken by or conducted by the Applicant. Obviously, there's no authority granted by this Committee at this point to begin any construction activities related to the site. So, can you tell me whether the Applicant is clearing land or anything of that nature with respect to site clearing?

MS. GEIGER: Mr. Chairman, I don't have any personal knowledge of that. And, I don't have any reason to believe that the Applicant would be doing that. Because, as you pointed out, there is no -- there has been no certificate granted here.
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Mr. Cherian has just informed me that the Applicant is not doing any work or clearing at the site. I think there's been ample testimony in the record to the effect that this is an active logging site. And, there are loggers who are unrelated to the Applicant who are working in portions of the Project site. But that, to my knowledge, that's not anything, according to Mr. Cherian, that's not something that the Applicant is doing.

CHAIRMAN GETZ: Okay. Thank you. All right. Our plans for tomorrow is to conduct the testimony by videoconference at 9:00 with Mr. McCann, then we would turn to the other members of that intervenor group, Mr. Buttolph, Mr. Spring, and Ms. Lewis.

At this point, I'd like to just let's get through all the testimony. Once all of that's done, then let's address the outstanding issues, hear from the parties, I expect this would be after lunch tomorrow, where we are in Exhibit 44 and other issues related to completion of the record stemming from the Fish \& Game letter most recently received, the Historical Resources issue, and, generally, the issues related to the Exhibit 44 and the panel, who I don't expect to be here tomorrow. I'm not expecting that we would reach them tomorrow in any \{SEC 2010-01\} [Day 4 ~ Afternoon Session Only] \{11-04-10\}
event.
So, anything that we need to address before we recess this evening?

MS. GEIGER: I just have one minor point, Mr . Chairman. In an effort to try to compile the record request responses that have been made up to this point in the proceeding, $I$ have a few documents that I'd like to, $I$ don't know that $I$ need to pass them out now, they're not significant, you know, I mean they're significant because they have been requested, but it's not anything that we need to have passed out for tomorrow's testimony. I was just wondering -- just wanted to make the parties aware that we do have them, we will be endeavoring to bring in more tomorrow. And, so, I'm just looking for a little guidance on what I should do with them? I have not prepared a cover letter to submit, and I'm just wondering if it's okay if I just hand them out to the Clerk and the Committee and the other parties?

CHAIRMAN GETZ: I think that's fine. Distribute them, make sure the Clerk has a full packet, and then give them to Mr . Iacopino, and we'll all get our copies.

MS. GEIGER: I guess my point is, I don't have them all done yet, but I've got a couple of
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them done. And, I thought I'd just hand them out and go along from there tomorrow.

CHAIRMAN GETZ: I think that's fine. MS. GEIGER: Okay.

CHAIRMAN GETZ: Dr. Mazur.
DR. MAZUR: Just to point out that I don't believe there will be any members of the Mazur/Wetterer Group present tomorrow. But that I, in preliminary discussions between the Applicant and this side of the aisle, I concurred with Mr. Roth's tentative motion, which he'll put to you tomorrow. So, I'll be happy to have the Buttolph/Lewis and Counsel for the Public group speak on the Mazurs' behalf as well.

CHAIRMAN GETZ: Okay. Fine. Thank you.
Anything else?
(No verbal response)
CHAIRMAN GETZ: Hearing nothing, we'll
recess until 9:00 a.m. tomorrow morning. Thank you.
(Whereupon the hearing was adjourned at 5:42 p.m, and to reconvene on November 5, 2010, at 9:00 a.m.)
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|  | 13 (5) | 23;89:5;148:21 | 5:19 | 131:22 |
| :---: | :---: | :---: | :---: | :---: |
| [ | $\begin{aligned} & 49: 17 ; 50: 16,18 ; 88: 3 \\ & 119: 8 \end{aligned}$ | 2010-01 (1) | 4:00 (1) | 8/24/09 (1) |
|  |  | 5:4 | 114:15 | 67:2 |
|  | 13th (1) | 2-1 (1) | 4:15 (1) | 8th (1) |
| 45:16;46:16 | $\begin{aligned} & 12: 24 \\ & 14(8) \end{aligned}$ | $\begin{gathered} 66: 14 \\ 22(1) \end{gathered}$ | $\begin{array}{\|c} 86: 3 \\ \mathbf{4 : 1 6 ( 1 )} \end{array}$ | 46:4 |
| [Bat] (1) |  |  |  |  |
| 66:8 | $\begin{aligned} & 8: 15 ; 12: 10 ; 58: 6 ; 82: 9 \\ & 89: 4,14,15 ; 109: 17 \end{aligned}$ | 118:4 | 86:7 |  |
| [But] (1) |  | $\begin{gathered} 24 \text { (1) } \\ 113: 20 \end{gathered}$ | $\begin{aligned} & 40(1) \\ & 38: 21 \end{aligned}$ | 9 (2) |
| 78:14 | 15 (4) |  |  |  |
| [doesn't] (1) | $\begin{aligned} & \text { 49:1;50:23;88:16,23 } \\ & \text { 15th (1) } \end{aligned}$ | $\begin{array}{r} \text { 24/7 (1) } \\ 90: 19 \end{array}$ | 400-pound (1) | 116:4,24 |
| 83:7 |  |  | 5:19 | 9:00 (3) |
| [is] (1) | $\begin{array}{\|r} \text { 15th (1) } \\ 61: 10 \end{array}$ | $\begin{array}{r} \text { 90:19 } \\ \text { 24th (1) } \end{array}$ | 403 (1) | 146:12;148:18,21 |
| 34:8 | 16 (1) | $\begin{gathered} 23: 9 \\ \mathbf{2 5}(7) \end{gathered}$ | 78:10 | A |
| [it] (1) | $\begin{aligned} & 113: 5 \\ & \mathbf{1 6 1 ( 1 )} \end{aligned}$ | $\begin{aligned} & 8: 20 ; 87: 10 ; 106: 2,3 ; \\ & 115: 11 ; 117: 16 ; 140: 1 \end{aligned}$ | $44 \text { (5) }$ |  |
| [reference] (1) | 22:6 |  | $\begin{aligned} & 8(2) \\ & 82: 23: 83: 1 \end{aligned}$ | ability (2) |
| 94:14 |  | 25th (1) |  | $\begin{aligned} & 12: 9 ; 97: 3 \\ & \text { able }(\mathbf{1 8}) \end{aligned}$ |
| [related] (1) | $\begin{aligned} & 8: 13 ; 80: 3,4 \\ & \mathbf{1 7 5 ( 1 )} \end{aligned}$ | $\begin{array}{r} 123: 4 \\ \text { 26th }(2) \end{array}$ | 5 |  |
| [should] (1) | $\begin{array}{r} 175 \text { (1) } \\ 10: 7 \end{array}$ | 23:10;46:17 |  | $\begin{aligned} & 5: 21 ; 13: 24 ; 16: 12 ; \\ & \text { 19:21;25:21;40:6;56:1, } \end{aligned}$ |
| [should] ${ }^{\text {39:20 }}$ | 18 (1) | 28 (10) | 5 (7) | 15;80:12,17;106:21; |
| [sic] (2) | $\begin{array}{r} 85: 16 \\ \mathbf{1 8 1 9}(1) \end{array}$ | 37:7;45:8,16;46:16; | 23:20,20;27:5;34:16; | $\begin{aligned} & 111: 4 ; 117: 22 ; 119: 15 \\ & 122: 21 ; 126: 12 ; 140: 6 \end{aligned}$ |
| 26:12;134:11 |  | 49:22;50:2;63:4;65:4; | 70:20,23;148:21 |  |
| [southwards (1) | 87:9 | 66:9;95:3 | 5:00 (1) | $\begin{array}{r} 142: 12 \\ \text { above (4) } \end{array}$ |
| 78:16 | $\begin{gathered} 19(1) \\ 85: 16 \end{gathered}$ | 28th (3) $46: 5 ; 118: 6,14$ | 5:42 (1) |  |
| 1 | 1920s (1) | 29 (1) | 148:20 | absence (2) |
|  | 127:3 | 49:22 | 50 (1) | $69: 6 ; 81: 10$ |
| 1 (4) | 1950s (1) |  | 126:2 | absent (2) |
| $\begin{aligned} & \text { 27:5;71:10;83:4; } \\ & \text { 139:12 } \end{aligned}$ | $\begin{array}{r} \text { 128:16 } \\ \text { 1970's (1) } \end{array}$ | 3 | 58.2 (1) | $28: 17 ; 51: 10$ |
|  | $\begin{gathered} 52: 6 \\ \mathbf{1 9 8 0}(\mathbf{1}) \\ 144: 14 \end{gathered}$ | 3 (8) | 5th (2) | 73:8 |
| 1.3 (1) |  | 15:11;21:8;27:5; | 48:1,6 | absolutely (2) |
| 1/100ths (1) |  | 58:14,22;59:15;77:22; $85 \cdot 19$ |  |  |
| 38:1 | 2 | $\begin{array}{r} 85: 19 \\ \mathbf{3 : 3 7}(\mathbf{1}) \end{array}$ |  | abstract (1) |
| $\begin{aligned} & 18: 18 ; 67: 2 ; 100: 21 ; \\ & 128: 13 ; 142: 8 \end{aligned}$ | 2 (10) | 88:3 ${ }^{\text {3 }}$ (1) | 6 (2) | abundance (3) |
|  |  |  | 66:15,18 | 17:20;43:23;46:3 |
| 10,000 (1) | 23:21;37:18;43:10; | 86:6 | $60(2)$ | abutters (1) |
| 11:22 | 67:2;78:10;83:6,11; | 30 (9) | 45:19;71:1 | 11:3 |
| 10/26 (1) | $\begin{aligned} & \text { 94:24;120:4,7 } \\ & \mathbf{2 , 7 0 0 ( 1 )} \end{aligned}$ | $\begin{aligned} & 7: 21 ; 39: 11 ; 45: 9 ; \\ & 49: 23,24 ; 50: 3 ; 125: 19 ; \\ & 144: 10,18 \end{aligned}$ | 63 (1) | $\begin{array}{\|l\|} \hline \text { abutting (3) } \\ 11: 1 ; 105: 16 ; 142: 10 \end{array}$ |
| 67:15 |  |  | 141:19 |  |
| 10/26/09 (1) | $75: 6$$2.1(3)$ |  | 677 (2) | $\begin{array}{\|c} \text { academics (1) } \\ 82: 15 \end{array}$ |
| 67:2 |  | 31st (1) | 141:5,18 |  |
| 100 (5) | (66:7,20,22 | 34 (2) | $\begin{gathered} \text { th (1) } \\ 46: 18 \end{gathered}$ | $\begin{aligned} & \text { Academy (1) } \\ & \text { 96:15 } \\ & \text { accentuated (1) } \end{aligned}$ |
| 100:11;107:13; |  |  |  |  |
| 117:23;127:24;128:3 1039 (1) | $\begin{gathered} \mathbf{2 0}(\mathbf{1}) \\ 128: 13 \\ \mathbf{2 0 n 1}: 1 \mathbf{1} \end{gathered}$ | 140:4,12 $\mathbf{3 4 . 5}$ (1) | 7 |  |
| 1039 $37: 16$ | $2001(1)$ $79: 19$ | $\begin{array}{\|r} \hline 34.5(\mathbf{1}) \\ 140: 4 \end{array}$ |  | $\begin{gathered} 111: 1 \\ \text { accept }(4) \end{gathered}$ |
| 10-turbine (1) | $\begin{array}{\|l\|} \hline 2003(2) \\ 46: 14 ; 48: 21 \end{array}$ | 35 (1) | 7 (1) | $\begin{aligned} & 6: 18 ; 84: 6 ; 123: 16 ; \\ & 124: 24 \end{aligned}$ |
| 142:8 |  | 92:22 | 110:22 |  |
| 11 (1) | $\begin{aligned} & \text { 2006 (3) } \\ & 5: 15 ; 131: 24 ; 143: 6 \end{aligned}$ | 365 (1) | 744 (3) | $\begin{aligned} & \text { acceptable (7) } \\ & 35: 1 ; 39: 1 ; 104: 22 ; \end{aligned}$ |
| 18:17 |  | 110:22 | 87:13,16,22 |  |
| 118 (2) | $\begin{array}{r} 2007(1) \\ 93: 16 \end{array}$ | 389 (1) | 75 (1) | accepted (3) |
| $\begin{gathered} \text { 11th (2) } \\ 88: 3,13 \end{gathered}$ |  | 78:10 | 127:5 |  |
|  | 2009 (7) | 4 | $\begin{aligned} & 774 \text { (2) } \\ & 87: 7,17 \end{aligned}$ | accessing (1) |
|  | $\begin{aligned} & \text { 23:9;61:10;62:5;66:8, } \\ & 15,20 ; 67: 1 \end{aligned}$ |  | $78 \text { (1) }$ | $\begin{array}{r} \text { accessing } \\ 139: 24 \end{array}$ |
| 12 (9) | $\begin{aligned} & \text { 2009-2010 (1) } \\ & \text { 62:6 } \\ & \mathbf{2 0 1 0}(\mathbf{1 1 )} \\ & 16: 2,18 ; 38: 17 ; 45: 4 \\ & 46: 14 ; 48: 21 ; 61: 23 ; 88: 3, \end{aligned}$ | $\begin{aligned} & \mathbf{4 ( 1 0 )} \\ & 20: 18 ; 21: 4,5 ; 33: 22 \\ & 38: 4 ; 39: 15 ; 40: 18 ; 63: 5 \\ & 10 ; 66: 12 \\ & \mathbf{4 , 0 0 0}(\mathbf{1}) \end{aligned}$ | $\begin{aligned} & 78 \text { (1) } \\ & 27: 16 \end{aligned}$ | $\begin{aligned} & \text { accompanied (1) } \\ & 64: 19 \\ & \text { according (2) } \\ & 98: 3 ; 146: 7 \\ & \text { account (2) } \end{aligned}$ |
| $\begin{aligned} & 110: 21 ; 121: 19,20 ; 137: 8 \text {, } \\ & 8,9 \end{aligned}$ |  |  | 8 |  |
| $\begin{gathered} \text { 12-month (1) } \\ \text { 18:12 } \end{gathered}$ |  |  | 8 (1) |  |


| 44:5;47:1 | 135:2 | against (3) | alternative (3) | 53:5;79:9,12;91:14; |
| :---: | :---: | :---: | :---: | :---: |
| accuracy (1) | adjourned (1) | 10:18;35:9;73:18 | 6:5;122:9;139:23 | 103:3;141:14 |
| 15:22 | 148:19 | age (2) | although (3) | Appalachians (1) |
| accurate (1) | adjusting (1) | 100:20;114 | 18:17;27:10;55:20 | 77:2 |
| 34:22 | 21:21 | agencies (5) | altitude (2) | apparatus (2) |
| achieve (1) | administrative (1) | 33:3,11;85:13;128:2; | 75:5;79:1 | 101:17,18 |
| 27:2 | 49:21 | 136:19 | altitudes (1) | apparently (2) |
| achieved (2) | admission (1) | agent (1) | 78:4 | 25:10;114:10 |
| 19:23;59:18 | 9:7 | 132:20 | Alves-Pereira (2) | appear (2) |
| Acoustic (2) | adopt (1) | ago (8) | 93:14;120:3 | 14:11;92:3 |
| 16:2;51:15 | 89:17 | 97:17;103:10;113:4; | always (2) | appeared (3) |
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| 45:22;59:5,9;99:1 | 5:21 | agree (19) | Amanda (1) | appears (1) |
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| Act (4) | 119:11 | 37:21;38:20;40:15;58:9; | ameliorated (2) | Appendices (1) |
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| 141:19 | 54:1 | 72:16;75:2;80:17;84:16; | America (6) | Appendix (3) |
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| 72:10 | 62:22;76:22 | 127:17,18 | 130:8 | applicable (1) |
| actionable (1) | advantages (1) | agreeable (1) | American (2) | 59:4 |
| 136:13 | 73:17 | 126:20 | 7:3;119:11 | Applicant (46) |
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